
AWS Elastic Beanstalk

Developer Guide

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AWS Elastic Beanstalk: Developer Guide

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What Is AWS Elastic Beanstalk?

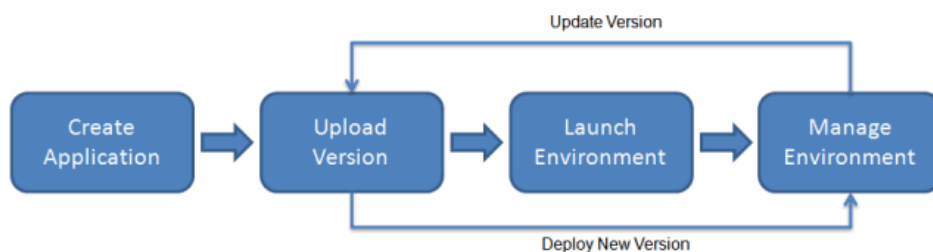
Amazon Web Services (AWS) comprises dozens of services, each of which exposes an area of functionality. While the variety of services offers flexibility for how you want to manage your AWS infrastructure, it can be challenging to figure out which services to use and how to provision them.

With Elastic Beanstalk, you can quickly deploy and manage applications in the AWS Cloud without worrying about the infrastructure that runs those applications. AWS Elastic Beanstalk reduces management complexity without restricting choice or control. You simply upload your application, and Elastic Beanstalk automatically handles the details of capacity provisioning, load balancing, scaling, and application health monitoring. Elastic Beanstalk uses highly reliable and scalable services that are available in the [AWS Free Usage Tier](#).

To learn more about the AWS Free Usage Tier, and how to deploy a sample web application in it using AWS Elastic Beanstalk, go to [Getting Started with AWS: Deploying a Web Application](#).

You can also perform most deployment tasks, such as changing the size of your fleet of Amazon EC2 instances or monitoring your application, directly from the Elastic Beanstalk web interface.

To use Elastic Beanstalk, you create an application, upload an application version in the form of an application source bundle (for example, a Java .war file) to Elastic Beanstalk, and then provide some information about the application. Elastic Beanstalk automatically launches an environment and creates and configures the AWS resources needed to run your code. After your environment is launched, you can then manage your environment and deploy new application versions. The following diagram illustrates the workflow of Elastic Beanstalk.



After you create and deploy your application, information about the application—including metrics, events, and environment status—is available through the AWS Management Console, APIs, or Command Line Interfaces, including the unified AWS CLI. For step-by-step instructions on how to create, deploy, and manage your application using the AWS Management Console, go to [Getting Started Using Elastic Beanstalk \(p. 3\)](#). To learn more about an Elastic Beanstalk application and its components, see [Elastic Beanstalk Components \(p. 13\)](#).

Elastic Beanstalk provides developers and systems administrators an easy, fast way to deploy and manage their applications without having to worry about AWS infrastructure. If you already know the AWS resources you want to use and how they work, you might prefer AWS CloudFormation to create your AWS resources by creating a template. You can then use this template to launch new AWS resources in the exact same way without having to recustomize your AWS resources. Once your resources are deployed, you can modify and update the AWS resources in a controlled and predictable way, providing the same sort of version control over your AWS infrastructure that you exercise over your software. For more information about AWS CloudFormation, go to [AWS CloudFormation Getting Started Guide](#).

Storage

Elastic Beanstalk does not restrict your choice of persistent storage and database service options. For more information on AWS storage options, go to [Storage Options in the AWS Cloud](#).

Pricing

There is no additional charge for Elastic Beanstalk. You pay only for the underlying AWS resources that your application consumes. For details about pricing, see the [Elastic Beanstalk service detail page](#).

Community

Customers have built a wide variety of products, services, and applications on top of AWS. Whether you are searching for ideas about what to build, looking for examples, or just want to explore, you can find many solutions at the [AWS Customer App Catalog](#). You can browse by audience, services, and technology. We also invite you to share applications you build with the community. Developer resources produced by the AWS community are at <http://aws.amazon.com/resources/>.

Where to Go Next

This guide contains conceptual information about the Elastic Beanstalk web service, as well as information about how to use the service to deploy web applications. Separate sections describe how to use the AWS Management console, command line interface (CLI) tools, and API to deploy and manage your Elastic Beanstalk environments. This guide also documents how Elastic Beanstalk is integrated with other services provided by Amazon Web Services.

We recommend that you first read [Getting Started Using Elastic Beanstalk \(p. 3\)](#) to learn how to start using Elastic Beanstalk. Getting Started steps you through creating, viewing, and updating your Elastic Beanstalk application, as well as editing and terminating your Elastic Beanstalk environment. Getting Started also describes different ways you can access Elastic Beanstalk. We also recommend that you familiarize yourself with Elastic Beanstalk concepts and terminology by reading [How Elastic Beanstalk Works \(p. 13\)](#).

Getting Started Using Elastic Beanstalk

The following tasks will help you get started with Elastic Beanstalk to create, view, deploy, and update your application as well as edit and terminate your environment. You'll use the AWS Management Console, a point-and-click web-based interface, to complete these tasks.

Sections

- [Step 1: Sign up for the Service \(p. 3\)](#)
- [Step 2: Create an Application \(p. 3\)](#)
- [Step 3: View Information About Your Environment \(p. 5\)](#)
- [Step 4: Deploy a New Application Version \(p. 6\)](#)
- [Step 5: Change Configuration \(p. 8\)](#)
- [Step 6: Clean Up \(p. 9\)](#)
- [Where to Go Next \(p. 10\)](#)

Step 1: Sign up for the Service

If you're not already an AWS customer, you'll need to sign up. Signing up allows you to access Elastic Beanstalk and other AWS services that you will need, such as Amazon Elastic Compute Cloud (Amazon EC2), Amazon Simple Storage Service (Amazon S3), and Amazon Simple Notification Service (Amazon SNS).

To sign up for an AWS account

1. Open the [Elastic Beanstalk console](#).
2. Follow the instructions shown.

Step 2: Create an Application

Next, you will create and deploy a sample application. For this step, you use a sample application that is already prepared. If any Elastic Beanstalk applications already exist in the region in which you want to create and deploy an application, you must follow different procedures to create a new application. For more information, see [Managing and Configuring AWS Elastic Beanstalk Applications \(p. 36\)](#).

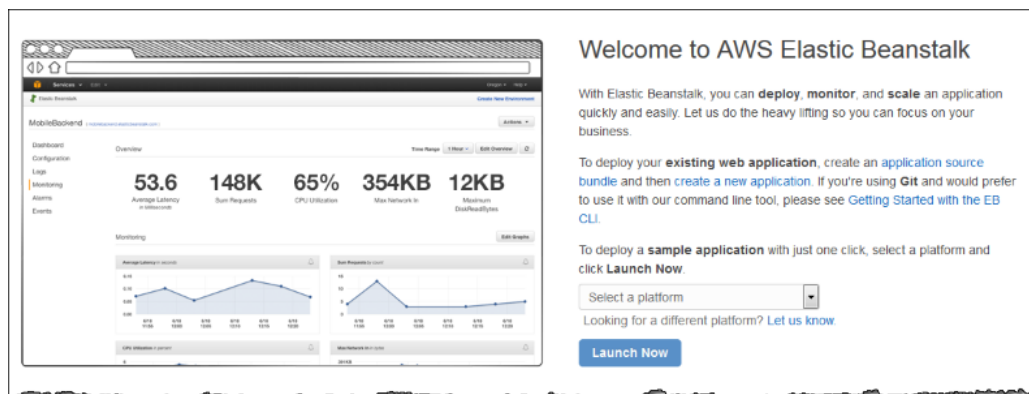
Elastic Beanstalk is free, but the AWS resources that it provides will be live (and not running in a sandbox). You will incur the standard usage fees for these resources until you terminate them in the last task in this tutorial. The total charges will be minimal (typically less than a dollar). For information on how you might minimize any charges, go to <http://aws.amazon.com/free/>.

Note

If the New Environment wizard does not show the screens described below, see [The Old New Environment Wizard](#) (p. 63).

To create a sample application

1. Open the [Elastic Beanstalk console](#).
2. Select a platform and then choose **Launch Now**.



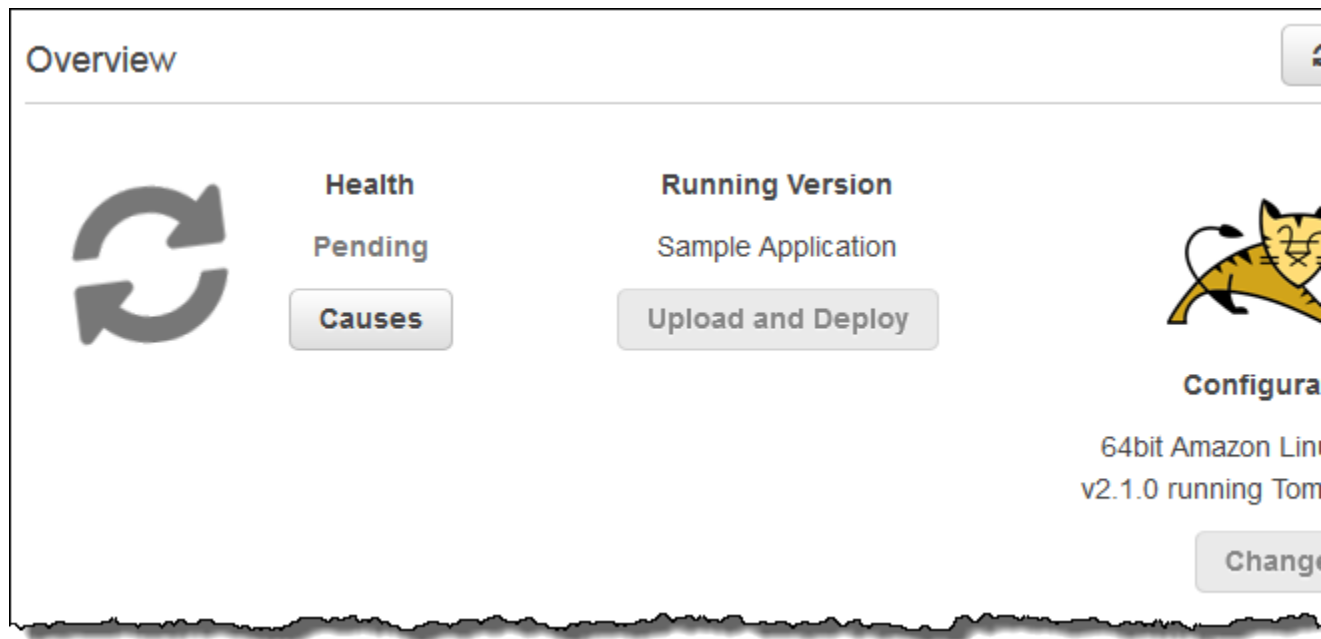
To run a sample application on AWS resources, Elastic Beanstalk takes the following actions, which takes about 5 minutes to complete:

- Creates an Elastic Beanstalk application named **My First Elastic Beanstalk Application**.
- Launches an environment named **Default-Environment** with the following AWS resources:
 - **EC2 instance** – A virtual machine that runs Amazon Linux or Microsoft Windows Server and that is configured to run web apps on the platform that you choose.

Each platform runs a different set of software, configuration files, and scripts to support a specific language version, framework, web container, or combination thereof. Most platforms use either Apache or nginx as a reverse proxy that sits in front of your web app, forwards requests to it, serves static assets, and generates access and error logs.

- **Security group** – An Amazon Elastic Compute Cloud (Amazon EC2) security group configured to allow ingress on port 80. This resource lets HTTP traffic from the Internet reach the EC2 instance running your web app. By default, traffic is not allowed on other ports.
- **Auto Scaling group** – An Auto Scaling group configured to replace an instance if it is terminated or becomes unavailable.
- **Amazon S3 bucket** – A storage location for your source code, logs, and other artifacts that are created when you use Elastic Beanstalk.
- **Amazon CloudWatch alarms** – Two Amazon CloudWatch alarms that monitor the load on the instances in your environment and trigger if the load is too high or too low. When an alarm is triggered, your Auto Scaling group scales up or down in response.
- **Domain name** – A domain name that routes to your web app in the form *subdomain.region.elasticbeanstalk.com*.
- Creates a new application version named **Sample Application**, which refers to the default Elastic Beanstalk sample application file.
- Deploys the **Sample Application** application into the **Default-Environment**.

During the environment creation process, the console tracks its progress and displays health information and events:



When all of the resources finish launching and the EC2 instances running the application pass health checks, the environment's health changes to `OK` and the website becomes ready to use.

Step 3: View Information About Your Environment

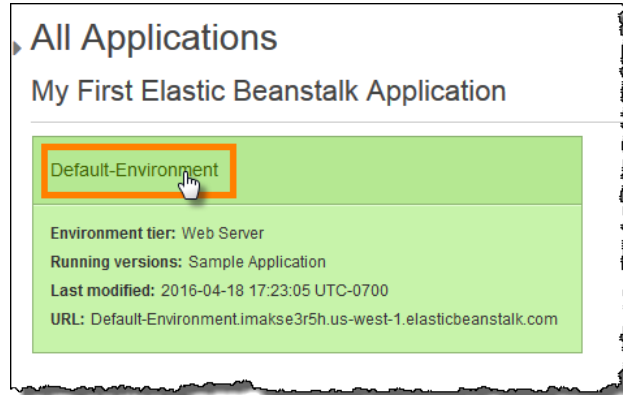
After you create the Elastic Beanstalk application, you can view information about the application you deployed and its provisioned resources by going to the environment dashboard in the AWS Management Console. The dashboard shows the health of your application's environment, the running version, and the environment configuration.

While Elastic Beanstalk creates your AWS resources and launches your application, the environment will be in a `Pending` state. Status messages about launch events are displayed in the environment's dashboard.

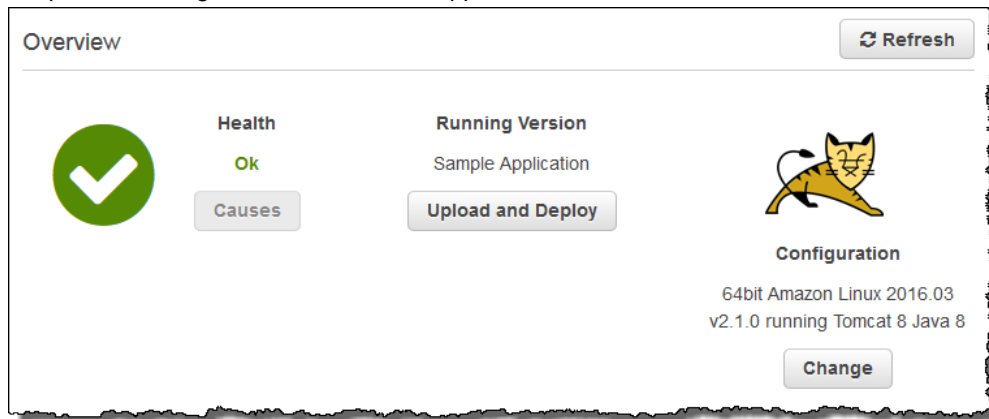
If you are not currently viewing the Dashboard, return to it now:

To view the dashboard

1. Open the [Elastic Beanstalk console](#).
2. Choose **Default-Environment**



The dashboard shows a subset of useful information about your environment including its current health status, the name of the currently deployed application version, its five most recent events, and the platform configuration on which the application runs.



On the left hand side of the console is a navigation bar that links to other pages, which contain more detailed information about your environment and provide access to additional features. Explore the following pages to see the current state of your environment:

- The **Configuration** page shows the resources provisioned for this environment, such as Amazon EC2 instances that host your application. This page also lets you configure some of the provisioned resources.
- The **Health** page shows the status and detailed health information about the EC2 instances running your application.
- The **Monitoring** page shows the statistics for the environment, such as average latency and CPU utilization. This page also lets you create alarms for the metrics that you are monitoring.
- The **Events** page shows any informational or error messages from services that this environment is using.

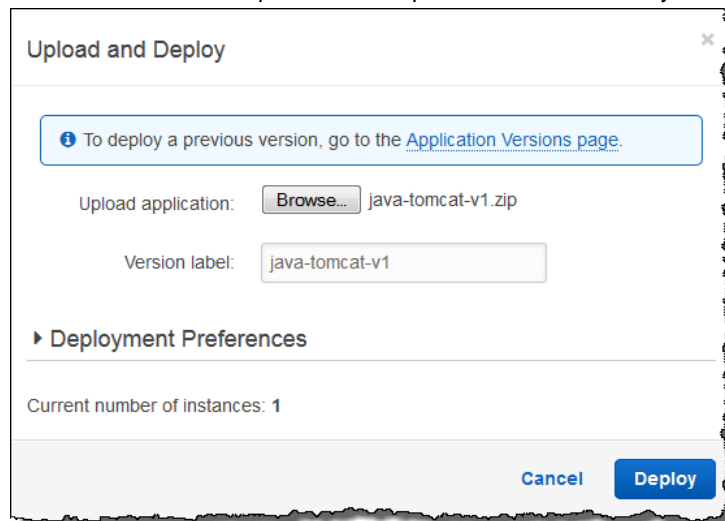
Step 4: Deploy a New Application Version

You can deploy a new version of your application at any time, as long as no other update operations are currently in-progress on your environment.

The application version you are running now is labeled **Sample Application**.

To update your application version

1. Download one of the following sample applications that match the configuration for your environment:
 - **Go** – [go-v1.zip](#)
 - **Java with Tomcat** – [java-tomcat-v1.zip](#)
 - **Java SE** – [java-se-jetty-maven-v1.zip](#)
 - **.NET on Windows Server with IIS** – [dotnet-asp-v1.zip](#)
 - **Node.js** – [nodejs-v1.zip](#)
 - **PHP** – [php-v1.zip](#)
 - **Python** – [python-v1.zip](#)
 - **Ruby (Passenger Standalone)** – [ruby-passenger-v2.zip](#)
 - **Ruby (Puma)** – [ruby-puma-v2.zip](#)
 - **Single Container Docker** – [docker-singlecontainer-v1.zip](#)
 - **Multicontainer Docker** – [docker-multicontainer-v2.zip](#)
 - **Preconfigured Docker (Glassfish)** – [docker-glassfish-v1.zip](#)
 - **Preconfigured Docker (Python 3.x)** – [docker-python-v1.zip](#)
 - **Preconfigured Docker (Go)** – [docker-golang-v1.zip](#)
2. Open the [Elastic Beanstalk console](#).
3. From the Elastic Beanstalk applications page, choose **My First Elastic Beanstalk Application** and then choose **Default-Environment**.
4. In the **Overview** section, choose **Upload and Deploy**.
5. Choose **Browse** and upload the sample source bundle that you downloaded.



6. The console automatically fills in the **Version label** based on the name of the archive that you uploaded. For future deployments, you will need to type a unique version label if you use a source bundle with the same name.
7. Choose **Deploy**.

Elastic Beanstalk now deploys your file to your Amazon EC2 instances. You can view the status of your deployment on the environment's dashboard. The **Environment Health** status turns grey while the application version is updated. When the deployment is complete, Elastic Beanstalk performs an application health check. The status returns to green when the application responds to the health

check. The environment dashboard will show the new **Running Version** as **Sample Application Second Version** (or whatever you provided as the **Version label**).

Your new application version is also uploaded and added to the table of application versions. To view the table of application versions, choose **My First Elastic Beanstalk Application** and then choose **Application Versions**.

Step 5: Change Configuration

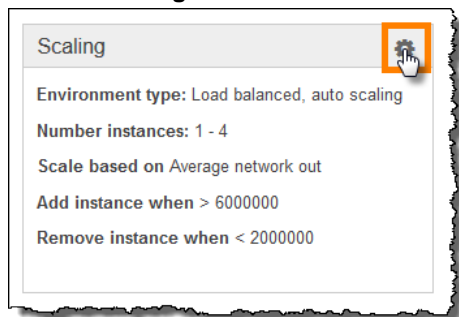
You can customize your environment to better suit your application. For example, if you have a compute-intensive application, you can change the type of Amazon EC2 instance that is running your application.

Some configuration changes are simple and happen quickly. Some changes require Elastic Beanstalk to delete and recreate AWS resources, which can take several minutes. Elastic Beanstalk will warn you about possible application downtime when changing configuration settings.

In this task, you change the minimum instance settings for your Auto Scaling group from one to two and then verify that the change occurred. After the new instance gets created, it will become associated with your load balancer.

To change your environment configuration

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. Choose **Scaling**.



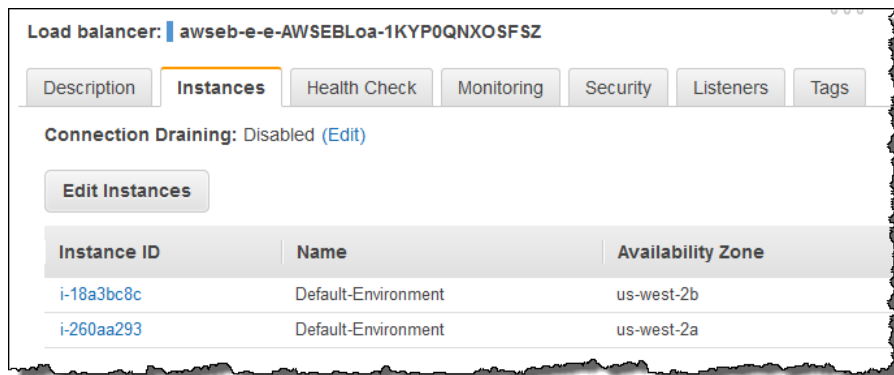
5. In the **Auto Scaling** section, change **Minimum Instance Count** from 1 to 2. This increases the minimum number of Auto Scaling instances deployed in Amazon EC2.
6. At the bottom of the page, choose **Apply**.

The environment update might take a few minutes. When the environment is ready, you can go to the next task to verify your changes.

To verify changes to load balancers

1. In the navigation pane, choose **Events**.
You will see the event **Successfully deployed new configuration to environment** in the events list. This confirms that the Auto Scaling minimum instance count has been set to 2. A second instance is launched automatically.
2. Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.
3. In the navigation pane, under **NETWORK & SECURITY**, click **Load Balancers**.

- Repeat the next two steps until you identify the load balancer with the desired instance name.
- Choose a load balancer in the list of load balancers.
- Choose the **Instances** tab in the **Load Balancer: <load balancer name>** pane, and then look at the **Name** in the **Instances** table.



The information shows that two instances are associated with this load balancer, corresponding to the increase in EC2 instances.

Step 6: Clean Up

Congratulations! You have successfully deployed a sample application to the cloud, uploaded a new version, and modified its configuration to add a second Auto Scaling instance. To make sure you are not charged for any services you don't need, delete any unwanted applications and environments from Elastic Beanstalk and AWS services.

To completely delete the application

- Delete all application versions.
 - Open the [Elastic Beanstalk console](#).
 - From the Elastic Beanstalk applications page, choose **Default-Environment** in the **My First Elastic Beanstalk Application** application.
 - Choose **Upload and Deploy**.
 - When prompted for an application, choose **Application Versions page**.
 - On the **Application Versions** page, select all application versions that you want to delete, and then choose **Delete**.
 - Confirm the versions that you are deleting, and then click **Delete**.
 - Choose **Done**.
- Terminate the environment.
 - Go back to the environment dashboard by clicking **My First Elastic Beanstalk Application** and then **Default-Environment**.
 - Choose **Actions** and then choose **Terminate Environment**.
 - Confirm that you are terminating **Default-Environment** and then choose **Terminate**.
- Delete the **My First Elastic Beanstalk Application** Elastic Beanstalk application.
 - Choose **Elastic Beanstalk** at the upper left to return to the main dashboard.
 - From the Elastic Beanstalk applications page, choose **Actions** for the **My First Elastic Beanstalk Application** application and then choose **Delete Application**.

- c. Confirm that you want to delete this Elastic Beanstalk application by clicking **Delete**.

Where to Go Next

Now that you have learned about Elastic Beanstalk and how to access it, we recommend that you read [How Elastic Beanstalk Works \(p. 13\)](#) This topic provides information about the Elastic Beanstalk components, the architecture, and important design considerations for your Elastic Beanstalk application.

In addition to the AWS Management Console, you can also use the following tools to create and manage Elastic Beanstalk environments:

Sections

- [The EB CLI \(p. 10\)](#)
- [AWS SDK for Java \(p. 10\)](#)
- [AWS Toolkit for Eclipse \(p. 10\)](#)
- [AWS SDK for .NET \(p. 11\)](#)
- [AWS Toolkit for Visual Studio \(p. 11\)](#)
- [AWS SDK for Node.js \(p. 11\)](#)
- [AWS SDK for PHP \(p. 11\)](#)
- [Boto \(AWS SDK for Python\) \(p. 11\)](#)
- [AWS SDK for Ruby \(p. 12\)](#)

The EB CLI

The EB CLI is a command line tool for creating and managing environments. See [The Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 416\)](#) for details.

AWS SDK for Java

The AWS SDK for Java provides a Java API you can use to build applications that use AWS infrastructure services. With the AWS SDK for Java, you can get started in minutes with a single, downloadable package that includes the AWS Java library, code samples, and documentation.

The AWS SDK for Java requires J2SE Development Kit 5.0 or later. You can download the latest Java software from <http://developers.sun.com/downloads/>. The SDK also requires Apache Commons (Codec, HttpClient, and Logging), and Saxon-HE third-party packages, which are included in the third-party directory of the SDK.

For more information on using the AWS SDK for Java, go to the [AWS SDK for Java](#).

AWS Toolkit for Eclipse

With the AWS Toolkit for Eclipse plug-in, you can create new AWS Java web projects that are preconfigured with the AWS SDK for Java, and then deploy the web applications to Elastic Beanstalk. The Elastic Beanstalk plug-in builds on top of the Eclipse Web Tools Platform (WTP). The toolkit provides a Travel Log sample web application template that demonstrates the use of Amazon S3 and Amazon SNS.

To ensure you have all the WTP dependencies, we recommend that you start with the Java EE distribution of Eclipse, which you can download from <http://eclipse.org/downloads/>.

For more information on using the Elastic Beanstalk plug-in for Eclipse, go to the [AWS Toolkit for Eclipse](#) web page. To get started creating your Elastic Beanstalk application using Eclipse, see [Creating and Deploying Java Applications on AWS Elastic Beanstalk \(p. 595\)](#).

AWS SDK for .NET

The AWS SDK for .NET enables you to build applications that use AWS infrastructure services. With the AWS SDK for .NET, you can get started in minutes with a single, downloadable package that includes the AWS .NET library, code samples, and documentation.

The AWS SDK for .NET requires [.NET Framework 2.0](#) or later. It will work with any of the following Visual Studio editions:

- [Microsoft Visual Studio Professional Edition 2010 and 2012 \(recommended\)](#)
- [Microsoft Visual C# 2008 Express Edition](#)
- [Microsoft Visual Web Developer 2008 Express Edition](#)

For more information on using the AWS SDK for .NET, go to the [AWS SDK for .NET](#) web page.

AWS Toolkit for Visual Studio

With the AWS Toolkit for Visual Studio plug-in, you can deploy an existing .NET application to Elastic Beanstalk. You can also create new projects using the AWS templates that are preconfigured with the AWS SDK for .NET. For prerequisite and installation information, go to [AWS Toolkit for Visual Studio](#). To get started creating your Elastic Beanstalk application using Visual Studio, see [Creating and Deploying Elastic Beanstalk Applications in .NET Using AWS Toolkit for Visual Studio \(p. 633\)](#).

AWS SDK for Node.js

The AWS SDK for Node.js enables you to build applications on top of AWS infrastructure services. With the AWS SDK for Node.js, you can get started in minutes with a single, downloadable package that includes the AWS Node.js library, code samples, and documentation.

For more information on using the AWS SDK for Node.js, go to the [AWS SDK for Node.js \(Developer Preview\)](#) web page.

AWS SDK for PHP

The AWS SDK for PHP enables you to build applications on top of AWS infrastructure services. With the AWS SDK for PHP, you can get started in minutes with a single, downloadable package that includes the AWS PHP library, code samples, and documentation.

The AWS SDK for PHP requires [PHP 5.2 or later](#).

For more information on using the AWS SDK for PHP, go to the [AWS SDK for PHP](#) web page.

Boto (AWS SDK for Python)

With Boto, you can get started in minutes with a single, downloadable package complete with the AWS Python library, code samples, and documentation. You can build Python applications on top of APIs that take the complexity out of coding directly against web services interfaces. The all-in-one library provides Python developer-friendly APIs that hide much of the lower-level tasks associated with programming for the AWS cloud, including authentication, request retries, and error handling. Practical examples are provided in Python for how to use the libraries to build applications. For

information about Boto, sample code, documentation, tools, and additional resources, go to <http://aws.amazon.com/python/>.

AWS SDK for Ruby

You can get started in minutes with a single, downloadable package complete with the AWS Ruby library, code samples, and documentation. You can build Ruby applications on top of APIs that take the complexity out of coding directly against web services interfaces. The all-in-one library provides Ruby developer-friendly APIs that hide much of the lower-level tasks associated with programming for the AWS cloud, including authentication, request retries, and error handling. Practical examples are provided in Ruby for how to use the libraries to build applications. For information about the SDK, sample code, documentation, tools, and additional resources, go to <http://aws.amazon.com/ruby/>.

How Elastic Beanstalk Works

Topics

- [Elastic Beanstalk Components \(p. 13\)](#)
- [Architectural Overview \(p. 14\)](#)
- [Service Roles, Instance Profiles, and User Policies \(p. 17\)](#)
- [Design Considerations \(p. 20\)](#)
- [Where to Go Next \(p. 23\)](#)

Now that you have a better understanding of what Elastic Beanstalk is, let's take a peek under the hood and see how Elastic Beanstalk works. The following sections discuss the Elastic Beanstalk components, the architecture, and important design considerations for your Elastic Beanstalk application.

Elastic Beanstalk Components

The components that comprise Elastic Beanstalk work together to enable you to easily deploy and manage your application in the cloud. This section discusses those components.

Application

An Elastic Beanstalk *application* is a logical collection of Elastic Beanstalk components, including *environments*, *versions*, and *environment configurations*. In Elastic Beanstalk an application is conceptually similar to a folder.

Application Version

In Elastic Beanstalk, an *application version* refers to a specific, labeled iteration of deployable code for a web application. An application version points to an Amazon Simple Storage Service (Amazon S3) object that contains the deployable code such as a Java WAR file. An application version is part of an application. Applications can have many versions and each application version is unique. In a running environment, you can deploy any application version you already uploaded to the application or you can upload and immediately deploy a new application version. You might upload multiple application versions to test differences between one version of your web application and another.

Environment

An *environment* is a version that is deployed onto AWS resources. Each environment runs only a single application version at a time, however you can run the same version or different versions in many environments at the same time. When you create an environment, Elastic Beanstalk provisions the resources needed to run the application version you specified. For more information about the environment and the resources that are created, see [Architectural Overview \(p. 14\)](#).

Environment Configuration

An *environment configuration* identifies a collection of parameters and settings that define how an environment and its associated resources behave. When you update an environment's configuration settings, Elastic Beanstalk automatically applies the changes to existing resources or deletes and deploys new resources (depending on the type of change).

Configuration Template

A *configuration template* is a starting point for creating unique environment configurations. Configuration templates can be created or modified by using the Elastic Beanstalk command line utilities or API.

Architectural Overview

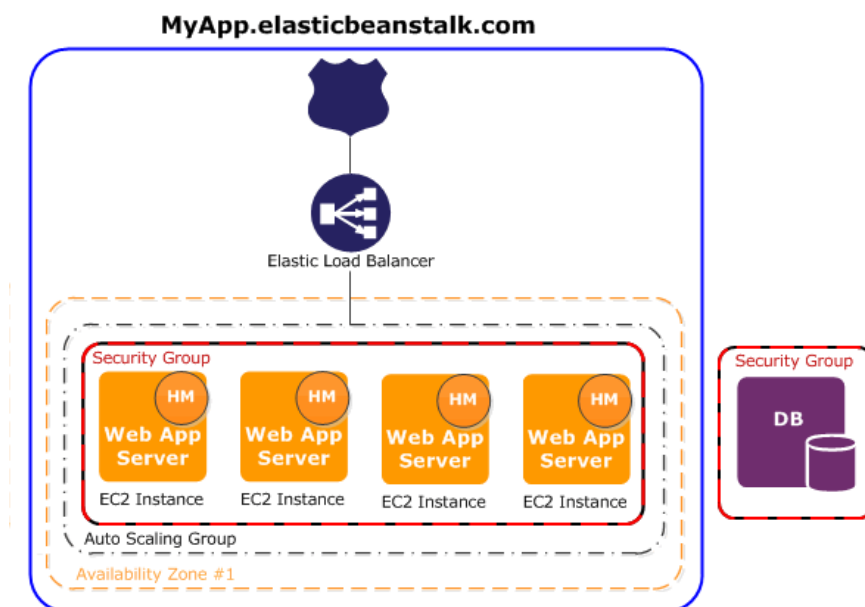
When you launch an Elastic Beanstalk environment, you choose an environment tier, platform, and environment type. The environment tier that you choose determines whether Elastic Beanstalk provisions resources to support a web application that handles HTTP(S) requests or a web application that handles background-processing tasks. An environment tier whose web application processes web requests is known as a *web server tier*. An environment tier whose web application runs background jobs is known as a *worker tier*. This topic describes the components, resources, and architecture for each type of environment tier.

Note

One environment cannot support two different environment tiers because each requires its own set of resources; a worker environment tier and a web server environment tier each require an Auto Scaling group, but Elastic Beanstalk supports only one Auto Scaling group per environment.

Web Server Environment Tiers

This following diagram illustrates an example Elastic Beanstalk architecture for a web server environment tier and shows how the components in that type of environment tier work together. The remainder of this section discusses all the components in more detail.



The environment is the heart of the application. In the diagram, the environment is delineated by the solid blue line. When you create an environment, Elastic Beanstalk provisions the resources required to run your application. AWS resources created for an environment include one elastic load balancer (ELB in the diagram), an Auto Scaling group, and one or more Amazon EC2 instances.

Every environment has a CNAME (URL) that points to a load balancer. The environment has a URL such as `myapp.us-west-2.elasticbeanstalk.com`. This URL is aliased in [Amazon Route 53](#) to an Elastic Load Balancing URL—something like `abcdef-123456.us-west-2.elb.amazonaws.com`—by using a CNAME record. [Amazon Route 53](#) is a highly available and scalable Domain Name System (DNS) web service. It provides secure and reliable routing to your infrastructure. Your domain name that you registered with your DNS provider will forward requests to the CNAME. The load balancer sits in front of the Amazon EC2 instances, which are part of an Auto Scaling group. (The Auto Scaling group is delineated in the diagram by a broken black line.) Auto Scaling automatically starts additional Amazon EC2 instances to accommodate increasing load on your application. If the load on your application decreases, Auto Scaling stops instances, but always leaves at least one instance running.

The software stack running on the Amazon EC2 instances is dependent on the *container type*. A container type defines the infrastructure topology and software stack to be used for that environment. For example, an Elastic Beanstalk environment with an Apache Tomcat container uses the Amazon Linux operating system, Apache web server, and Apache Tomcat software. For a list of supported container types, see [Supported Platforms \(p. 24\)](#). Each Amazon EC2 server instance that runs your application uses one of these container types. In addition, a software component called the *host manager (HM)* runs on each Amazon EC2 server instance. (In the diagram, the HM is an orange circle in each EC2 instance.) The host manager is responsible for:

- Deploying the application
- Aggregating events and metrics for retrieval via the console, the API, or the command line
- Generating instance-level events
- Monitoring the application log files for critical errors
- Monitoring the application server
- Patching instance components
- Rotating your application's log files and publishing them to Amazon S3

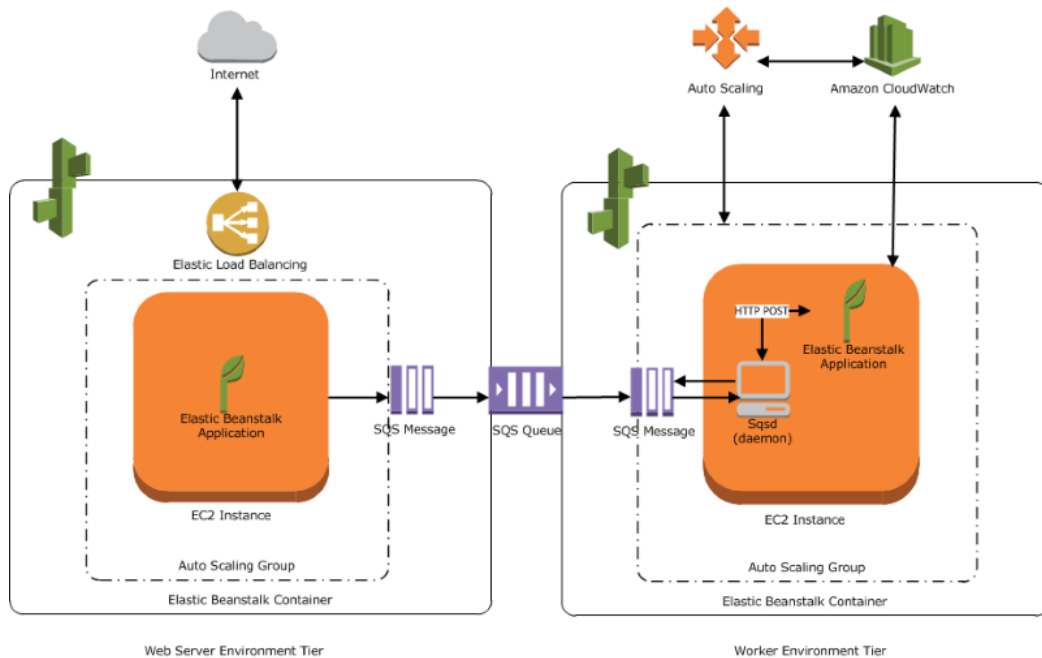
The host manager reports metrics, errors and events, and server instance status, which are available via the AWS Management Console, APIs, and CLIs.

The Amazon EC2 instances shown in the diagram are part of one security group. A security group defines the firewall rules for your instances. By default, Elastic Beanstalk defines a security group, which allows everyone to connect using port 80 (HTTP). You can define more than one security group. For instance, you can define a security group for your database server. For more information about Amazon EC2 security groups and how to configure them for your Elastic Beanstalk application, see the [Security Groups \(p. 233\)](#).

Worker Environment Tiers

AWS resources created for a worker environment tier include an Auto Scaling group, one or more Amazon EC2 instances, and an IAM role. For the worker environment tier, Elastic Beanstalk also creates and provisions an Amazon SQS queue if you don't already have one. When you launch a worker environment tier, Elastic Beanstalk installs the necessary support files for your programming language of choice and a daemon on each EC2 instance in the Auto Scaling group. The daemon is responsible for pulling requests from an Amazon SQS queue and then sending the data to the web application running in the worker environment tier that will process those messages. If you have multiple instances in your worker environment tier, each instance has its own daemon, but they all read from the same Amazon SQS queue.

The following diagram shows the different components and their interactions across environments and AWS services.



Amazon CloudWatch is used for alarms and health monitoring. For more information, go to [Basic Health Reporting \(p. 288\)](#).

For details about how the worker environment tier works, see [Worker Environments \(p. 122\)](#).

Service Roles, Instance Profiles, and User Policies

When you create an environment, AWS Elastic Beanstalk prompts you to provide two AWS Identity and Access Management (IAM) roles, a service role and an instance profile. The [service role \(p. 17\)](#) is assumed by Elastic Beanstalk to use other AWS services on your behalf. The [instance profile \(p. 18\)](#) is applied to the instances in your environment and allows them to upload logs to Amazon S3 and perform other tasks that vary depending on the environment type and platform.

The best way to get a properly configured service role and instance profile is to [create an environment running a sample application \(p. 61\)](#) in the Elastic Beanstalk console or by using the Elastic Beanstalk Command Line Interface (EB CLI). When you create an environment, the clients create the required roles and assign them [managed policies \(p. 341\)](#) that include all of the necessary permissions.

In addition to the two roles that you assign to your environment, you can also create [user policies \(p. 19\)](#) and apply them to IAM users and groups in your account to allow users to create and manage Elastic Beanstalk applications and environments. Elastic Beanstalk provides managed policies for full access and read-only access.

You can create your own instance profiles and user policies for advanced scenarios. If your instances need to access services that are not included in the default policies, you can add additional policies to the default or create a new one. You can also create more restrictive user policies if the managed policy is too permissive. See the [AWS Identity and Access Management User Guide](#) for in-depth coverage of AWS permissions.

Sections

- [Elastic Beanstalk Service Role \(p. 17\)](#)
- [Elastic Beanstalk Instance Profile \(p. 18\)](#)
- [Elastic Beanstalk User Policy \(p. 19\)](#)

Elastic Beanstalk Service Role

A service role is the IAM role that Elastic Beanstalk assumes when calling other services on your behalf. For example, Elastic Beanstalk uses the service role that you specify when creating an Elastic Beanstalk environment when it calls Amazon Elastic Compute Cloud (Amazon EC2), Elastic Load Balancing, and Auto Scaling APIs to gather information about the health of its AWS resources for [enhanced health monitoring \(p. 291\)](#).

The `AWSElasticBeanstalkEnhancedHealth` managed policy contains all of the permissions that Elastic Beanstalk needs to monitor environment health:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "elasticloadbalancing:DescribeInstanceHealth",
        "ec2:DescribeInstances",
        "ec2:DescribeInstanceStatus",
        "ec2:GetConsoleOutput",
        "ec2:AssociateAddress",

```

```
        "ec2:DescribeAddresses",
        "ec2:DescribeSecurityGroups",
        "sqs:GetQueueAttributes",
        "sqs:GetQueueUrl",
        "autoscaling:DescribeAutoScalingGroups",
        "autoscaling:DescribeAutoScalingInstances",
        "autoscaling:DescribeScalingActivities",
        "autoscaling:DescribeNotificationConfigurations"
    ],
    "Resource": [
        "*"
    ]
}
]
```

This policy also includes Amazon SQS actions to allow Elastic Beanstalk to monitor queue activity for worker environments.

When you create an environment with the Elastic Beanstalk console, Elastic Beanstalk prompts you to create a service role named `aws-elasticbeanstalk-service-role` with the default set of permissions and a trust policy that allows Elastic Beanstalk to assume the service role. In addition to the above policy, it attaches a second policy with permissions that it needs to apply [managed platform updates](#) (p. 113), if you enable that feature.

For more information about service roles, see [Managing Elastic Beanstalk Service Roles](#) (p. 337).

Elastic Beanstalk Instance Profile

An instance profile is an IAM role that is applied to instances launched in your Elastic Beanstalk environment. When creating an Elastic Beanstalk environment, you specify the instance profile that is used when your instances:

- Write logs to Amazon Simple Storage Service
- In multicontainer Docker environments, coordinate container deployments with Amazon EC2 Container Service
- In worker environments, read from an Amazon Simple Queue Service (Amazon SQS) queue
- In worker environments, perform leader election with Amazon DynamoDB
- In worker environments, publish instance health metrics to Amazon CloudWatch

The `AWSElasticBeanstalkWebTier` managed policy contains statements that allow instances in your environment to upload logs to Amazon S3:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "BucketAccess",
      "Action": [
        "s3:Get*",
        "s3:List*",
        "s3:PutObject"
      ],
      "Effect": "Allow",
      "Resource": [
```



```
        "arn:aws:s3:::elasticbeanstalk-*",
        "arn:aws:s3:::elasticbeanstalk-*/**"
    ]
}
]
```

Elastic Beanstalk also provides managed policies named `AWSElasticBeanstalkWorkerTier` and `AWSElasticBeanstalkMulticontainerDocker` for the other use cases. Elastic Beanstalk attaches all of these policies to the default instance profile, `aws-elasticbeanstalk-ec2-role`, when you create an environment with the console or EB CLI.

If your web application requires access to any other AWS services, add statements or managed policies to the instance profile that allow access to those services.

For more information about instance profiles, see [Managing Elastic Beanstalk Instance Profiles](#) (p. 333).

Elastic Beanstalk User Policy

Create IAM users for each person who uses Elastic Beanstalk to avoid using your root account or sharing credentials. For increased security, only grant these users permission to access services and features that they need.

Elastic Beanstalk requires permissions not only for its own API actions, but for several other AWS services as well. Elastic Beanstalk uses user permissions to launch all of the resources in an environment, including EC2 instances, an Elastic Load Balancing load balancer, and an Auto Scaling group. Elastic Beanstalk also uses user permissions to save logs and templates to Amazon S3, send notifications to Amazon SNS, assign instance profiles, and publish metrics to CloudWatch. Elastic Beanstalk requires AWS CloudFormation permissions to orchestrate resource deployments and updates. It also requires Amazon RDS permissions to create databases when needed, and Amazon SQS permissions to create queues for worker environments.

The following policy allows access to the actions used to create and manage Elastic Beanstalk environments. This policy is available in the IAM console as a managed policy named `AWSElasticBeanstalkFullAccess`. You can apply the managed policy to an IAM user or group to grant permission to use Elastic Beanstalk, or create your own policy that excludes permissions that are not needed by your users.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "elasticbeanstalk:*",
        "ec2:*",
        "ecs:*",
        "elasticloadbalancing:*",
        "autoscaling:*",
        "cloudwatch:*",
        "dynamodb:*",
        "s3:*",
        "sns:*",
        "cloudformation:*",
        "rds:*",
        "sqs:*"
      ]
    }
  ]
}
```

```

        "iam:GetPolicyVersion",
        "iam:GetRole",
        "iam:PassRole",
        "iam:ListRolePolicies",
        "iam:ListAttachedRolePolicies",
        "iam:ListInstanceProfiles",
        "iam:ListRoles",
        "iam:ListServerCertificates",
        "acm:DescribeCertificate",
        "acm:ListCertificates"
    ],
    "Resource": "*"
  },
  {
    "Effect": "Allow",
    "Action": [
      "iam:AddRoleToInstanceProfile",
      "iam:CreateInstanceProfile",
      "iam:CreateRole"
    ],
    "Resource": [
      "arn:aws:iam::*:role/aws-elasticbeanstalk*",
      "arn:aws:iam::*:instance-profile/aws-elasticbeanstalk*"
    ]
  },
  {
    "Effect": "Allow",
    "Action": [
      "iam:AttachRolePolicy"
    ],
    "Resource": "*",
    "Condition": {
      "StringLike": {
        "iam:PolicyArn": [
          "arn:aws:iam::aws:policy/AWSElasticBeanstalk*",
          "arn:aws:iam::aws:policy/service-role/
AWSElasticBeanstalk*"
        ]
      }
    }
  }
]
}

```

Elastic Beanstalk also provides a read-only managed policy named `AWSElasticBeanstalkReadOnlyAccess`. This policy allows a user to view, but not modify or create, Elastic Beanstalk environments.

For more information about user policies, see [Controlling Access to Elastic Beanstalk \(p. 341\)](#).

Design Considerations

Because applications deployed using Elastic Beanstalk run on Amazon cloud resources, you should keep several things in mind when designing your application: *scalability*, *security*, *persistent storage*, *fault tolerance*, *content delivery*, *software updates and patching*, and *connectivity*. For a comprehensive list of technical AWS whitepapers, covering topics such as architecture, security and economics, go to [AWS Cloud Computing Whitepapers](#).

Scalability

When you're operating in a physical hardware environment, as opposed to a cloud environment, you can approach scalability two ways—you can scale up (vertical scaling) or scale out (horizontal scaling). The scale-up approach requires an investment in powerful hardware as the demands on the business increase, whereas the scale-out approach requires following a distributed model of investment, so hardware and application acquisitions are more targeted, data sets are federated, and design is service-oriented. The scale-up approach could become very expensive, and there's still the risk that demand could outgrow capacity. Although the scale-out approach is usually more effective, it requires predicting the demand at regular intervals and deploying infrastructure in chunks to meet demand. This approach often leads to unused capacity and requires careful monitoring.

By moving to the cloud you can bring the use of your infrastructure into close alignment with demand by leveraging the elasticity of the cloud. Elasticity is the streamlining of resource acquisition and release, so that your infrastructure can rapidly scale in and scale out as demand fluctuates. To implement elasticity, configure your Auto Scaling settings to scale up or down based on metrics from the resources in your environment (utilization of the servers or network I/O, for instance). You can use Auto Scaling to automatically add compute capacity when usage rises and remove it when usage drops. Publish system metrics (CPU, memory, disk I/O, network I/O) to Amazon CloudWatch and configure alarms to trigger Auto Scaling actions or send notifications. For more instructions on configuring Auto Scaling, see [Configuring Auto Scaling with Elastic Beanstalk \(p. 220\)](#).

Elastic Beanstalk applications should also be as *stateless* as possible, using loosely coupled, fault-tolerant components that can be scaled out as needed. For more information about designing scalable application architectures for AWS, read the [Architecting for the Cloud: Best Practices](#) whitepaper.

Security

Security on AWS is a [shared responsibility](#). AWS protects the physical resources in your environment and ensure that the cloud is a safe place for you to run applications. You are responsible for the security of data coming in and out of your Elastic Beanstalk environment and the security of your application.

Configure SSL to protect information from your clients. You will need a certificate from an external certification authority such as VeriSign or Entrust. The public key included in the certificate authenticates your server to the browser and serves as the basis for creating the shared session key used to encrypt the data in both directions. For instructions on creating, uploading, and assigning an SSL certificate to your environment, see [Configuring HTTPS for your Elastic Beanstalk Environment \(p. 250\)](#).

When you configure an SSL certificate for your environment, data is encrypted between the client and your environment's Elastic Load Balancing load balancer. By default, encryption is terminated at the load balancer and traffic between the load balancer and Amazon EC2 instances is unencrypted.

Persistent Storage

Elastic Beanstalk applications run on Amazon EC2 instances that have no persistent local storage. When the Amazon EC2 instances terminate, the local file system is not saved, and new Amazon EC2 instances start with a default file system. You should design your application to store data in a persistent data source. Amazon Web Services offers a number of persistent storage options that you can leverage for your application, including:

- [Amazon Simple Storage Service \(Amazon S3\)](#). For more information about Amazon S3, go to the [documentation](#).
- [Amazon Elastic Block Store \(Amazon EBS\)](#). For more information, go to the [documentation](#) and see also the article [Feature Guide: Elastic Block Store](#).

- [Amazon DynamoDB](#). For more information, go to the [documentation](#). For an example using Amazon DynamoDB with Elastic Beanstalk, see [Example: DynamoDB, CloudWatch, and SNS \(p. 207\)](#).
- [Amazon Relational Database Service \(Amazon RDS\)](#). For more information, go to the [documentation](#) and see also [Amazon RDS for C# Developers](#).

Fault Tolerance

As a rule of thumb, you should be a pessimist when designing architecture for the cloud. Always design, implement, and deploy for automated recovery from failure. Use multiple Availability Zones for your Amazon EC2 instances and for Amazon RDS. Availability Zones are conceptually like logical data centers. Use Amazon CloudWatch to get more visibility into the health of your Elastic Beanstalk application and take appropriate actions in case of hardware failure or performance degradation. Configure your Auto Scaling settings to maintain your fleet of Amazon EC2 instances at a fixed size so that unhealthy Amazon EC2 instances are replaced by new ones. If you are using Amazon RDS, then set the retention period for backups, so that Amazon RDS can perform automated backups.

Content Delivery

When users connect to your website, their requests may be routed through a number of individual networks. As a result users may experience poor performance due to high latency. Amazon CloudFront can help ameliorate latency issues by distributing your web content (such as images, video, and so on) across a network of edge locations around the world. End users are routed to the nearest edge location, so content is delivered with the best possible performance. CloudFront works seamlessly with Amazon S3, which durably stores the original, definitive versions of your files. For more information about Amazon CloudFront, see <http://aws.amazon.com/cloudfront>.

Software Updates and Patching

Elastic Beanstalk periodically updates its platform configurations with new software and patches. Elastic Beanstalk does not upgrade running environments to new configuration versions automatically, but you can initiate a [platform upgrade \(p. 113\)](#) to update your running environment in place. Platform upgrades use [rolling updates \(p. 106\)](#) to keep your application available by applying changes in batches.

Connectivity

Elastic Beanstalk needs to be able to connect to the instances in your environment to complete deployments. When you deploy an Elastic Beanstalk application inside an Amazon VPC, the configuration required to enable connectivity depends on the type of Amazon VPC environment you create:

- For single-instance environments, no additional configuration is required because Elastic Beanstalk assigns each Amazon EC2 instance a public Elastic IP address that enables the instance to communicate directly with the Internet.
- For load-balancing, autoscaling environments in an Amazon VPC with both public and private subnets, you must do the following:
 - Create a load balancer in the public subnet to route inbound traffic from the Internet to the Amazon EC2 instances.
 - Create a network address translation (NAT) device to route outbound traffic from the Amazon EC2 instances to the Internet.
 - Create inbound and outbound routing rules for the Amazon EC2 instances inside the private subnet.
- If using a NAT instance, configure the security groups for the NAT instance and Amazon EC2 instances to enable Internet communication.

- For a load-balancing, autoscaling environment in an Amazon VPC that has one public subnet, no additional configuration is required because the Amazon EC2 instances are configured with a public IP address that enables the instances to communicate with the Internet.

For more information about using Elastic Beanstalk with Amazon VPC, see [Using Elastic Beanstalk with Amazon VPC \(p. 390\)](#).

Where to Go Next

Now that you have learned some Elastic Beanstalk basics, you are ready to start creating and deploying your applications. If you are a developer, go to one of the following sections:

- **Java** — [Creating and Deploying Java Applications on AWS Elastic Beanstalk \(p. 595\)](#)
- **.NET** — [Creating and Deploying Elastic Beanstalk Applications in .NET Using AWS Toolkit for Visual Studio \(p. 633\)](#)
- **Node.js** — [Deploying Node.js Applications to AWS Elastic Beanstalk \(p. 694\)](#)
- **PHP** — [Creating and Deploying PHP Applications on AWS Elastic Beanstalk \(p. 730\)](#)
- **Python** — [Working with Python \(p. 763\)](#)
- **Ruby** — [Deploying Elastic Beanstalk Applications in Ruby Using EB CLI and Git \(p. 787\)](#)

If you want to manage and configure your applications and environments using the AWS Management Console, command line interface, or APIs, see [Managing and Configuring AWS Elastic Beanstalk Applications \(p. 36\)](#).

Supported Platforms

Elastic Beanstalk provides platforms for programming languages (Java, PHP, Python, Ruby, Go), web containers (Tomcat, Passenger, Puma) and Docker containers, with multiple configurations of each.

Elastic Beanstalk provisions the resources needed to run your application including one or more Amazon EC2 instances. The software stack running on the Amazon EC2 instances depends on the configuration. In a configuration name, the version number refers to the version of the platform configuration.

The solution stack name listed beneath the configuration name can be used to launch an environment with the [EB CLI \(p. 416\)](#), [Elastic Beanstalk API](#), or [AWS CLI](#). Solution stack names can also be retrieved from the service with the [ListAvailableSolutionStacks](#) API ([aws elasticbeanstalk list-available-solution-stacks](#) in the AWS CLI). This operation returns all of the solution stacks that you can use to create an environment, including stacks for the latest platform configurations (listed on this page), and any previous versions that you have used in the past.

All current Linux based platform configurations run on Amazon Linux 2016.03 (64-bit). Detailed release notes are available for recent releases at aws.amazon.com/releasenotes.

Platforms

- [Single Container Docker \(p. 24\)](#)
- [Multicontainer Docker \(p. 25\)](#)
- [Preconfigured Docker \(p. 25\)](#)
- [Go \(p. 26\)](#)
- [Java SE \(p. 27\)](#)
- [Java with Tomcat \(p. 27\)](#)
- [.NET on Windows Server with IIS \(p. 28\)](#)
- [Node.js \(p. 29\)](#)
- [PHP \(p. 30\)](#)
- [Python \(p. 30\)](#)
- [Ruby \(p. 31\)](#)

Single Container Docker

Docker is a container platform that allows you to define your own software stack and store it in an image that can be downloaded from a remote repository. Use the Single Container Docker platform if you only need to run a single Docker container on each instance in your environment. The single container configuration includes an nginx proxy server.

See [Deploying Elastic Beanstalk Applications from Docker Containers \(p. 555\)](#) for more information about the Docker platform.

Configuration and Solution Stack Name	AMI	Docker Version	Proxy Server
Single Container Docker 1.11 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Docker 1.11.2</i>	2016.09.0	1.11.2	nginx 1.10.1

For information on previous configurations, see [Docker Platform History \(p. 821\)](#).

Multicontainer Docker

Docker is a container platform that allows you to define your own software stack and store it in an image that can be downloaded from a remote repository. Use the Multicontainer Docker platform if you need to run multiple containers on each instance. The Multicontainer Docker platform does not include a proxy server.

See [Deploying Elastic Beanstalk Applications from Docker Containers \(p. 555\)](#) for more information about the Docker platform.

Configuration and Solution Stack Name	AMI	Docker Version	ECS Agent
Multicontainer Docker 1.11 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Multi-container Docker 1.11.2 (Generic)</i>	2016.09.0	1.11.2	1.13.0

For information on previous configurations, see [Docker Platform History \(p. 821\)](#).

Preconfigured Docker

Preconfigured Docker platform configurations use Docker, but do not let you provide your own Docker images. The preconfigured containers provide application frameworks that are not available on other platforms, such as Glassfish. They also provided support for Go applications prior to the release of the full fledged Go platform.

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
Glassfish 4.1 (Docker) version 2.2.0 <i>64bit Debian jessie v2.2.0 running GlassFish 4.1 Java</i>	2016.09.0	Docker	Debian Jessie	Java 8	nginx 1.10.1	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<i>8 (Preconfigured - Docker)</i>							
Glassfish 4.0 (Docker) version 2.2.0 <i>64bit Debian jessie v2.2.0 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2016.09.0	Docker 1.11.2	Debian Jessie	Java 7	nginx 1.10.1	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
Go 1.4 (Docker) version 2.2.0 <i>64bit Debian jessie v2.2.0 running Go 1.4 (Preconfigured - Docker)</i>	2016.09.0	Docker 1.11.2	Debian Jessie	Go 1.4.2	nginx 1.10.1	none	golang:1.4.2-onbuild
Go 1.3 (Docker) version 2.2.0 <i>64bit Debian jessie v2.2.0 running Go 1.3 (Preconfigured - Docker)</i>	2016.09.0	Docker 1.11.2	Debian Jessie	Go 1.3.3	nginx 1.10.1	none	golang:1.3.3-onbuild
Python 3.4 with uWSGI 2 (Docker) version 2.2.0 <i>64bit Debian jessie v2.2.0 running Python 3.4 (Preconfigured - Docker)</i>	2016.09.0	Docker 1.11.2	Debian Jessie	Python 3.4	nginx 1.10.1	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

For information on previous configurations, see [Preconfigured Docker Platform History \(p. 830\)](#).

Go

Elastic Beanstalk supports the following Go configurations:

Configuration and Solution Stack Name	AMI	Language	Proxy Server
Go 1.5 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Go 1.5</i>	2016.09.0	Go 1.5.3	nginx 1.10.1

For information on previous configurations, see [Go Platform History \(p. 849\)](#).

Java SE

Elastic Beanstalk supports the following Java SE configurations:

Configuration and Solution Stack Name	AMI	Language	Tools	Proxy Server
Java 8 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Java 8</i>	2016.09.0	Java 1.8.0_101	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.10.1
Java 7 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Java 7</i>	2016.09.0	Java 1.7.0_111	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.10.1

For information on previous configurations, see [Java SE Platform History \(p. 866\)](#).

Java with Tomcat

Elastic Beanstalk supports the following Tomcat configurations:

Configuration and Solution Stack Name	AMI	Language	Application Server	Proxy Server
Java 8 with Tomcat 8 version 2.3.0 <i>64bit Amazon Linux 2016.09 v2.3.0 running Tomcat 8 Java 8</i>	2016.09.0	Java 1.8.0_101	Tomcat 8.0.36	Apache 2.2.31
Java 7 with Tomcat 7 version 2.3.0 <i>64bit Amazon Linux 2016.09 v2.3.0 running Tomcat 7 Java 7</i>	2016.09.0	Java 1.7.0_111	Tomcat 7.0.70	Apache 2.2.31
Java 6 with Tomcat 7 version 2.3.0 <i>64bit Amazon Linux 2016.09 v2.3.0 running Tomcat 7 Java 6</i>	2016.09.0	Java 1.6.0_39	Tomcat 7.0.70	Apache 2.2.31

For information on previous configurations, see [Tomcat Platform History \(p. 851\)](#).

.NET on Windows Server with IIS

You can get started in minutes using the [AWS Toolkit for Visual Studio](#). The toolkit includes the AWS libraries, project templates, code samples, and documentation. The AWS SDK for .NET supports the development of applications using .NET Framework 2.0 or later.

Note

This platform does not support worker environments, enhanced health reporting, managed updates, bundle logs or immutable updates.

To learn how to get started deploying a .NET application using the AWS Toolkit for Visual Studio, see [Creating and Deploying Elastic Beanstalk Applications in .NET Using AWS Toolkit for Visual Studio](#) (p. 633). Elastic Beanstalk supports the following configurations:

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2 Instance Profile	WebDeployment	Proxy Server
Windows Server 2012 R2 with IIS 8.5 version 1.2.0 <i>64bit Windows Server 2012 R2 v1.2.0 running IIS 8.5</i>	2016.09.14	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0 ASP.NET Core v1.0.1	3.9.459.0	0.19.115360		IIS 8.5
Windows Server 2012 R2 Server Core with IIS 8.5 version 1.2.0 <i>64bit Windows Server Core 2012 R2 v1.2.0 running IIS 8.5</i>	2016.09.14	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0 ASP.NET Core v1.0.1	3.9.459.0	0.19.115360		IIS 8.5
Windows Server 2012 with IIS 8 version 1.2.0 <i>64bit Windows Server 2012 v1.2.0 running IIS 8</i>	2016.09.14	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0 ASP.NET Core v1.0.1	3.9.459.0	0.19.115360		IIS 8
Windows Server 2008 R2 with IIS 7.5 version 1.2.0 <i>64bit Windows Server 2008 R2 v1.2.0 running IIS 7.5</i>	2016.09.14	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0 ASP.NET Core v1.0.1	3.9.459.0	0.19.115360		IIS 7.5

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Config	WebDeployment	Proxy Server
Windows Server 2012 R2 with IIS 8.5 <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	3.19.11536	3.19.11536	IIS 8.5
Windows Server 2012 R2 Server Core with IIS 8.5 <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	3.19.11536	3.19.11536	IIS 8.5
Windows Server 2012 with IIS 8 <i>64bit Windows Server 2012 running IIS 8</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	3.19.11536	3.19.11536	IIS 8
Windows Server 2008 R2 with IIS 7.5 <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	3.19.11536	3.19.11536	IIS 7.5

¹ [Microsoft Security Bulletin Summary for October 2016](#)

For information on previous configurations, see [.NET on Windows Server with IIS Platform History](#) (p. 869).

Node.js

Elastic Beanstalk supports the following Node.js configurations:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Proxy Server	Git
Node.js version 3.1.0 <i>64bit Amazon Linux 2016.09 v3.1.0 running Node.js</i>	2016.09.0	Node.js 6.9.1, Also supports 6.9.1, 6.2.2, 5.12.0, 4.6.1, 4.4.6, 0.12.17, 0.12.15, 0.10.48, 0.10.46	NPM 2.15.5	nginx 1.10.1, Apache 2.4.18	2.7.4

For information on previous configurations, see [Node.js Platform History](#) (p. 885).

Note

When support for the version of Node.js that you are using is removed from the platform configuration, you must change or remove the version setting prior to doing a [platform](#)

[upgrade \(p. 113\)](#). This may occur when a security vulnerability is identified for one or more versions of Node.js

When this occurs, attempting to upgrade to a new version of the platform that does not support the configured [NodeVersion \(p. 171\)](#) will fail. To avoid needing to create a new environment, change the *NodeVersion* configuration option to a version that is supported by both the old configuration version and the new one, or [remove the option setting \(p. 139\)](#), and then perform the platform upgrade.

PHP

Elastic Beanstalk supports the following PHP configurations:

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
PHP 7.0 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running PHP 7.0</i>	2016.09.0	PHP 7.0.11	1.2.0	Apache 2.4.23
PHP 5.6 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running PHP 5.6</i>	2016.09.0	PHP 5.6.26	1.2.0	Apache 2.4.23
PHP 5.5 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running PHP 5.5</i>	2016.09.0	PHP 5.5.38	1.2.0	Apache 2.4.23
PHP 5.4 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running PHP 5.4</i>	2016.09.0	PHP 5.4.45	1.2.0	Apache 2.4.23

For information on previous configurations, see [PHP Platform History \(p. 897\)](#).

Python

Elastic Beanstalk supports the following Python configurations:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Packager	meld3	Proxy Server
Python 3.4 version 2.2.0 <i>64bit Amazon Linux 2016.09</i>	2016.09.0	Python 3.4.3	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5

Configuration and Solution Stack Name	AMI	Language	Package Manager	Packager	meld3	Proxy Server
<i>v2.2.0 running Python 3.4</i>						
Python 2.7 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Python 2.7</i>	2016.09	Python 2.7.10	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5
Python 2.6 version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Python</i>	2016.09	Python 2.6.9	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5

For information on previous configurations, see [Python Platform History \(p. 912\)](#).

Ruby

Elastic Beanstalk supports the following Ruby configurations:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
Ruby 2.3 with Puma version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.3 (Puma)</i>	2016.09	Ruby 2.3.1-p112	RubyGems 2.5.1	Puma 2.16.0	nginx 1.10.1
Ruby 2.3 with Passenger version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.3 (Passenger Standalone)</i>	2016.09	Ruby 2.3.1-p112	RubyGems 2.5.1	Passenger 4.0.60	nginx 1.10.1
Ruby 2.2 with Puma version 2.2.0	2016.09	Ruby 2.2.5-p319	RubyGems 2.4.5.1	Puma 2.16.0	nginx 1.10.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.2 (Puma)</i>					
Ruby 2.2 with Passenger version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.2 (Passenger Standalone)</i>	2016.09.0	Ruby 2.2.5-p319	RubyGems 2.4.5.1	Passenger 4.0.60	nginx 1.10.1
Ruby 2.1 with Puma version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.1 (Puma)</i>	2016.09.0	Ruby 2.1.9-p490	RubyGems 2.2.5	Puma 2.16.0	nginx 1.10.1
Ruby 2.1 with Passenger version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.1 (Passenger Standalone)</i>	2016.09.0	Ruby 2.1.9-p490	RubyGems 2.2.5	Passenger 4.0.60	nginx 1.10.1
Ruby 2.0 with Puma version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.0 (Puma)</i>	2016.09.0	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Puma 2.16.0	nginx 1.10.1
Ruby 2.0 with Passenger version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 2.0 (Passenger Standalone)</i>	2016.09.0	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Passenger 4.0.60	nginx 1.10.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
Ruby 1.9 with Passenger version 2.2.0 <i>64bit Amazon Linux 2016.09 v2.2.0 running Ruby 1.9.3</i>	2016.09.0	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.60	nginx 1.10.1

For information on previous configurations, see [Ruby Platform History \(p. 922\)](#).

Tutorials and Samples

Language and framework specific tutorials are spread throughout the AWS Elastic Beanstalk Developer Guide. New and updated tutorials are added to this list as they are published. The most recent updates are shown first.

These tutorials are targeted at intermediate users and may not contain instructions for basic steps such as signing up for AWS. If this is your first time using AWS or Elastic Beanstalk, check out the [Getting Started walkthrough \(p. 3\)](#) to get your first Elastic Beanstalk environment up and running from scratch.

- **Node.js with DynamoDB HA Configuration** - [Deploying a Node.js Application with DynamoDB to Elastic Beanstalk \(p. 708\)](#)
- **ASP.NET Core** - [Deploying an ASP.NET Core Application with AWS Elastic Beanstalk \(p. 658\)](#)
- **PHP 5.6 and MySQL HA Configuration** - [Deploying a High-Availability PHP Application with an External Amazon RDS Database to Elastic Beanstalk \(p. 753\)](#)
- **PHP 5.6 and Laravel 5.2** - [Deploying a Laravel Application to Elastic Beanstalk \(p. 733\)](#)
- **PHP 5.6 and CakePHP 3.2** - [Deploying a CakePHP Application to Elastic Beanstalk \(p. 741\)](#)
- **Python and Flask 0.10** - [Deploying a Flask Application to AWS Elastic Beanstalk \(p. 768\)](#)
- **Python and Django 1.9** - [Deploying a Django Application to Elastic Beanstalk \(p. 774\)](#)
- **Node.js and Express 4** - [Deploying an Express Application to Elastic Beanstalk \(p. 704\)](#)
- **Docker, PHP and nginx** - [Multicontainer Docker Environments with the AWS Management Console \(p. 566\)](#)
- **Ruby on Rails** - [Deploying a Rails Application to Elastic Beanstalk \(p. 790\)](#)
- **Ruby and Sinatra** - [Deploying a Sinatra Application to AWS Elastic Beanstalk \(p. 798\)](#)
- **.NET Framework (IIS and ASP.NET)** - [Tutorial: How to Deploy a .NET Sample Application Using AWS Elastic Beanstalk \(p. 645\)](#)

You can download the sample applications used by Elastic Beanstalk when you create an environment without providing a source bundle with the following links:

- **Go** – [go-v1.zip](#)
- **Java with Tomcat** – [java-tomcat-v1.zip](#)
- **Java SE** – [java-se-jetty-maven-v1.zip](#)
- **.NET on Windows Server with IIS** – [dotnet-asp-v1.zip](#)
- **Node.js** – [nodejs-v1.zip](#)
- **PHP** – [php-v1.zip](#)
- **Python** – [python-v1.zip](#)

- **Ruby (Passenger Standalone)** – [ruby-passenger-v2.zip](#)
- **Ruby (Puma)** – [ruby-puma-v2.zip](#)
- **Single Container Docker** – [docker-singlecontainer-v1.zip](#)
- **Multicontainer Docker** – [docker-multicontainer-v2.zip](#)
- **Preconfigured Docker (Glassfish)** – [docker-glassfish-v1.zip](#)
- **Preconfigured Docker (Python 3.x)** – [docker-python-v1.zip](#)
- **Preconfigured Docker (Go)** – [docker-golang-v1.zip](#)

More involved sample applications that show the use of additional web frameworks, libraries and tools are available as open source projects on GitHub:

- **Does it Have Snakes?** - Tomcat application that shows the use of RDS in a Java EE web application in AWS Elastic Beanstalk. The project shows the use of Servlets, JSPs, Simple Tag Support, Tag Files, JDBC, SQL, Log4J, Bootstrap, Jackson, and Elastic Beanstalk configuration files.
- **Locust Load Generator** - This project shows the use of Java SE platform features to install and run **Locust**, a load generating tool written in Python. The project includes configuration files that install and configure Locust, a build script that configures a DynamoDB table, and a Procfile that runs Locust.
- **Share Your Thoughts** ([tutorial \(p. 753\)](#)) - PHP application that shows the use of MySQL on Amazon RDS, Composer, and configuration files.
- **A New Startup** ([tutorial \(p. 708\)](#)) - Node.js sample application that shows the use of DynamoDB, the AWS SDK for JavaScript in Node.js, NPM package management, and configuration files.

Managing and Configuring AWS Elastic Beanstalk Applications

The first step in using Elastic Beanstalk is to create an application, which represents your web application in AWS. In Elastic Beanstalk an application serves as a container for the environments that run your web app, and versions of your web app's source code, saved configurations, logs and other artifacts that you create while using Elastic Beanstalk.

To create a new application

1. Open the [Elastic Beanstalk console](#).
2. Choose **Create New Application**.
3. Enter the name of the application and, optionally, a description. Then click **Next**.

After creating a new application, the console prompts you to create an environment for it. For detailed information about all of the options available, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).

If you have no further need for an application, you can delete it.

Warning

Deleting an application terminates all associated environments and deletes all application versions and saved configurations that belong to the application.

To delete an application

1. Open the [Elastic Beanstalk console](#).
2. Choose **Actions** next to the application that you want to delete.
3. Choose **Delete Application**

Topics

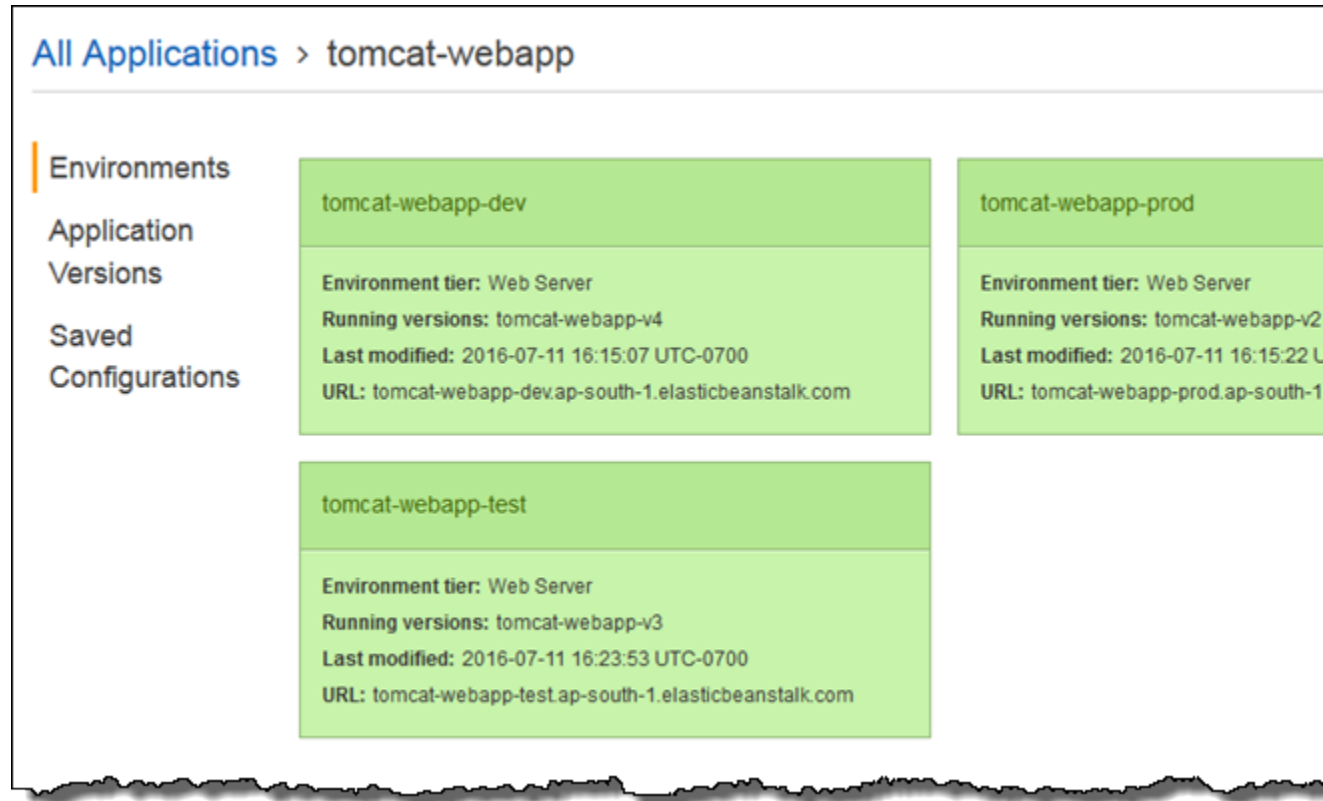
- [The AWS Elastic Beanstalk Application Management Console \(p. 37\)](#)
- [Managing Application Versions \(p. 40\)](#)
- [Create an Application Source Bundle \(p. 43\)](#)

The AWS Elastic Beanstalk Application Management Console

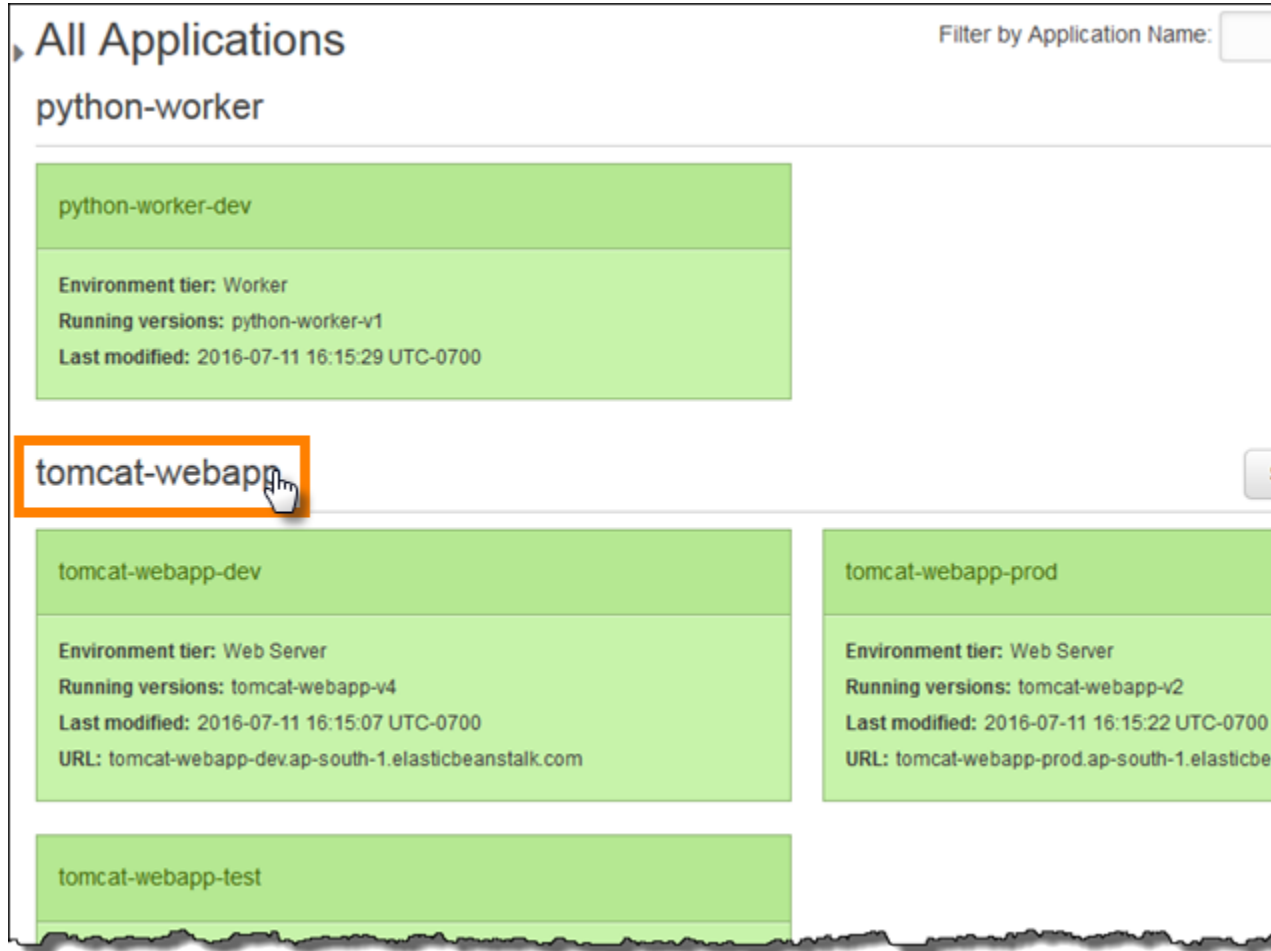
You can use the AWS Management Console to manage applications, application versions, and saved configurations.

To access the application management console

The **Environments** page shows an overview of all environments associated with the application.



1. Open the [Elastic Beanstalk console](#).
2. The console displays a list of all environments running in the current region, sorted by application. Choose an application name to view the management console for that application.



Note

If you have a large number of applications, use the search bar in the upper right corner to filter the list of applications.

Choose an environment by name to go to the [environment management console \(p. 52\)](#) for that environment to configure, monitor, or manage it.

Choose **Application Versions** to view a list of application versions for your application:

All Applications > tomcat-webapp

Environments Delete Deploy Upload

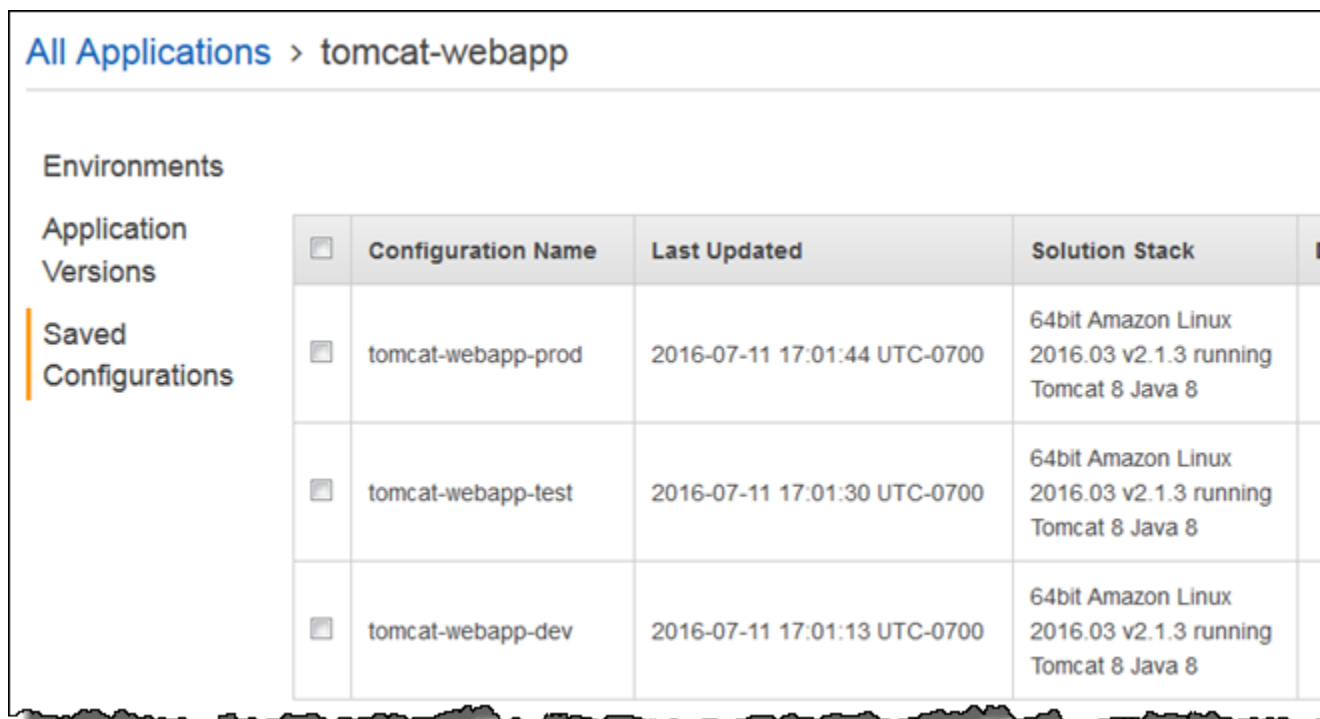
Application Versions

<input type="checkbox"/>	Version Label	Description	Date Created	Source
<input type="checkbox"/>	tomcat-webapp-v4		2016-07-11 16:23:05 UTC-0700	2016193CtY-java-tomcat-v4.zip
<input type="checkbox"/>	tomcat-webapp-v3		2016-07-11 16:22:45 UTC-0700	2016193llk-java-tomcat-v3.zip
<input type="checkbox"/>	tomcat-webapp-v2		2016-07-11 16:19:20 UTC-0700	2016193Lfx-java-tomcat-v2.zip
<input type="checkbox"/>	tomcat-webapp-v1		2016-07-11 16:18:25 UTC-0700	2016193bFB-java-tomcat-v1.zip
<input type="checkbox"/>	Sample Application		2016-07-11 16:04:14 UTC-0700	Sample Application

Saved Configurations

Here you can upload new versions, deploy an existing version to any of the application's environments, or delete old versions. See [Managing Application Versions \(p. 40\)](#) for more information about the options on this page.

Choose **Saved Configurations** to view a list of configurations saved from running environments. A saved configuration is a collection of settings that you can use to restore an environment's settings to a previous state or create a new environment with the same settings.



The screenshot shows the AWS Elastic Beanstalk console interface. At the top, it displays 'All Applications > tomcat-webapp'. On the left, there is a navigation pane with 'Application Versions' selected. The main content area shows a table of application versions. The table has columns for 'Configuration Name', 'Last Updated', and 'Solution Stack'. There are three rows of data, each with a checkbox in the first column.

<input type="checkbox"/>	Configuration Name	Last Updated	Solution Stack
<input type="checkbox"/>	tomcat-webapp-prod	2016-07-11 17:01:44 UTC-0700	64bit Amazon Linux 2016.03 v2.1.3 running Tomcat 8 Java 8
<input type="checkbox"/>	tomcat-webapp-test	2016-07-11 17:01:30 UTC-0700	64bit Amazon Linux 2016.03 v2.1.3 running Tomcat 8 Java 8
<input type="checkbox"/>	tomcat-webapp-dev	2016-07-11 17:01:13 UTC-0700	64bit Amazon Linux 2016.03 v2.1.3 running Tomcat 8 Java 8

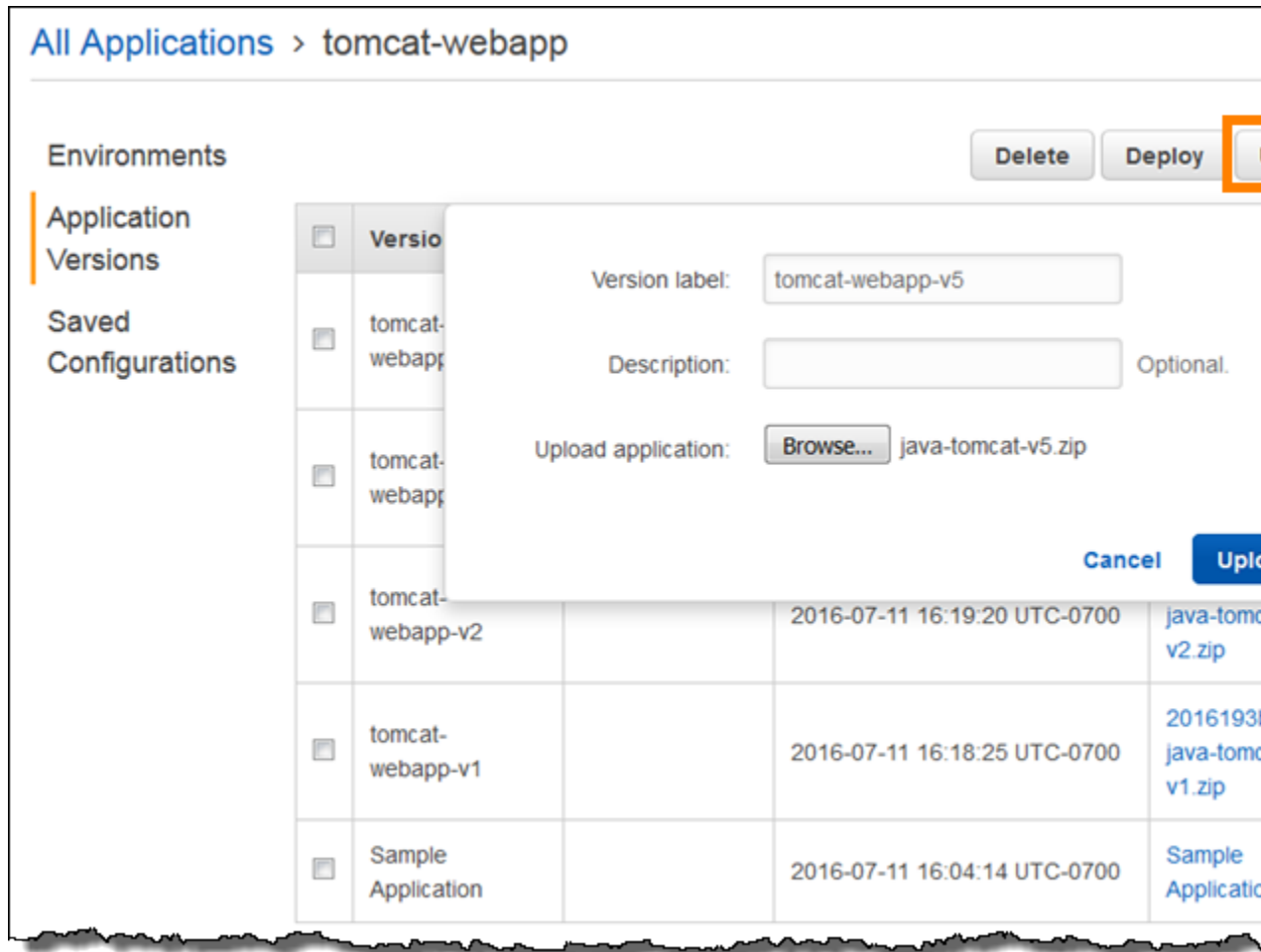
See [Using Elastic Beanstalk Saved Configurations \(p. 215\)](#) for more information.

Managing Application Versions

Elastic Beanstalk creates an application version whenever you upload source code. This usually occurs when you create a new environment or upload and deploy code using the [environment management console \(p. 52\)](#) or [EB CLI \(p. 416\)](#). You can also upload a source bundle without deploying it from the [application management console \(p. 37\)](#).

To create a new application version

1. Open the [Elastic Beanstalk console](#).
2. Choose an application.
3. In the navigation pane, choose **Application Versions**.
4. Choose **Upload**.



5. Enter a label for this version in the **Version label** field.
6. (Optional) Enter a brief description for this version in the **Description** field.
7. Choose **Browse** to specify the location of the [source bundle](#) (p. 43).

Note

The file size limit is 512 MB.

8. Choose **Upload**.

The file you specified is associated with your application. You can deploy the application version to a new or existing environment.

To delete an application version

1. Open the [Elastic Beanstalk console](#).
2. Choose an application.
3. In the navigation pane, choose **Application Versions**.
4. In the list of application versions, select the check box next to the application version that you want to delete, and then click **Delete**.

All Applications > tomcat-webapp

Environments **Delete** Deploy

Application Versions

Saved Configurations

<input checked="" type="checkbox"/>	Version Label	Description	Date Created	Source
<input type="checkbox"/>	tomcat-webapp-v5		2016-07-11 16:49:11 UTC-0700	20161933 java-tomcat- v5.zip
<input type="checkbox"/>	tomcat-webapp-v4		2016-07-11 16:23:05 UTC-0700	20161933 java-tomcat- v4.zip
<input type="checkbox"/>	tomcat-webapp-v3		2016-07-11 16:22:45 UTC-0700	20161933 java-tomcat- v3.zip
<input type="checkbox"/>	tomcat-webapp-v2		2016-07-11 16:19:20 UTC-0700	20161933 java-tomcat- v2.zip
<input checked="" type="checkbox"/>	tomcat-webapp-v1		2016-07-11 16:18:25 UTC-0700	20161933 java-tomcat- v1.zip
<input type="checkbox"/>	Sample Application		2016-07-11 16:04:14 UTC-0700	Sample Application

- (Optional) To leave the application source bundle for this application version in your Amazon S3 bucket, uncheck **Delete versions from Amazon S3**.

Delete Application Versions

The following application versions will be deleted:

tomcat-webapp-v1

Delete versions from Amazon S3

- Choose **Delete**.

Note

Deleting an application version does not have any affect on environments currently running that version.

Create an Application Source Bundle

When you use the AWS Elastic Beanstalk console to deploy a new application or an application version, you'll need to upload a source bundle. Your source bundle must meet the following requirements:

- Consist of a single `ZIP` file or `WAR` file (you can include multiple `WAR` files inside your `ZIP` file)
- Not exceed 512 MB
- Not include a parent folder or top-level directory (subdirectories are fine)

If you want to deploy a worker application that processes periodic background tasks, your application source bundle must also include a `cron.yaml` file. For more information, see [Periodic Tasks \(p. 125\)](#).

If you are deploying your application with the Elastic Beanstalk Command Line Interface (EB CLI), the AWS Toolkit for Eclipse, or the AWS Toolkit for Visual Studio, the `ZIP` or `WAR` file will automatically be structured correctly. For more information, see [The Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 416\)](#), [Creating and Deploying Java Applications on AWS Elastic Beanstalk \(p. 595\)](#), and [The AWS Toolkit for Visual Studio \(p. 668\)](#).

Sections

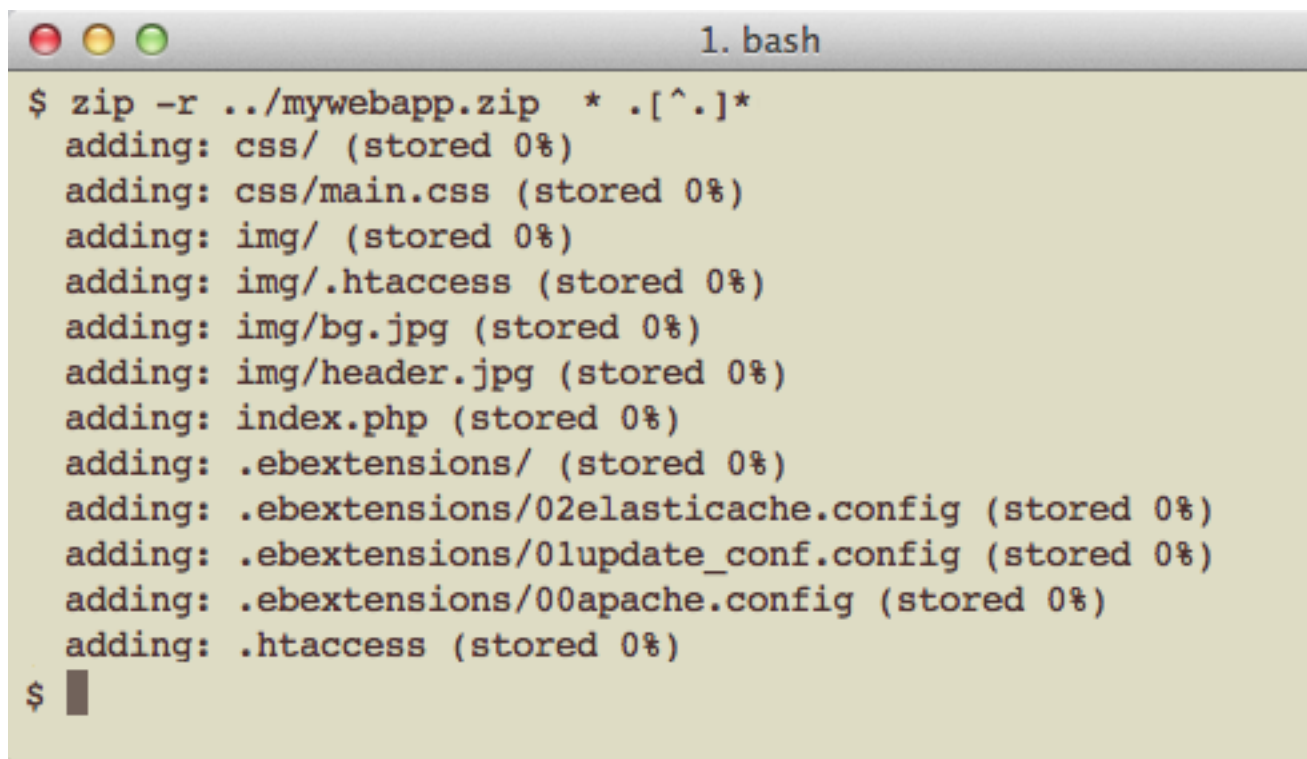
- [Creating a Source Bundle from the Command Line \(p. 43\)](#)
- [Creating a Source Bundle with Git \(p. 44\)](#)
- [Zipping Files in Mac OS X Finder or Windows Explorer \(p. 44\)](#)
- [Creating a Source Bundle for a .NET Application \(p. 49\)](#)
- [Testing Your Source Bundle \(p. 50\)](#)

Creating a Source Bundle from the Command Line

When you create a source bundle using a `zip` command or `jar` command (Mac OS X or Linux), you might want to work in the same directory as your source files, rather than in a parent folder or other higher-level directory. This will help ensure that the file paths in the compressed archive do not include an extra parent folder. Mac OS X and Linux-based operating systems hide files and folders with names that begin with a period (`.`). The following command ensures that your source bundle includes folders that begin with a period, such as the `.ebextensions` folder.

Example

```
$ zip ../myapp.zip -r * .[^.]*
$ jar -cvf mywebapp.war *
```



```
1. bash
$ zip -r ../mywebapp.zip * .[^.]*
  adding: css/ (stored 0%)
  adding: css/main.css (stored 0%)
  adding: img/ (stored 0%)
  adding: img/.htaccess (stored 0%)
  adding: img/bg.jpg (stored 0%)
  adding: img/header.jpg (stored 0%)
  adding: index.php (stored 0%)
  adding: .ebextensions/ (stored 0%)
  adding: .ebextensions/02elasticache.config (stored 0%)
  adding: .ebextensions/01update_conf.config (stored 0%)
  adding: .ebextensions/00apache.config (stored 0%)
  adding: .htaccess (stored 0%)
$
```

Creating a Source Bundle with Git

If you're using Git to manage your application source code, you can use the `archive` command to create your source bundle.

To bundle your most recent Git commit

- To create a ZIP archive of your most recent Git commit on the current branch, type the following command or issue it via a Git client, replacing `<myapp>` with your preferred archive name:

```
$ git archive --format=zip HEAD > <myapp>.zip
```

For more details, go to the [git-archive manual page](#).

Zippping Files in Mac OS X Finder or Windows Explorer

When you create a ZIP file in Mac OS X Finder or Windows Explorer, make sure you zip the files and subfolders themselves, rather than zipping the parent folder.

Note

The graphical user interface (GUI) on Mac OS X and Linux-based operating systems does not display files and folders with names that begin with a period (.). Use the command line instead of the GUI to compress your application if the ZIP file must include a hidden folder, such as `.ebextensions`. For command line procedures to create a ZIP file on Mac OS X or a Linux-based operating system, see [Creating a Source Bundle from the Command Line](#) (p. 43).

Example

Suppose you have a Python project folder labeled `myapp`, which includes the following files and subfolders:

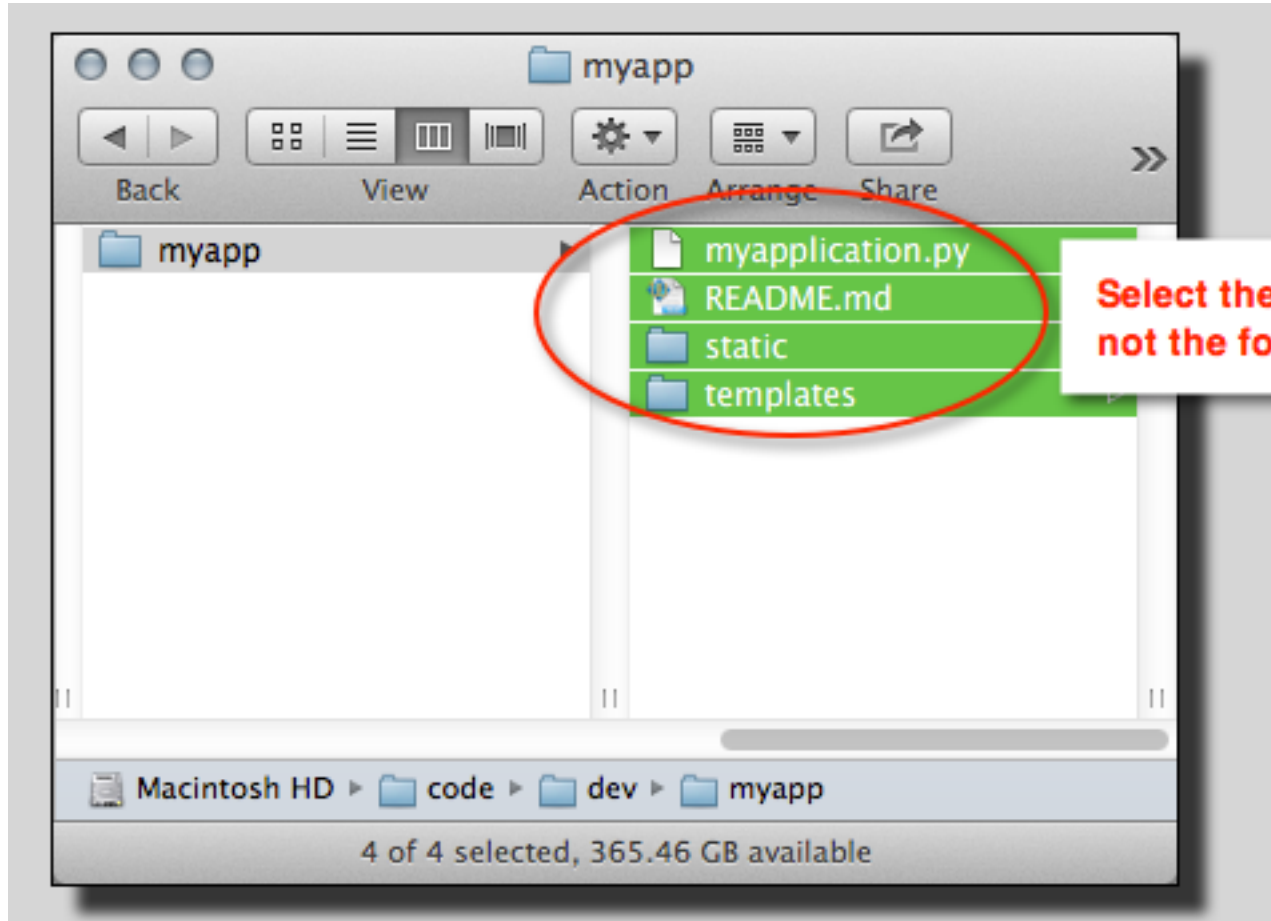
```
myapplication.py
README.md
static/
static/css
static/css/styles.css
static/img
static/img/favicon.ico
static/img/logo.png
templates/
templates/base.html
templates/index.html
```

As noted in the list of requirements above, your source bundle must be compressed without a parent folder, so that its decompressed structure does not include an extra top-level directory. In this example, no `myapp` folder should be created when the files are decompressed (or, at the command line, no `myapp` segment should be added to the file paths).

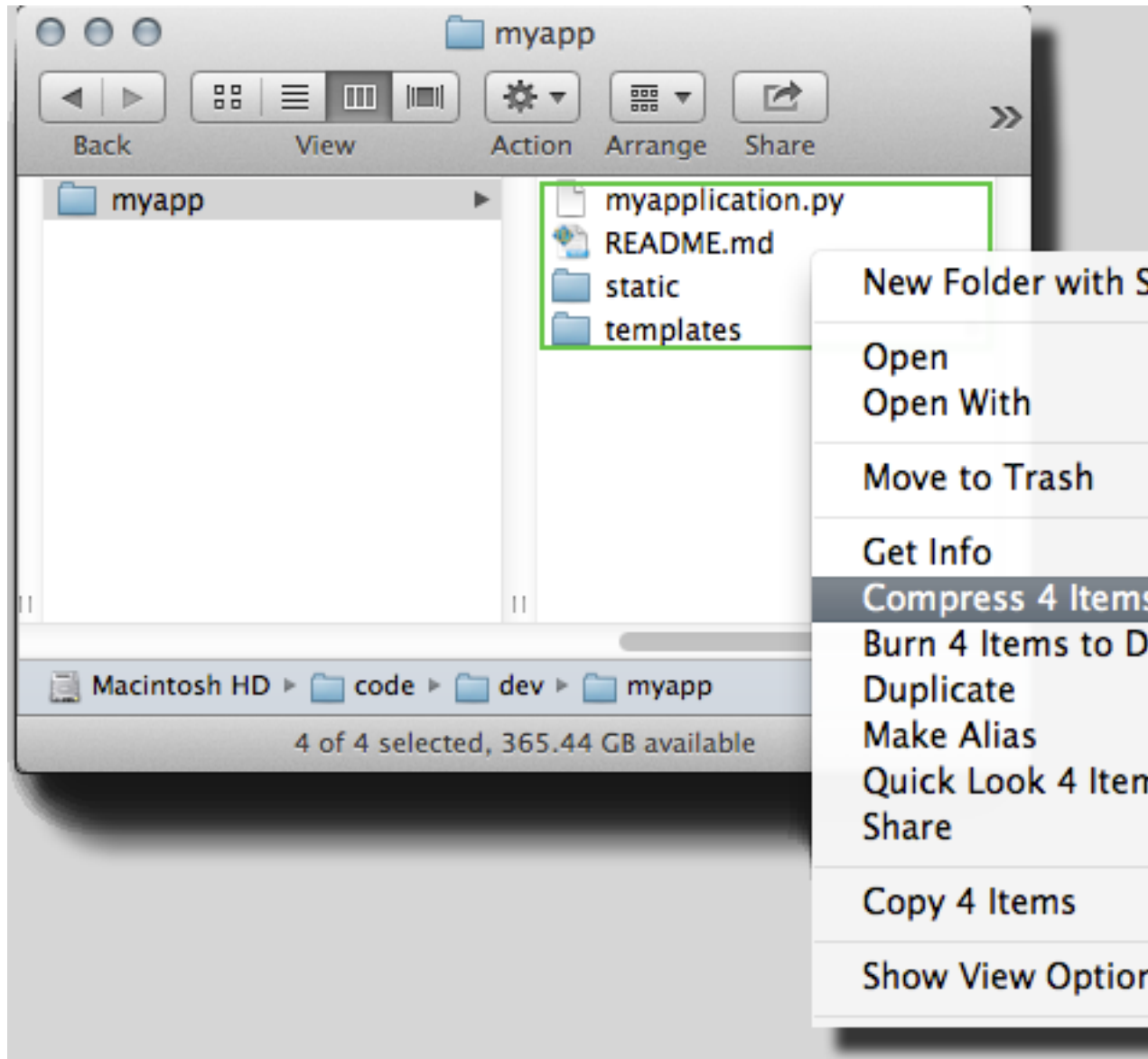
This sample file structure is used throughout this topic to illustrate how to zip files.

To zip files in Mac OS X Finder

1. Open your top-level project folder and select all the files and subfolders within it. Do not select the top-level folder itself.

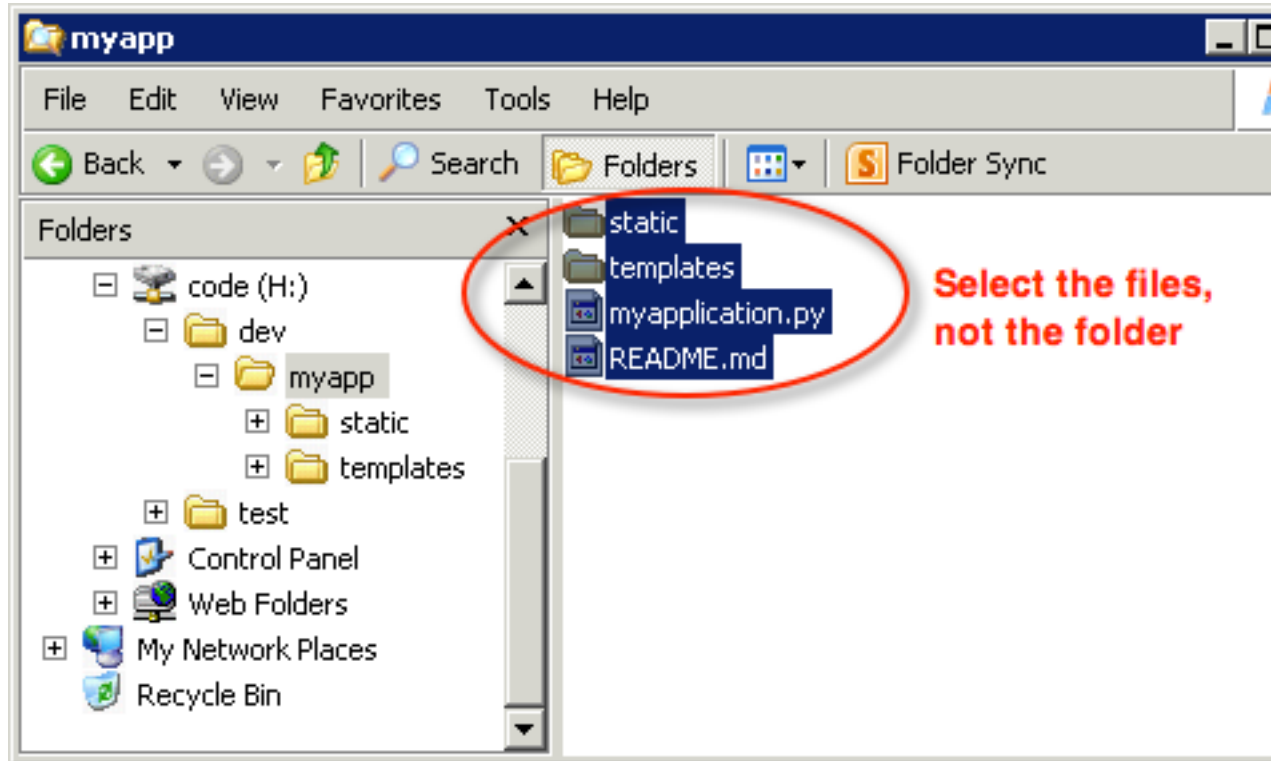


2. Right-click the selected files, and then choose **Compress X items**, where X is the number of files and subfolders you've selected.

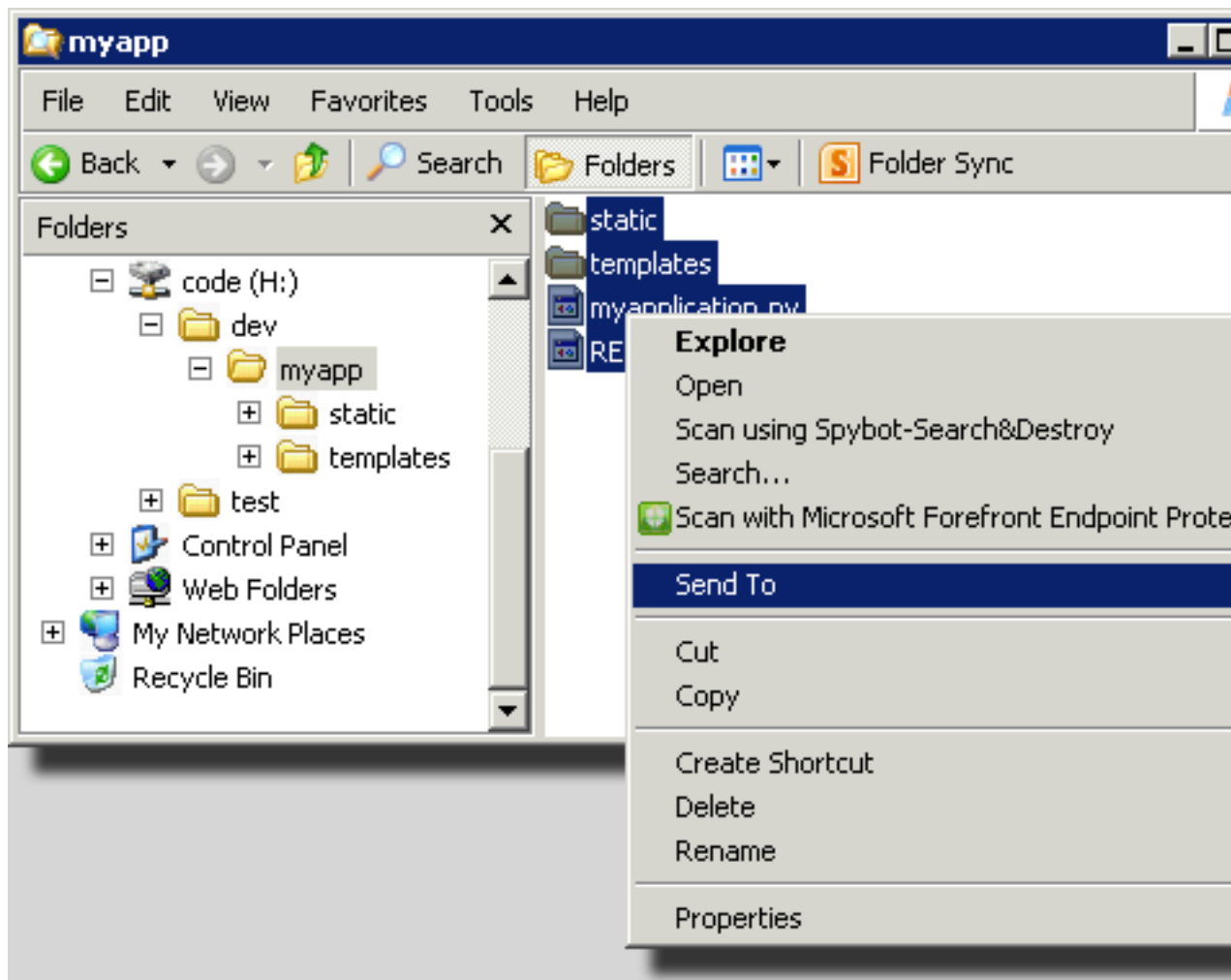


To zip files in Windows Explorer

1. Open your top-level project folder and select all the files and subfolders within it. Do not select the top-level folder itself.



2. Right-click the selected files, choose **Send to**, and then choose **Compressed (zipped) folder**.



Creating a Source Bundle for a .NET Application

We recommend that you use the deployment tool included in the AWS Toolkit for Visual Studio to deploy your .NET application to Elastic Beanstalk. For more information, see [Deploying Elastic Beanstalk Applications in .NET Using the Deployment Tool \(p. 682\)](#).

If you need to manually create a source bundle for your .NET application, you cannot simply create a zip file that contains the project directory. You must create a web deployment package for your project that is suitable for deployment to Elastic Beanstalk. There are several methods you can use to create a deployment package:

- Create the deployment package using the **Publish Web** wizard in Visual Studio. For more information, go to [How to: Create a Web Deployment Package in Visual Studio](#).

Important

When creating the web deployment package, you must start the **Site name** with `Default Web Site`.

- If you have a .NET project, you can create the deployment package using the **msbuild** command as shown in the following example.

Important

The `DeployIisAppPath` parameter must begin with `Default Web Site`.

```
C:/> msbuild <web_app>.csproj /t:Package /p:DeployIisAppPath="Default Web Site"
```

- If you have a website project, you can use the IIS Web Deploy tool to create the deployment package. For more information, go to [Packaging and Restoring a Web site](#).

Important

The `apphostconfig` parameter must begin with `Default Web Site`.

Testing Your Source Bundle

You may want to test your source bundle locally before you upload it to Elastic Beanstalk. Because Elastic Beanstalk essentially uses the command line to extract the files, it's best to do your tests from the command line rather than with a GUI tool.

To test the file extraction in Mac OS X or Linux

1. Open a terminal window (Mac OS X) or connect to the Linux server. Navigate to the directory that contains your source bundle.
2. Using the `unzip` or `jar xf` command, decompress the archive.
3. Ensure that the decompressed files appear in the same folder as the archive itself, rather than in a new top-level folder or directory.

Note

If you use Mac OS X Finder to decompress the archive, a new top-level folder will be created, no matter how you structured the archive itself. For best results, use the command line.

To test the file extraction in Windows

1. Download or install a program that allows you to extract compressed files via the command line. For example, you can download the free `unzip.exe` program from <http://stahlforce.com/dev/index.php?tool=zipunzip>.
2. If necessary, copy the executable file to the directory that contains your source bundle. If you've installed a system-wide tool, you can skip this step.
3. Using the appropriate command, decompress the archive. If you downloaded `unzip.exe` using the link in step 1, the command is `unzip <archive-name>`.
4. Ensure that the decompressed files appear in the same folder as the archive itself, rather than in a new top-level folder or directory.

Managing Environments

AWS Elastic Beanstalk makes it easy to create new environments for your application. You can create and manage separate environments for development, testing, and production use, and you can [deploy any version \(p. 98\)](#) of your application to any environment. Environments can be long-running or temporary. When you terminate an environment, you can save its configuration to recreate it later.

As you develop your application, you will deploy it often, possibly to several different environments for different purposes. Elastic Beanstalk lets you [configure how deployments are performed \(p. 99\)](#). You can deploy to all of the instances in your environment simultaneously, or split a deployment into batches with rolling deployments.

[Configuration changes \(p. 106\)](#) are processed separately from deployments, and have their own scope. For example, if you change the type of the EC2 instances running your application, all of the instances must be replaced. On the other hand, if you modify the configuration of the environment's load balancer, that change can be made in-place without interrupting service or lowering capacity. You can also apply configuration changes that modify the instances in your environment in batches with [rolling configuration updates \(p. 106\)](#).

Note

Modify the resources in your environment only by using Elastic Beanstalk. If you modify resources using another service's console, CLI commands, or SDKs, Elastic Beanstalk won't be able to accurately monitor the state of those resources, and you won't be able to save the configuration or reliably recreate the environment. Out-of band-changes can also cause issues when terminating an environment.

When you launch an environment, you choose a platform configuration. We update platform configurations periodically to provide performance improvements and new features. You can [update your environment to the latest platform configuration \(p. 113\)](#) at any time.

As your application grows in complexity, you can split it into multiple components, each running in a separate environment. For long-running workloads, you can launch [worker environments \(p. 122\)](#) that process jobs from an Amazon Simple Queue Service (Amazon SQS) queue.

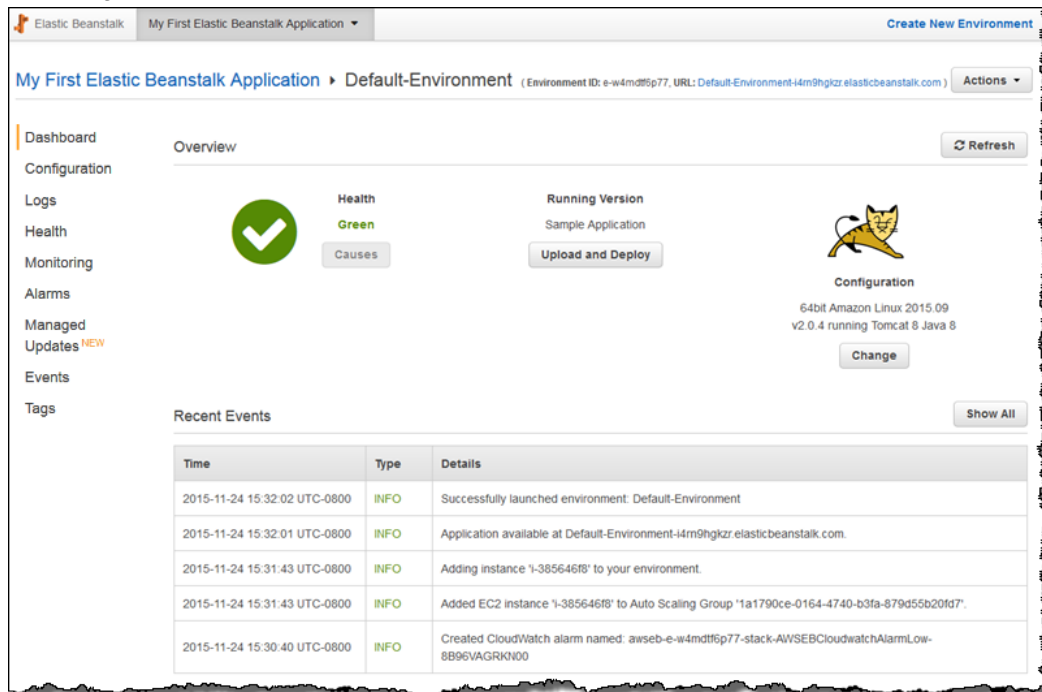
Topics

- [The AWS Elastic Beanstalk Environment Management Console \(p. 52\)](#)
- [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#)
- [Deploying Applications to AWS Elastic Beanstalk Environments \(p. 98\)](#)
- [Configuration Changes \(p. 106\)](#)
- [Updating Your Elastic Beanstalk Environment's Platform Version \(p. 113\)](#)
- [Canceling Environment Configuration Updates and Application Deployments \(p. 119\)](#)
- [Environment Types \(p. 120\)](#)
- [Worker Environments \(p. 122\)](#)

- [Creating Links Between AWS Elastic Beanstalk Environments \(p. 128\)](#)

The AWS Elastic Beanstalk Environment Management Console

The AWS Management Console provides a management page for each of your AWS Elastic Beanstalk environments. From this page, you can manage your environment's configuration and perform common actions including restarting the web servers running in your environment, cloning the environment, or rebuilding it from scratch.



Topics

- [Environment Dashboard \(p. 53\)](#)
- [Environment Management Actions \(p. 54\)](#)
- [Configuration \(p. 55\)](#)
- [Logs \(p. 56\)](#)
- [Health \(p. 57\)](#)
- [Monitoring \(p. 58\)](#)
- [Alarms \(p. 58\)](#)
- [Managed Updates \(p. 59\)](#)
- [Events \(p. 59\)](#)
- [Tags \(p. 60\)](#)

To access the environment management console, open the Elastic Beanstalk console in your region and click on the name of a running environment. Environments are shown in color coded tiles under their associated application. The color (green, grey or red) indicates the health of the environment.

At the top of the environment console, the name of the application is shown, followed by the name of the environment and the public DNS name of the running application.

Environment Dashboard

The main view of the environment management console is the **Dashboard**.

Within the environment management dashboard is an overview, which shows the environment's health, the application version, and information about the in-use platform, and a list of recent events generated by the environment.

Click **Refresh** to update the information shown. The overview contains the following information and options.

Health

The overall health of the environment. With [Enhanced Health Reporting and Monitoring \(p. 291\)](#) enabled, the environment status is shown with a **Causes** button you can click to view more information about the current status.

For [Basic Health Reporting \(p. 288\)](#) environments, a link to the [Monitoring Console \(p. 285\)](#) is shown.

Running Version

The name of the application version running on your environment. Click **Upload and Deploy** to upload a [source bundle \(p. 43\)](#) and deploy it to your environment. This option creates a new application version.

Configuration

Shows the architecture, OS version, and platform running on your environment. Click **Change** to select a different configuration. This option is only available if another compatible version of the platform is available. To be considered compatible, the architecture, OS name, and platform name must be the same.

Updating the platform version using this option replaces instances running in your environment with new instances.

Update Platform Version

i This operation will replace your instances, and your application might be briefly unavailable during the update. If you want to avoid downtime, you can create a clone of the environment that uses a newer version of the platform. [Learn more.](#)

Current platform: 64bit Amazon Linux 2015.03 v2.0.0 running Tomcat 8 Java 8

Platform: 64bit Amazon Linux 2015.09 v2.1.0 running Tomcat 8 Java 8
Most recent version

Service role: aws-elasticbeanstalk-service-ro [Refresh](#)
[Learn more.](#)

[Cancel](#) [Save](#)

Note

When you first use Beanstalk, only the latest version of each platform is available for use. The **Change** first becomes available when a new version of the operating system or platform is released. After upgrading, you have the option to change back to the previous version.

Recent Events

The **Recent Events** section of the environment management dashboard shows the most recent events emitted by your environment. This list is updated in real time when your environment is being updated.

Click **Show All** to open the **Events** menu.

Environment Management Actions

The environment management console contains an **Actions** drop down menu that you can use to perform common operations on your environment. This menu is shown on the right side of the environment header under the **Create New Environment** option.

Note

Some actions are only available under certain conditions, and will be greyed out unless these conditions are met.

Load Configuration

Load a previously saved configuration. Configurations are saved to your application and can be loaded by any associated environment. If you've made changes to your environment's configuration, you can load a saved configuration to undo those changes. You can also load a configuration that you saved from a different environment running the same application to propagate configuration changes between them.

Save Configuration

Save the current configuration of your environment to your application. Prior to making changes to your environment's configuration, save the current configuration so that you can roll back later if needed. You can also apply a saved configuration when you launch a new environment.

Swap Environment URLs

Swap the CNAME of the current environment with a new environment. After a CNAME swap, all traffic to the application using the environment URL will go to the new environment. When you are ready to deploy a new version of your application, you can launch a separate environment under the new version. When the new environment is ready to start taking requests, perform a CNAME swap to start routing traffic to the new environment with no interruption of service. For more information see [Blue/Green Deployments with AWS Elastic Beanstalk \(p. 103\)](#).

Clone Environment

Launch a new environment with the same configuration as your currently running environment.

Clone with Latest Platform

Clone your current environment with the latest version of the in-use application platform. This option is only available when a newer version of the current environment's platform is available for use.

Abort Current Operation

Stop an in progress environment update. Aborting an operation can cause some of the instances in your environment to be in a different state than others, depending on how far the operation progressed. This option is only available when your environment is being updated.

Restart App Server(s)

Restart the web server running on your environment's instances. This option does not terminate or restart any AWS resources. If your environment is acting strangely in response to some bad requests, restarting the application server may restore functionality temporarily while you troubleshoot the root cause.

Rebuild Environment

Terminate all resources in the running environment and build a new environment with the same settings. This operation takes several minutes, equivalent to deploying a new environment from scratch. Any RDS instances running in your environment's data tier are deleted during a rebuild. If you need the data, create a snapshot. You can create a snapshot manually [in the RDS console](#) or configure your data tier's Deletion Policy to create a snapshot automatically prior to deleting the instance (this is the default setting when you create a data tier).

Terminate Environment

Terminate all resources in the running environment, and remove the environment from the application. If you have an RDS instance running in a data tier and need to retain the data, ensure that a snapshot is taken prior to terminating your environment. You can create a snapshot manually [in the RDS console](#) or configure your data tier's Deletion Policy to create a snapshot automatically prior to deleting the instance (this is the default setting when you create a data tier).

Configuration

The **Configuration** page shows the current configuration of your environment and its resources, including EC2 instances, load balancer, notifications and health monitoring settings. Use the settings on this page to customize the behavior of your environment during deployments, enable additional features, and modify the instance type and other settings that you chose during environment creation.

Web Tier

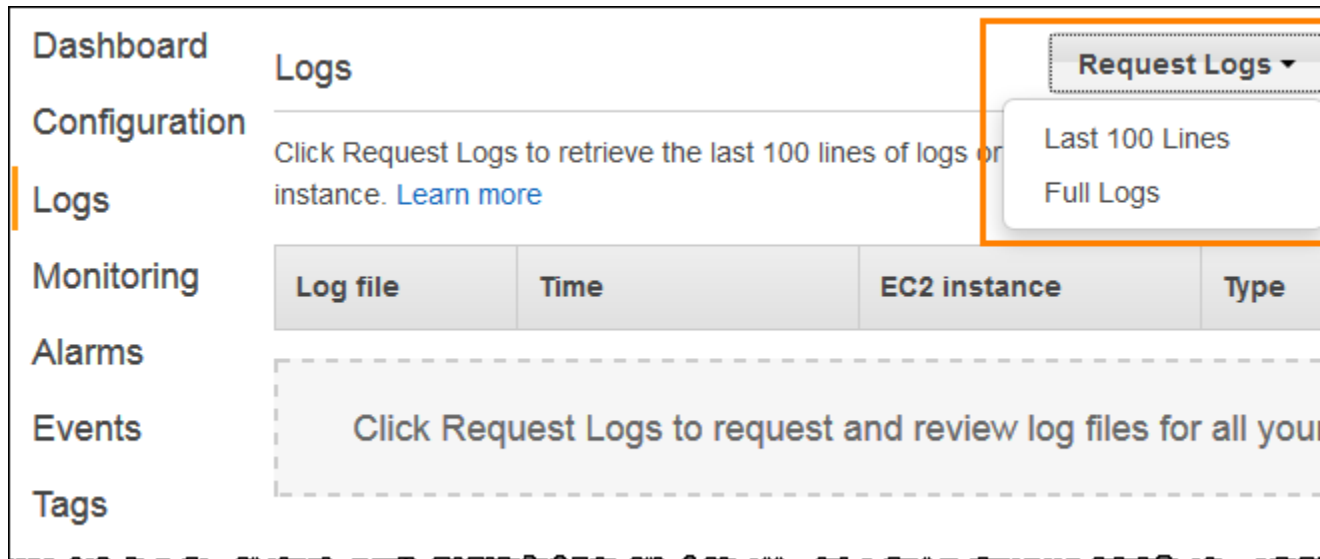
Scaling	Instances	Notifications
Environment type: Load balanced, auto scaling Number instances: 1 - 4 Scale based on: Average network out Add instance when > 6000000 Remove instance when < 2000000	Instance type: t1.micro Availability Zones: Any Key pair: ebcli-uswest2	Notification Send
Software Configuration	Updates and Deployments	Health
Log publication: Off Initial JVM heap size: 256m JVM command line options: <i>blank</i> Maximum JVM heap size: 256m Maximum JVM permanent generation size: 64m	Deployment policy: Rolling Deployment batch size: 30% Rolling updates are enabled Rolling update type: Health Max batch size: 1 Minimum instances in service: 1	Appli Health

For more information, see [AWS Elastic Beanstalk Environment Configuration \(p. 130\)](#).

Logs

The **Logs** page lets you retrieve logs from the EC2 instances in your environment. When you request logs, Elastic Beanstalk sends a command to the instances, which then upload logs to your Elastic Beanstalk storage bucket in Amazon S3. When you request logs on this page, Elastic Beanstalk automatically deletes them from Amazon S3 after 15 minutes.

You can also configure your environment's instances to upload logs to Amazon S3 for permanent storage after they have been rotated locally.



Dashboard
Configuration
Logs
Monitoring
Alarms
Events
Tags

Logs

Click Request Logs to retrieve the last 100 lines of logs for this instance. [Learn more](#)

Request Logs ▾
Last 100 Lines
Full Logs

Log file	Time	EC2 instance	Type
Click Request Logs to request and review log files for all your instances.			

For more information, see [Instance Logs \(p. 320\)](#).

Health

The **Health** page shows live health information about every instance in your environment, if enhanced health monitoring is enabled. Enhanced health monitoring allows Elastic Beanstalk to closely monitor the resources in your environment so that it can assess the health of your application more accurately.

When enhanced health monitoring is enabled, this page shows information about the requests served by the instances in your environment and metrics from the operating system including latency, load and CPU utilization.

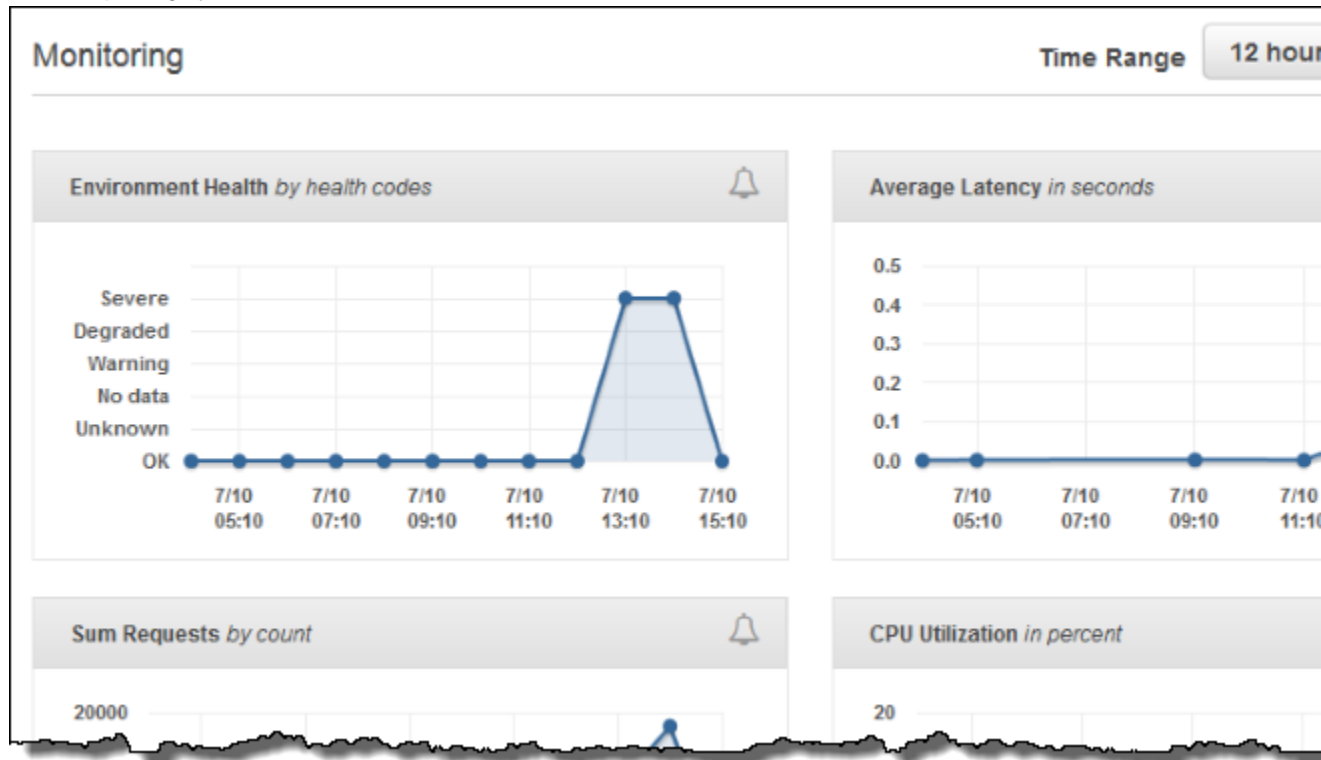
Enhanced Health Overview

	Server				Requests				
	Instance ID	Status	Running ▲	Dep. ID	R/sec	2xx	3xx	4xx	5xx
▶	Overall	Ok	N/A	N/A	405.2	100%	0.0%	0.0%	0.0%
☐ ▶	i-1f871182	Ok	19 minutes	21	115.1	1151	0	0	
☐ ▶	i-1e871183	Ok	19 minutes	21	141.8	1418	0	0	
☐ ▶	i-b4dbd02f	Ok	25 minutes	21	148.3	1483	0	0	

For more information, see [Enhanced Health Reporting and Monitoring](#) (p. 291).

Monitoring

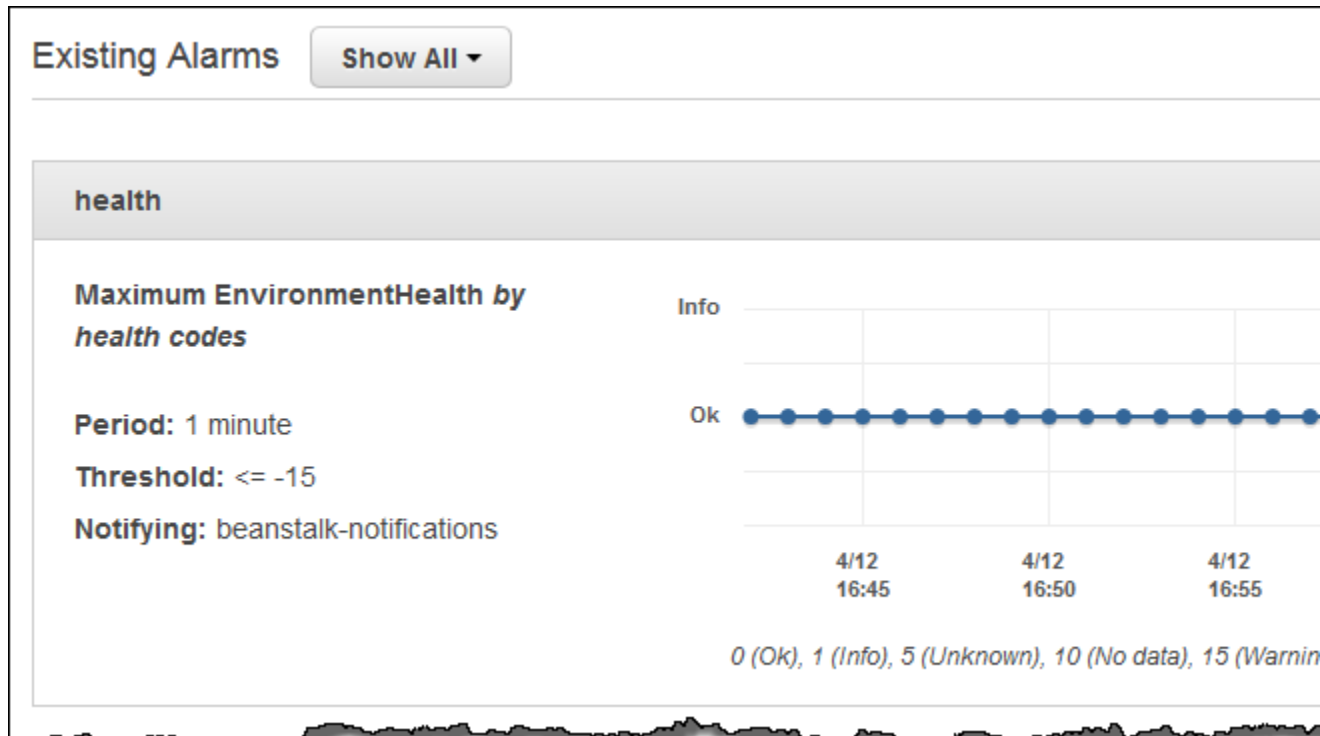
The **Monitoring** page shows an overview of health information for your environment, including the default set of metrics provided by Elastic Load Balancing and Amazon EC2, and graphs that show how the environment's health has changed over time. You can use the options on this page to configure additional graphs for resource specific metrics, and add alarms for any metric supported by the in-use health reporting system.



For more information, see [Monitoring Environment Health in the AWS Management Console](#) (p. 285).

Alarms

The **Alarms** page shows information about any alarms that you have configured for your environment. You can use the options on this page to modify or delete alarms.



For more information, see [Manage Alarms](#) (p. 315).

Managed Updates

The **Managed Updates** shows information about upcoming and completed managed platform updates and instance replacement. These features let you configure your environment to update to the latest platform version automatically during a weekly maintenance window that you choose.

In between platform releases, you can choose to have your environment replace all of its EC2 instances during the maintenance window. This can help alleviate issues that occur when your application runs for extended periods of time.

For more information, see [Managed Platform Updates](#) (p. 113).

Events

The **Events** page shows the event stream for your environment. Elastic Beanstalk outputs event messages whenever you interact with the environment, and when any of your environment's resources are created or modified as a result.

The screenshot shows the AWS Elastic Beanstalk console interface. At the top, the breadcrumb navigation reads 'elastic-beanstalk-example > elasticBeanstalkExa-env'. On the left, a navigation menu lists 'Dashboard', 'Configuration', 'Logs', 'Monitoring', 'Alarms', 'Events' (which is highlighted with an orange bar), and 'Tags'. The main content area is titled 'Events' and features a 'Severity' filter set to 'TRACE'. A timeline at the top shows a date range from '2015-05-18 11:40:00 UTC-0700' to '2015-07-01 15:52:12 UTC-0700'. Below this is a table of events with columns for 'Time', 'Type', and 'Details'. The events listed are all of type 'INFO' and describe various updates and configurations to the environment.

Time	Type	Details
2015-07-01 15:52:12 UTC-0700	INFO	Environment update completed successfully.
2015-07-01 15:52:12 UTC-0700	INFO	Successfully deployed new configuration to environ
2015-07-01 15:51:05 UTC-0700	INFO	Updating environment elasticBeanstalkExa-env's co
2015-07-01 15:51:00 UTC-0700	INFO	Environment update is starting.
2015-07-01 10:34:07 UTC-0700	INFO	Environment update completed successfully.
2015-07-01 10:34:07 UTC-0700	INFO	Successfully deployed new configuration to environ
2015-07-01 10:33:00 UTC-0700	INFO	Updating environment elasticBeanstalkExa-env's co
2015-07-01 10:32:56 UTC-0700	INFO	Environment update is starting.
2015-06-30 13:33:35 UTC-0700	INFO	Deleted log fragments for this environment.

For more information, see [Viewing an Elastic Beanstalk Environment's Event Stream](#) (p. 317).

Tags

The **Tags** page shows the tags that you applied to the environment when you created it. These tags are applied to every resource that Elastic Beanstalk creates to support your application.

Tags	
Key	Value
elasticbeanstalk:environment-name	wordpresssamp-92nu5-env
elasticbeanstalk:environment-id	e-rpdc4zmjys
Name	wordpresssamp-92nu5-env

For more information, see [Tagging Your Elastic Beanstalk Environment's Resources \(p. 111\)](#).

Creating an AWS Elastic Beanstalk Environment

You can deploy multiple environments when you need to run multiple versions of an application. For example, you might have development, integration, and production environments.

Note

For instructions on creating and managing environments with the EB CLI, see [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#).

The **Create New Environment** wizard in the AWS Management Console guides you through the creation of an environment step by step, with a bevy of options for configuring the resources that Elastic Beanstalk deploys on your behalf. If you are just getting started, you can use the default values for many of these options without issue.

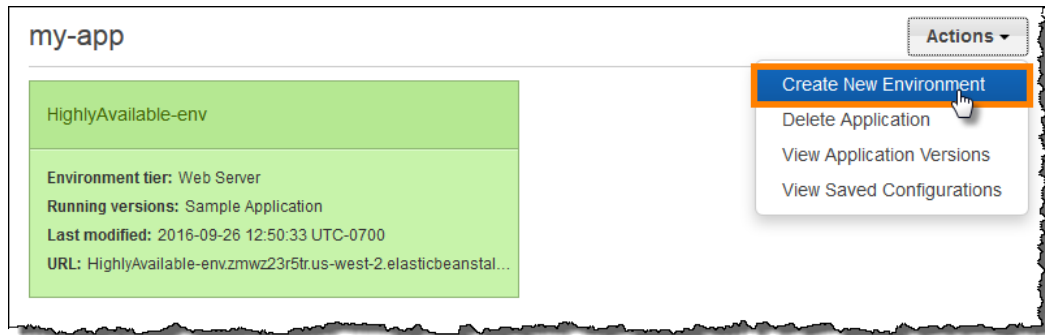
Note

Creating an environment requires the permissions in the Elastic Beanstalk full access managed policy. See [Elastic Beanstalk User Policy \(p. 19\)](#) for details.

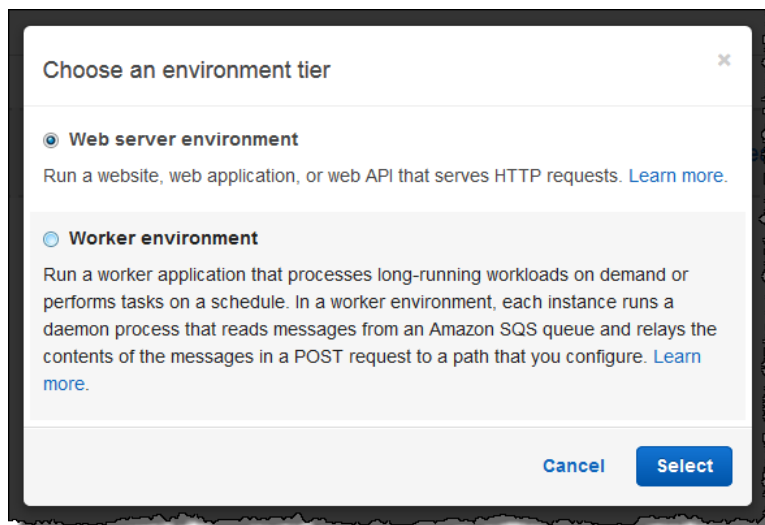
Follow this procedure to launch a new environment running the default application. These steps are simplified to get your environment up and running quickly. See [The Create New Environment Wizard \(p. 63\)](#) for more detailed instructions with descriptions of all of the available options.

To launch an environment with a sample application (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one \(p. 36\)](#).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

Note

Elastic Beanstalk supports multiple [configurations](#) (p. 24) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk](#) (p. 24). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Sample application**.
7. If you would like to further customize your environment, choose **Configure more options**. The following options can only be set during environment creation:
 - Environment name
 - Domain name
 - Platform configuration
 - VPC
 - Tier

The following settings can be changed after environment creation, but require new instances or other resources to be provisioned and can take a long time to apply:

- Instance type, root volume, key pair, and IAM role
- Internal RDS database

- Load balancer

For details on all available settings, see [The Create New Environment Wizard \(p. 63\)](#).

8. Choose **Create environment**.

While Elastic Beanstalk creates your environment, you are redirected to the [The AWS Elastic Beanstalk Environment Management Console \(p. 52\)](#). Once the environment health turns green, click on the URL next to the environment name to view the running application. This URL is generally accessible from the Internet unless you configure your environment to use a [custom VPC with an internal load balancer \(p. 81\)](#).

Topics

- [The Create New Environment Wizard \(p. 63\)](#)
- [Clone an Environment \(p. 85\)](#)
- [Terminate an Environment \(p. 88\)](#)
- [Creating Elastic Beanstalk Environments with the AWS CLI \(p. 89\)](#)
- [Creating Elastic Beanstalk Environments with the API \(p. 90\)](#)
- [Constructing a Launch Now URL \(p. 93\)](#)
- [Creating and Updating Groups of AWS Elastic Beanstalk Environments \(p. 96\)](#)

The Create New Environment Wizard

This topic provides more information about pages in the **Create New Environment** wizard. For basic instructions, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).

The Old New Environment Wizard

To launch a new environment

1. Open the [Elastic Beanstalk console](#).
2. From the Elastic Beanstalk console applications page, choose **Actions** for the application in which you want to launch a new environment.



3. Choose **Launch New Environment**.
4. Follow the instructions shown to launch an environment.

See the following sections for details on each page of the wizard.

Pages

- [New Environment \(p. 64\)](#)
- [Environment Type \(p. 64\)](#)

- [Application Version](#) (p. 64)
- [Environment Info](#) (p. 65)
- [Additional Resources](#) (p. 65)
- [Configuration Details](#) (p. 65)
- [Environment Tags](#) (p. 67)
- [Worker Details](#) (p. 67)
- [RDS Configuration](#) (p. 68)
- [VPC Configuration](#) (p. 69)
- [Permissions](#) (p. 70)
- [Review Information](#) (p. 70)

New Environment

On the **New Environment** page, select an environment tier. The environment tier setting specifies whether you want a **Web Server** or **Worker** environment. For more information, see [Architectural Overview](#) (p. 14).

Note

After you launch an environment, you cannot change the environment tier. If your application requires a different environment tier, you must launch a new environment.

Environment Type

On the **Environment Type** page, select a platform and environment type, and then choose **Next**.

- The **Predefined configuration** setting specifies the platform and version that is used for the environment. For more information, see [Supported Platforms](#) (p. 24).

Note

After you launch an environment with a specific configuration, you cannot change the configuration. If your application requires a different configuration, you must launch a new environment.

- The **Saved configuration** setting lists all environment configurations that you previously saved for this application, if any. If you have no saved configurations for this application, Elastic Beanstalk does not display this option in the console.
- The **Environment type** specifies whether the environment is load balancing and automatically scaling or is only a single Amazon EC2 instance. For more information, see [Environment Types](#) (p. 120).

Application Version

On the **Application Version** page, you can use the sample application, upload your own, or specify the URL for the Amazon S3 bucket that contains your application code.

Note

Depending on the platform configuration you selected, you can upload your application in a ZIP [source bundle](#) (p. 43), a WAR file, or a plaintext Docker configuration. You can include multiple WAR files inside a ZIP file to deploy multiple Tomcat applications to each instance in your environment. The file size limit is 512 MB.

For load-balancing, automatically scaling environments, choose a **Deployment policy** to configure how new application versions and changes to software configurations for instances are deployed. **All at once** completes deployments as quickly as possible, but can result in downtime. Rolling deployments ensure that some instances remain in service during the entire deployment process. The **Healthy threshold** option lets you lower the minimum status at which instances can pass

health checks during rolling deployments and configuration updates. See [Deployment Policies and Settings \(p. 99\)](#) for more information.

Environment Info

On the **Environment Information** page, enter the details of your environment and choose **Next**.

- Enter a name for the environment.
- (Web server environments) Enter a unique environment URL. Although the environment URL is populated with the environment name, you can enter a different name for the URL. Elastic Beanstalk uses this name to create a unique CNAME for the environment. You can check the availability of the URL by clicking **Check Availability**.
- (Optional) Enter a description for this environment.

Additional Resources

(Optional) On the **Additional Resources** page, select more resources for the environment, and then choose **Next**. Note the following:

- If you want to add an Amazon RDS DB to the environment, select **Create an RDS Database with this environment**. For more information about Amazon RDS, see [Amazon Relational Database Service \(Amazon RDS\)](#).
- To create your environment in a custom VPC, select **Create this environment inside a VPC**. For more information about Amazon VPC, see [Amazon Virtual Private Cloud \(Amazon VPC\)](#).

Configuration Details

Set configuration details for the environment, and then choose **Next**.

Configuration Details

Modify the following settings or click Next to accept the default configuration. [Learn more.](#)

Instance type: Determines the processing power of the servers in your environment.

EC2 key pair: Refresh Optional: Enables remote login to your instances.

Email address: Optional: Get notified about any major changes to your environment.

Application health check URL: Enter the relative URL that ELB continually monitors to ensure your application is available.

Enable rolling updates: Lets you control how changes to the environment's instances are propagated. [Learn more.](#)
 Specifies whether to wait to deploy updates and deployments according to a set period of time or instance health.

Cross zone load balancing: Enables load balancing across multiple Availability Zones. [Learn more.](#)

Connection draining: Enables the load balancer to maintain connections to an Amazon EC2 instance to complete in-progress requests while also stopping new requests. [Learn more.](#)

Connection draining timeout: seconds Maximum time that the load balancer maintains connections to an Amazon EC2 instance before forcibly closing connections.

Health Reporting

System type: Determines the health reporting type.

Root Volume (Boot Device)

Root volume type: Determines the type of storage volume to attach to instances.

Root volume size: Enables you to specify the size of the root volume.
 GIB
Number of gibabytes of the root volume attached to each instance. Must be between 10 and 16384 for Provisioned IOPS (SSD) and General Purpose (SSD) root volumes and between 8 and 1024 for other root volumes.

Cancel Previous Next

- **Instance type** displays the instance types available to your Elastic Beanstalk environment. Select a server with the characteristics (including memory size and CPU power) that are most appropriate to your application.

Note

Elastic Beanstalk is free, but the AWS resources that it provisions might not be. For information on Amazon EC2 usage fees, see [Amazon EC2 Pricing](#).

For more information about the Amazon EC2 instance types that are available for your Elastic Beanstalk environment, see [Instance Families and Types](#) in the *Amazon EC2 User Guide for Linux Instances*.

- Select an **EC2 key pair** to enable SSH or RDP access to the instances in your environment. For more information about Amazon EC2 key pairs, see [Using Credentials](#) in the *Amazon EC2 User Guide for Linux Instances*.
- Specify an **Email address** to receive notifications about important events emitted by your environment. For more information, see [Configuring Amazon SNS Notifications with Elastic Beanstalk](#) (p. 246).
- For load-balancing, automatically scaling environments, **Application health check URL**, **Cross-zone load balancing**, **Connection draining**, and **Connection draining timeout** let you configure the load balancer's behavior. For more information, see [Configuring the Load Balancer in your Elastic Beanstalk Environment](#) (p. 235).

- **Rolling updates type** provides options for managing how instances are replaced when you change settings on the AutoScaling group or VPC. For more information, see [Elastic Beanstalk Rolling Environment Configuration Updates](#) (p. 106).
- **Root volume type** displays the types of storage volumes provided by Amazon EBS that you can attach to Amazon EC2 instances in your Elastic Beanstalk environment. Select the volume type that meets your performance and price requirements. For more information, see [Amazon EBS Volume Types](#) and [Amazon EBS Product Details](#). The size of magnetic volumes can be between 8 GiB and 1,024 GiB, and SSD volumes can be between 10 GiB and 16,384 GiB.
- With **Root volume size**, you can specify the size of the storage volume that you selected. You must specify the root volume size you want if you choose **Provisioned IOPS (SSD)** as the root volume type that your instances will use. For other root volumes, if you do not specify your own value, Elastic Beanstalk uses the default volume size for the storage volume type.
- If you selected **Provisioned IOPS (SSD)** as your root volume type, you must specify the input/output operations per second (IOPS) that you want. The minimum is 100 and the maximum is 4,000. The maximum ratio of IOPS to your volume size is 30 to 1. For example, a volume with 3,000 IOPS must be at least 100 GiB.

Environment Tags

(Optional) On the **Environment Tags** page, create tags for the environment, and then choose **Next**. Restrictions on tag keys and tag values include the following:

- Keys and values can contain any alphabetic character in any language, any numeric character, white space, invisible separator, and the following symbols: `_ . : / = + \ - @`
- Keys and values are case-sensitive
- Values cannot match the environment name
- Values cannot include either `aws:` or `elasticbeanstalk:`

For more information about using tags, see [Tagging Your Amazon EC2 Resources](#) in the *Amazon EC2 User Guide for Linux Instances*.

	Key (128 characters maximum)	Value (256 characters maximum)	
1.	<input type="text" value="CostCenter"/>	<input type="text" value="1234567890"/>	✕
2.	<input type="text" value="Department"/>	<input type="text" value="Marketing"/>	✕
3.	<input type="text" value="Owner"/>	<input type="text" value="Jane Doe"/>	✕
4.	<input type="text"/>	<input type="text"/>	

4 remaining

Worker Details

(worker environments) On the **Worker Details** page, set the following preliminary worker environment tier details. Then, choose **Next**.

- **Worker queue** specifies the queue from which the worker environment tier reads messages that it will process. If you do not provide a value, then Elastic Beanstalk automatically creates one for you.
- **HTTP path** specifies the relative path on the local host to which messages from the queue are forwarded in the form of HTTP POST requests.
- **MIME type** specifies the MIME type of the message sent in the HTTP POST request.
- **HTTP connections** specifies the maximum number of concurrent connections to the application. Set this to the number of process or thread messages your application can process in parallel.
- **Visibility timeout** specifies how long an incoming message is locked for processing before being returned to the queue. Set this to the potentially longest amount of time that might be required to process a message.

RDS Configuration

If you chose to associate an Amazon RDS DB earlier in the environment configuration process, on the **RDS Configuration** page, set the Amazon RDS configuration settings, and then choose **Next**.

- (Optional) For **Snapshot**, select whether to create an Amazon RDS DB from an existing snapshot.
- (Optional) For **DB engine**, select a database engine.
- (Optional) For **Instance Class**, select a database instance class. For information about the DB instance classes, see <http://aws.amazon.com/rds/>.

- For **Allocated Storage**, type the space needed for your database. You can allocate between 5 GB and 1024 GB. You cannot update the allocated storage for a database to a lower amount after you set it. In some cases, allocating a larger amount of storage for your DB instance than the size of your database can improve IO performance. For information about storage allocation, see [Features](#).
- For **Master Username**, type a name using alphanumeric characters to use to log in to your DB instance with all database privileges.
- For **Master Password**, type a password containing 8–16 printable ASCII characters (excluding /, \, and @).
- For **Deletion Policy**, select **Create snapshot** to create a snapshot that you can use later to create another Amazon RDS database. Select **Delete** to delete the DB instance when you terminate the environment. If you select **Delete**, you lose your DB instance and all the data in it when you terminate the Elastic Beanstalk instance associated with it. By default, Elastic Beanstalk creates and saves a snapshot. You can use a snapshot to restore data to use in a new environment, but cannot otherwise recover lost data.

Note

You may incur charges for storing database snapshots. For more information, see the "Backup Storage" section of [Amazon RDS Pricing](#).

- For **Availability**, select one of the following:
 - To configure your database in one Availability Zone, select **Single Availability Zone**. A database instance launched in one Availability Zone does not have protection from the failure of a single location.
 - To configure your database across multiple Availability Zones, select **Multiple Availability Zones**. Running your database instance in multiple Availability Zones helps safeguard your data in the unlikely event of a database instance component failure or service health disruption in one Availability Zone.

VPC Configuration

If you chose to create an environment inside a VPC earlier in the environment creation process, set the VPC configuration settings, and then choose **Next**.

VPC Configuration

Select the VPC to use when creating your environment. [Learn more](#).

VPC: Refresh

Associate Public IP Address

Select different subnets for ELB and EC2 instances in your Availability Zone.

AZ	Subnet	ELB	EC2	RDS
us-east-1a	subnet-01300047 (10.0.0.0/24)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	subnet-bfd6e5f9 (10.0.2.0/24)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
us-east-1b	subnet-60762648 (10.0.1.0/24)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VPC security group: Refresh

ELB visibility:

Select Internal when load balancing a back-end service that should not be publicly available.

- Select the VPC ID of the VPC in which you want to launch your environment.

Note

If you do not see the VPC information, then you have not created a VPC in the same region in which you are launching your environment. To learn how to create a VPC, see [Using Elastic Beanstalk with Amazon VPC \(p. 390\)](#).

- For a load-balancing, automatically scaling environment, select the subnets for the Elastic Load Balancing load balancer and the Amazon EC2 instances. If you created a single public subnet, select the **Associate Public IP Address** check box, and then select the check boxes for the load balancer and the Amazon EC2 instances. If you created public and private subnets, be sure the load balancer (public subnet) and the Amazon EC2 instances (private subnet) are associated with the correct subnet. By default, Amazon VPC creates a default public subnet using 10.0.0.0/24 and a private subnet using 10.0.1.0/24. You can view your existing subnets in the Amazon VPC console at <https://console.aws.amazon.com/vpc/>.
- For a single-instance environment, select a public subnet for the Amazon EC2 instance. By default, Amazon VPC creates a default public subnet using 10.0.0.0/24. You can view your existing subnets in the Amazon VPC console at <https://console.aws.amazon.com/vpc/>.
- If you are using Amazon RDS, you must select at least two subnets in different Availability Zones. To learn how to create subnets for your VPC, see [Task 1: Create the VPC and Subnets](#) in the *Amazon VPC User Guide*.
- If your VPC configuration uses a NAT device, select the security group you created for your instances. For more information, see [Create a Security Group for Your Instances \(p. 398\)](#). If you do not have a NAT device or if you did not create a security group, you can use the default security group.
- For a load-balancing, automatically scaling environment, select whether you want to make the load balancer external or internal. If you do not want your load balancer to be available to the Internet, select **Internal**.

Permissions

For **Permissions** window, select an [instance profile \(p. 18\)](#) and [service role \(p. 17\)](#). An instance profile grants the Amazon EC2 instances in your environment permissions to access AWS resources. A service role grants Elastic Beanstalk permission to monitor the resources in your environment. For more information, see [Service Roles, Instance Profiles, and User Policies \(p. 17\)](#).)

If you've created a custom instance profile and service role, select them from the drop-down menus. If not, choose **Next** to use the default roles.

The Elastic Beanstalk console looks for an instance profile named `aws-elasticbeanstalk-ec2-role` and a service role named `aws-elasticbeanstalk-service-role`. If you don't have these roles, the console creates them for you.

Review Information

On the **Review Information** page, review your application and environment information, and then choose **Launch**.

Elastic Beanstalk launches your application in a new environment. It can take several minutes for the new environment to start while Elastic Beanstalk is provisioning AWS resources. You can view the status of your deployment on the environment's dashboard. While Elastic Beanstalk creates your AWS resources and launches your application, the environment displays a gray state. Status messages about launch events appear in the environment's dashboard. When the deployment is complete, Elastic Beanstalk performs an application health check. The environment status becomes green when the application responds to the health check.

Pages

- [Create a new environment \(p. 71\)](#)

- [Configuration presets \(p. 72\)](#)
- [Environment settings \(p. 72\)](#)
- [Software settings \(p. 73\)](#)
- [Instances \(p. 74\)](#)
- [Capacity \(p. 75\)](#)
- [Load Balancer \(p. 76\)](#)
- [Rolling updates and deployments \(p. 78\)](#)
- [Security \(p. 80\)](#)
- [Monitoring \(p. 80\)](#)
- [Notifications \(p. 81\)](#)
- [Network \(p. 81\)](#)
- [Database \(p. 83\)](#)
- [Worker Details \(p. 84\)](#)

Create a new environment

You can use the sample application, upload your own application, or specify the URL for the Amazon S3 bucket that contains your application code.

Choose **Create environment** to launch an environment right away with a default environment name, automatically generated domain, and recommended settings. To configure more options before you launch, choose **Configure more options**.

The screenshot shows the 'Create a new environment' wizard interface. It includes a title, a brief description, and several configuration sections: 'Application name' (my-app), 'Tier' (Web Server), 'Platform' (PHP), and 'Application code' (Sample application). The 'Application code' section has three radio buttons: 'Sample application', 'Existing version', and 'Upload your code'. The 'Existing version' option has a dropdown menu. At the bottom, there are three buttons: 'Cancel', 'Configure more options', and 'Create environment'.

Note

Depending on the platform configuration you selected, you can upload your application in a ZIP [source bundle \(p. 43\)](#), a [WAR file \(p. 600\)](#), or a [plaintext Docker configuration \(p. 556\)](#). The file size limit is 512 MB.

Configuration presets

Elastic Beanstalk provides configuration presets for low-cost development and high availability use cases. Each preset includes a default environment name and recommended values for several [configuration options](#) (p. 131).



The high availability preset includes a load balancer; the low cost preset does not. Choose this option if you want a load-balanced environment that can run multiple instances for high availability and scale in response to load.

The third preset, **Custom configuration**, removes all recommended values except role settings and uses the API defaults. Choose this option if you are deploying a source bundle with [configuration files](#) (p. 178) that set configuration options. **Custom configuration** is also selected automatically if you modify either the low cost or high availability configuration presets.

Environment settings

Set the name and subdomain, and create a description for your environment. Be aware that once you specify the environment settings, you cannot change them later.

Parameters

Name

Domain
my-app-dev-75849b.us-west-2.elasticbeanstalk.com **is available**

Description

Tags

Apply up to 7 tags to the resources in your environment in addition to the default tags.

Key (128 characters maximum)	Value (256 characters maximum)
<input type="text" value="cost-center"/>	<input type="text" value="engineering"/> <input type="button" value="x"/>
<input type="text"/>	<input type="text"/>

6 remaining

- **Name** – Enter a name for the environment.
- **Domain** – (web server environments) Enter a unique URL for your environment. Although the environment URL is populated with the environment name, you can enter a different name for the URL. Elastic Beanstalk uses this name to create a unique CNAME for the environment. To check whether the URL you want is available, click **Check Availability**.
- **Description** – Enter a description for this environment.
- **Tags** – Add [tags](#) to the resources in your environment. Restrictions on tag keys and tag values include the following:
 - Keys and values can contain any alphabetic character in any language, any numeric character, white space, invisible separator, and the following symbols: `_ . : / = + \ - @`
 - Keys and values are case-sensitive
 - Values cannot match the environment name
 - Values cannot include `aws:` or `elasticbeanstalk:`For more information about using tags, see [Tagging Your Amazon EC2 Resources](#) in the *Amazon EC2 User Guide for Linux Instances*.

Software settings

Configure the instances in your environment to upload rotated logs to Amazon S3, and set environment properties to pass information to your application. More platform-specific settings are available on the **Configuration** page after you create your environment.

Application logs

Log storage Enabled (Standard storage charges apply.)

Environment properties

The following properties are passed into the application as environment variables. [Learn more.](#)

Name	Value
HASH_KEY	c4ca4238a0b923820dcc509a6f7: ✕
	✕

- **Application logs** – Enable **Log storage** to upload rotated logs from the instances in your environment to your Elastic Beanstalk storage bucket in Amazon S3.
- **Environment properties** – Set properties that are passed to the application on-instance as environment variables.

The way that properties are passed to applications varies by platform. In general, properties are *not* visible if you connect to an instance and run `env`.

Instances

Configure the Amazon EC2 instances that serve requests in your environment.

Instance type

Choose an instance type that best matches your workload requirement.

Instance type t2.micro

AMI ID ami-175e8f77

Root volume (boot device)

Root volume type General Purpose (SSD)

Size 20 GB

The number of gigabytes of the root volume attached to each instance.

IOPS 100 IOPS

Input/output operations per second for a provisioned IOPS (SSD) volume.

- **Instance type** – Select a server with the characteristics (including memory size and CPU power) that are most appropriate to your application.

For more information about the Amazon EC2 instance types available for your Elastic Beanstalk environment, see [Instance Families and Types](#) in the *Amazon EC2 User Guide for Linux Instances*.

- **AMI ID** – If you have created a [custom AMI \(p. 230\)](#), specify the AMI ID to use on your instances.
- **Root volume** – Specify the type, size, and input/output operations per second (IOPS) for your root volume.
 - **Root volume type** – From the list of storage volumes types provided by Amazon EBS, choose the type to attach to the Amazon EC2 instances in your Elastic Beanstalk environment. Select the volume type that meets your performance and price requirements. For more information, see [Amazon EBS Volume Types](#) and [Amazon EBS Product Details](#).
 - **Size** – Set the size of your storage volume. The size for magnetic volumes can be between 8 GiB and 1024 GiB; SSD volumes can be between 10 GiB and 16,384 GiB. If you choose **Provisioned IOPS (SSD)** as the root volume type for your instances, you must specify the value you want for root volume size. For other root volumes, if you do not specify your own value, Elastic Beanstalk uses the default volume size for that storage volume type.
 - **IOPS** – Specify the input/output operations per second that you want. If you selected **Provisioned IOPS (SSD)** as your root volume type, you must specify the IOPS. The minimum is 100 and the maximum is 4,000. The maximum ratio of IOPS to your volume size is 30 to 1. For example, a volume with 3,000 IOPS must be at least 100 GiB.

Capacity

Configure the compute capacity of your environment and **Auto Scaling Group** settings to optimize the number of instances you're using.

The screenshot shows the 'Auto Scaling Group' configuration section. It includes the following settings:

- Environment type:** A dropdown menu set to 'Load balanced'.
- Availability Zones:** A dropdown menu set to 'Any'. Below it, the text 'Number of Availability Zones (AZs) to use.' is visible.
- Instances:** Two input fields for 'Min' (set to 2) and 'Max' (set to 5).
- Placement:** A list box containing 'us-west-2a', 'us-west-2b', and 'us-west-2c'. Below it, the text 'Specify Availability Zones (AZs) to use.' is visible.

- **Environment type** – Choose **Load balanced** to run the Amazon EC2 instances in your environment behind a load balancer, or **Single instance** to run one instance without a load balancer.
- **Availability Zones** – Restrict the number of Availability Zones to use for instances.
- **Instances** – Set the minimum and maximum number of instances to run.
- **Placement** – Choose AZs that must have instances at all times. If you assign Availability Zones here, the minimum number of instances must be at least the number of Availability Zones that you choose.

A load balanced environment can run multiple instances for high availability and prevent downtime during configuration updates and deployments. In a load balanced environment, the domain name

maps to the load balancer. In a single instance environment, it maps to an elastic IP address on the instance.

A **scaling trigger** is an Amazon CloudWatch alarm that lets Auto Scaling know when to scale the number of instances in your environment. Your environment includes two triggers by default, a high trigger to scale up, and a low trigger to scale down.

Scaling triggers

Metric CPUUtilization
Change the metric that is monitored to determine if the environment's capacity is too low or too high.

Statistic Average
Choose how the metric is interpreted.

Unit Percent

Period 1 Min
The period between metric evaluations.

Breach duration 10 Min
The amount of time a metric can exceed a threshold before triggering a scaling operation.

Upper threshold 70

Lower threshold 30

- **Metric** – Choose the metric that the alarm monitors to identify times when you have too few or too many running instances for the amount of traffic that your application receives.
- **Statistic** – Choose how to interpret the metric. Metrics can be measured as an average across all instances, the maximum or minimum value seen, or a sum value from the numbers submitted by all instances.
- **Unit** – Specify the unit of measurement for the values of upper and lower thresholds.
- **Period** – Specify the amount of time between each metric evaluation.
- **Breach duration** – Specify the amount of time that a metric can meet or exceed a threshold before triggering the alarm. This value must be a multiple of the value for **Period**. For example, with a period of 1 minute and a breach duration of 10 minutes, the threshold must be exceeded on 10 consecutive evaluations to trigger a scaling operation
- **Upper threshold** – Specify the minimum value that a statistic can match to be considered in breach.
- **Lower threshold** – Specify the maximum value that a statistic can match to be considered in breach.

For more information on CloudWatch metrics and alarms, see [Amazon CloudWatch Concepts](#) in the *Amazon CloudWatch User Guide*.

Load Balancer

Your environment's load balancer is the entry point for all traffic headed for your application. By default, the load balancer serves HTTP traffic on port 80, but you can also configure a secure listener to accept

secure connections using HTTPS. If you use HTTPS to provide secure connections on port 443, you can disable the default listener to require users to connect securely.

Elastic load balancer (ELB)

You can configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to your instances. By default, we've configured your load balancer with a standard web server on port 80.

ELB listener

Port OFF
The external facing HTTP port number to the load balancer.

Protocol HTTP
The protocol used by the listener.

Secure ELB listener

Port 443
The external facing HTTPS port number to the load balancer.

Protocol HTTPS
The protocol used by the secure listener.

SSL certificate elastic-beanstalk-x509
The SSL certificate assigned to the secure port listener.

- **ELB listener** – The default listener on the load balancer serves HTTP traffic from the Internet or, for an internal application, networks connected to your VPC.
- **Secure ELB listener** – The secure listener terminates HTTPS connections using a TLS/SSL certificate and passes the decrypted traffic to your instances. You can [upload certificates with IAM \(p. 253\)](#), or [create a new certificate with AWS Certificate Manager](#) for a domain that you own.

Use the remaining options to enable cross-zone load balancing and connection draining.

Cross-zone load balancing

Enable load balancing across multiple AZs

Connection draining

Enable connection draining

Draining timeout 20 seconds
Maximum time that the load balancer maintains connections to an Amazon EC2 instance before forcibly closing connections.

- **Cross-zone load balancing** – Ensures traffic is balanced correctly when the number of instances in each availability zone is not uniform, and prevents issues due to DNS caching on clients.
- **Connection draining** – Allows time for active connections to complete before deregistering an instance from the load balancer during scaling operations, updates, and deployments.

You can use [configuration files \(p. 178\)](#) to configure more load balancer options, including advanced listener configuration, TCP passthrough, application load balancing, and backend authentication. See [Configuring the Load Balancer in your Elastic Beanstalk Environment \(p. 235\)](#) and [Configuring HTTPS for your Elastic Beanstalk Environment \(p. 250\)](#) for more information.

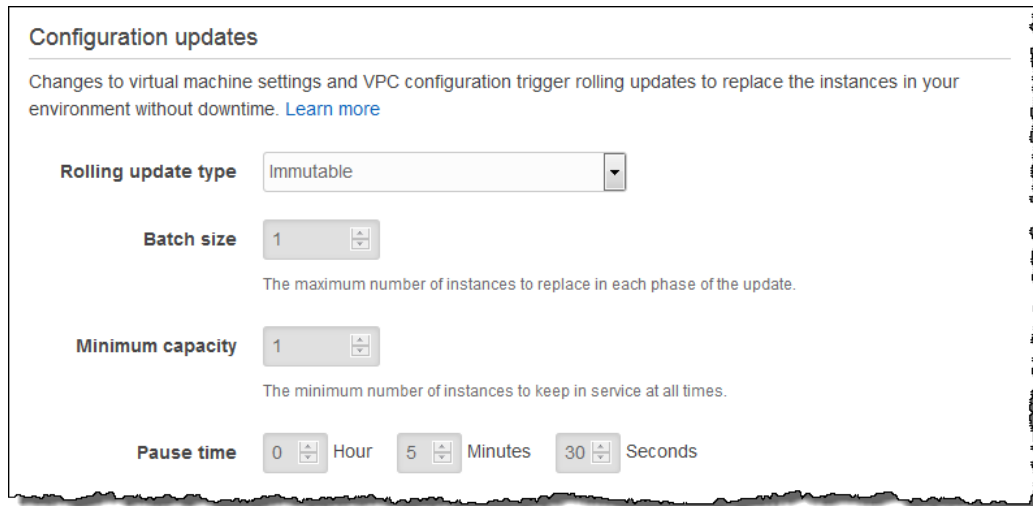
Rolling updates and deployments

For load-balanced environments, choose a **Deployment policy** to configure how to deploy new application versions and changes to the software configuration for instances. **All at once** completes deployments as quickly as possible, but can result in downtime. Rolling deployments ensure that some instances remain in service during the entire deployment process. See [Deployment Policies and Settings \(p. 99\)](#) for more information.

The screenshot shows the 'Application deployments' configuration page in the AWS Elastic Beanstalk console. At the top, it says 'Choose how AWS Elastic Beanstalk propagates source code changes and software configuration updates. [Learn more](#)'. Below this, there are two main sections: 'Deployment policy' and 'Batch size'. The 'Deployment policy' is a dropdown menu currently set to 'Rolling with additional batch'. The 'Batch size' section has two radio buttons: 'Percentage' (which is selected) and 'Fixed'. Under 'Percentage', there is a numeric input field with '50' and a percentage sign, followed by the text 'of the fleet at a time'. Under 'Fixed', there is a numeric input field with '1' and the text 'instances at a time'.

- **Deployment policy** – **Rolling** deployments take one batch of instances out of service at a time to deploy a new version. **Rolling with additional batch** launches a new batch first to ensure that capacity is not affected during the deployment. **Immutable** performs an [immutable update \(p. 109\)](#) when you deploy.
- **Batch size** – The number or percentage of instances to update in each batch.

[Rolling updates \(p. 106\)](#) occur when you change instance launch configuration settings or VPC settings, which require terminating and replacing the instances in your environment. Other configuration changes are made in place without affecting capacity. For more information, see [Configuration Changes \(p. 106\)](#).



Configuration updates

Changes to virtual machine settings and VPC configuration trigger rolling updates to replace the instances in your environment without downtime. [Learn more](#)

Rolling update type

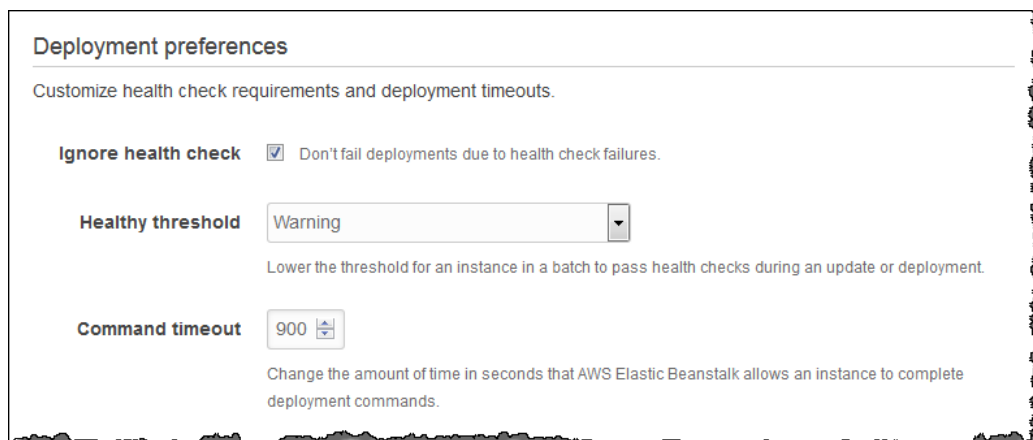
Batch size
The maximum number of instances to replace in each phase of the update.

Minimum capacity
The minimum number of instances to keep in service at all times.

Pause time Hour Minutes Seconds

- **Rolling update type** – Time based, where AWS CloudFormation waits for the specified amount of time after new instances are registered before moving on to the next batch, or health based, where AWS CloudFormation waits for instances to pass health checks. **Immutable** performs an [immutable update \(p. 109\)](#) when a configuration change would normally trigger a rolling update.
- **Batch size** – The number of instances to replace in each batch.
- **Minimum capacity** – The minimum number of instances to keep in service at any given time.
- **Pause time** – For time-based rolling updates, the amount of time to wait for new instances to come up to speed after they are registered to the load balancer.

The remaining options customize health checks and timeouts.



Deployment preferences

Customize health check requirements and deployment timeouts.

Ignore health check Don't fail deployments due to health check failures.

Healthy threshold
Lower the threshold for an instance in a batch to pass health checks during an update or deployment.

Command timeout
Change the amount of time in seconds that AWS Elastic Beanstalk allows an instance to complete deployment commands.

- **Ignore health check** – Prevents a deployment from rolling back when a batch fails to become healthy within the **Command timeout**.
- **Healthy threshold** – Lowers the threshold at which an instance is considered healthy during rolling deployments, rolling updates, and immutable updates.
- **Command timeout** – The number of seconds to wait for an instance to become healthy before canceling the deployment or, if **ignore health check** is set, to continue to the next batch.

Security

Choose an Amazon EC2 key pair to enable SSH or RDP access to the instances in your environment. If you have created a custom service role and instance profile, select them from the drop-down lists. If not, use the default roles, `aws-elasticbeanstalk-service-role` and `aws-elasticbeanstalk-ec2-role`.



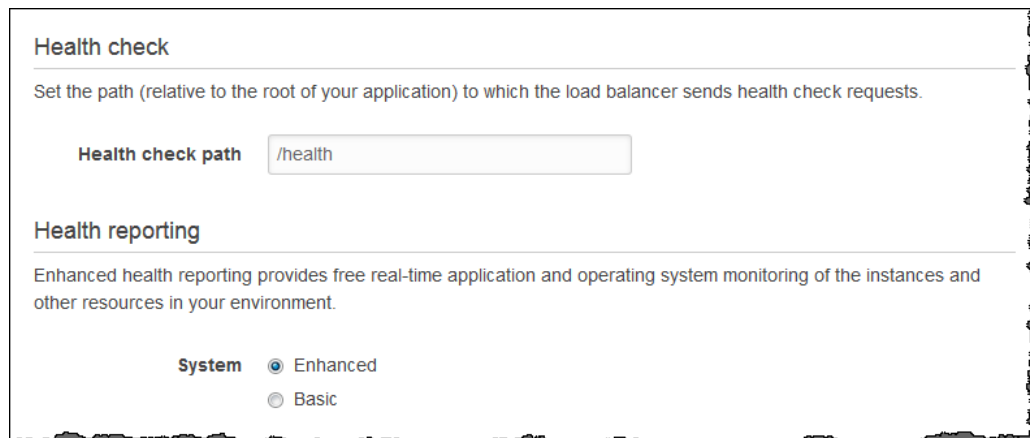
The screenshot shows the 'Security' configuration section of the AWS Elastic Beanstalk console. It is divided into two main sections: 'Service role' and 'Virtual machine permissions'. Under 'Service role', there is a dropdown menu labeled 'Service role' with the value 'aws-elasticbeanstalk-service-role'. Under 'Virtual machine permissions', there are two dropdown menus: 'EC2 key pair' with the value 'aws-eb' and 'IAM instance profile' with the value 'aws-elasticbeanstalk-ec2-role'.

- **Service role** – A [service role \(p. 17\)](#) grants Elastic Beanstalk permission to monitor the resources in your environment.
- **EC2 key pair** – Assign an SSH key to the instances in your environment to allow you to connect to them remotely for debugging. For more information about Amazon EC2 key pairs, see [Using Credentials](#) in the *Amazon EC2 User Guide for Linux Instances*.
- **IAM instance profile** – An [instance profile \(p. 18\)](#) grants the Amazon EC2 instances in your environment permissions to access AWS resources.

The Elastic Beanstalk console looks for an instance profile named `aws-elasticbeanstalk-ec2-role` and a service role named `aws-elasticbeanstalk-service-role`. If you don't have these roles, the console creates them for you. For more information, see [Service Roles, Instance Profiles, and User Policies \(p. 17\)](#).

Monitoring

For load-balanced environments, **Health check path** tells the load balancer where to send requests for health checks.



The screenshot shows the 'Health check' configuration section of the AWS Elastic Beanstalk console. It includes a text input field for 'Health check path' with the value '/health'. Below this is the 'Health reporting' section, which has two radio buttons: 'Enhanced' (selected) and 'Basic'.

- **Health check path** – The path to send health check requests to. If not set, the load balancer attempts to make a TCP connection on port 80 to verify health. Set to a path starting with / to send an HTTP GET request to that path. You can also include a protocol (HTTP, HTTPS, TCP, or SSL) and port before the path to check HTTPS connectivity or use a non-default port. For example, `HTTPS:443/health`.
- **Health reporting system** – [Enhanced health reporting \(p. 291\)](#) provides additional health information about the resources in your environment at no additional charge.

Notifications

Specify an email address to receive [email notifications \(p. 246\)](#) for important events from your environment.

Notifications

Enter an email address to receive email notifications for important events from your environment. [Learn more.](#)

Email

- **Email** – An email address for notifications.

Network

If you have created a [custom VPC \(p. 245\)](#), use these settings to configure your environment to use it. If you do not choose a VPC, Elastic Beanstalk uses the default VPC and subnets.

Virtual private cloud (VPC)

Launch your environment in a custom VPC instead of the default VPC. You can create a VPC and subnets in the VPC management console. [Learn more.](#)

VPC

Load balancer settings

Assign your load balancer to a subnet in each Availability Zone (AZ) in which your application runs. For a publically accessible application, set **Visibility to Public** and choose public subnets.

Visibility

Make your load balancer internal if your application serves requests only from connected VPCs. Public load balancers serve requests from the Internet.

Load balancer subnets

	Availability Zo...	Subnet	CIDR	Name
<input checked="" type="checkbox"/>	us-west-2a	subnet-a497b3d3	10.0.2.0/24	webapps-public-a
<input type="checkbox"/>		subnet-c297b3b5	10.0.7.0/24	webapps-private-a
<input checked="" type="checkbox"/>	us-west-2b	subnet-03131266	10.0.4.0/24	webapps-public-b
<input type="checkbox"/>		subnet-42131227	10.0.9.0/24	webapps-private-b

- **VPC** – The VPC in which to launch your environment's resources.
- **Load balancer visibility** – Makes your load balancer internal to prevent connections from the Internet. This option is for applications that serve traffic only from networks connected to the VPC.
- **Load balancer subnets** – Choose public subnets for your load balancer if your site serves traffic from the Internet.

Instance settings

Choose a subnet in each AZ for the instances that run your application. To avoid exposing your instances to the Internet, run your instances in private subnets and load balancer in public subnets. To run your load balancer and instances in the same public subnets, assign public IP addresses to the instances.

Public IP address Assign a public IP address to the Amazon EC2 instances in your environment.

Instance subnets

	Availability Zo...	Subnet	CIDR	Name
<input type="checkbox"/>	us-west-2a	subnet-a497b3d3	10.0.2.0/24	webapps-public-a
<input checked="" type="checkbox"/>		subnet-c297b3b5	10.0.7.0/24	webapps-private-a
<input type="checkbox"/>	us-west-2b	subnet-03131266	10.0.4.0/24	webapps-public-b
<input checked="" type="checkbox"/>		subnet-42131227	10.0.9.0/24	webapps-private-b

Instance security groups

	Group name	Group ID	Name
<input checked="" type="checkbox"/>	rds-launch-wizard-1	sg-0d093269	webapps-rds
<input type="checkbox"/>	webapps-bastion	sg-d6a190b0	

- **Public IP address** – Choose this option if you run your instances and load balancer in the same public subnets.
- **Instance subnets** – Choose private subnets for your instances.
- **Instance security groups** – Choose security groups to assign to your instances, in addition to standard security groups that Elastic Beanstalk creates.

For more information about Amazon VPC, see [Amazon Virtual Private Cloud \(Amazon VPC\)](#).

Database

Add an Amazon RDS SQL database to your environment for development and testing. Elastic Beanstalk provides connection information to your instances by setting environment properties for the database hostname, username, password, table name, and port. When you add a database to your environment, its lifecycle is tied to your environment lifecycle.

For production environments, you can configure your instances to connect to an external database.

Database settings

Choose an engine and instance type for your environment's database.

Engine postgres

Engine version 9.5.4

Instance class db.t2.micro

Storage 5 GB

Choose a number between 5 GB and 1024 GB.

Username dbadmin

Password

Retention Delete

When you terminate your environment, your database instance is also terminated. Choose **Create snapshot** to save a snapshot of the database prior to termination. Snapshots incur standard storage charges.

Availability High (Multi-AZ)

- **Engine** – Choose the database engine used by your application.
- **Engine version** – Choose the version of the database engine.
- **Instance class** – Choose a database instance class. For information about the DB instance classes, see <http://aws.amazon.com/rds/>.
- **Storage** – Specify the amount of storage space, in gigabytes, to allocate for your database. For information about storage allocation, see [Features](#).
- **Username** – The username for the database administrator. Username requirements vary per database engine.
- **Password** – The password for the database administrator. Password requirements vary per database engine.
- **Retention** – You can use a snapshot to restore data by launching a new DB instance. Choose **Create snapshot** to save a snapshot of the database automatically when you terminate your environment.
- **Availability** – Choose **High (Multi-AZ)** to run a second DB instance in a different Availability Zone for high availability.

For more information about Amazon RDS, see [Amazon Relational Database Service \(Amazon RDS\)](#).

Worker Details

(worker environments) You can create an Amazon SQS queue for your worker application or pull work items from an existing queue. The worker daemon on the instances in your environment pulls an item from the queue and relays it in the body of a POST request to a local HTTP path relative to the local host.

The screenshot shows the configuration interface for an Elastic Beanstalk environment. It is divided into two main sections: 'Queue' and 'Messages'.
Under 'Queue', there is a 'Worker queue' dropdown menu with the value 'https://sqs.us-west-2.amazonaws.com/01'. Below it is a descriptive text: 'SQS queue from which to read work items.'
Under 'Messages', there are four settings:
1. 'HTTP path' is a text input field containing '/process'. Below it is the text: 'The daemon pulls items from the Amazon SQS queue and posts them locally to this path.'
2. 'MIME type' is a dropdown menu with 'text/plain' selected. Below it is the text: 'Change the MIME type of the POST requests that the worker daemon sends to your application.'
3. 'HTTP connections' is a spinner control set to '15'. Below it is the text: 'Maximum number of concurrent connections to the application.'
4. 'Visibility timeout' is a spinner control set to '900' with '(Optional)' next to it. Below it is the text: 'Number of seconds to lock an incoming message for processing before returning it to the queue.'

- **Worker queue** – Choose the queue from which the worker environment tier reads messages that it will process. If you do not provide a value, then Elastic Beanstalk automatically creates one for you.
- **HTTP path** – Specify the relative path on the local host to which messages from the queue are forwarded in the form of HTTP POST requests.
- **MIME type** – Choose The MIME type of the message sent in the HTTP POST request.
- **HTTP connections** – The maximum number of concurrent connections to the application. Set this to the number of processes or thread messages that your application can process in parallel.
- **Visibility timeout** – The amount of time that an incoming message is locked for processing before being returned to the queue. Set this to the potentially longest amount of time that might be required to process a message.

Clone an Environment

You can use an existing environment as the basis for a new environment by creating a clone of the existing environment. For example, you might want to create a clone so that you can use a newer version of the solution stack used by the original environment's platform. Elastic Beanstalk configures the clone with the same environment settings used by the original environment. By cloning an existing environment instead of creating a new environment, you do not have to manually configure option settings, environment variables, and other settings. Elastic Beanstalk also creates a copy of any AWS resource associated with the original environment. However, during the cloning process, Elastic Beanstalk does not copy data from Amazon RDS to the clone. After you have created the clone environment, you can modify environment configuration settings as needed.

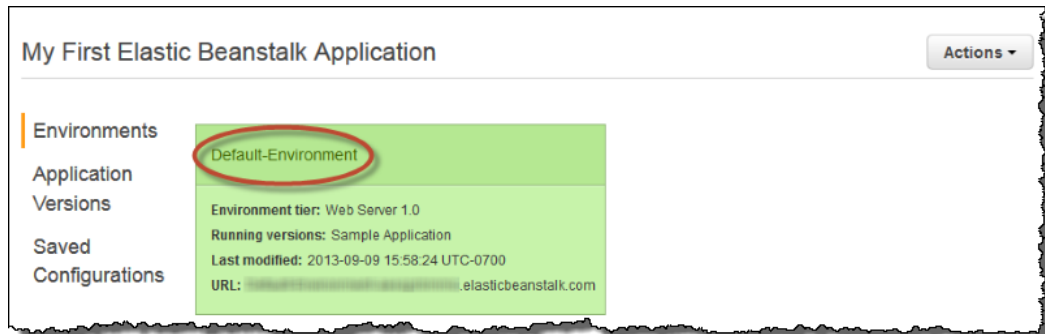
Note

Elastic Beanstalk does not include any unmanaged changes to resources in the clone. Changes to AWS resources that you make using tools other than the Elastic Beanstalk management console, command-line tools, or API are considered unmanaged changes.

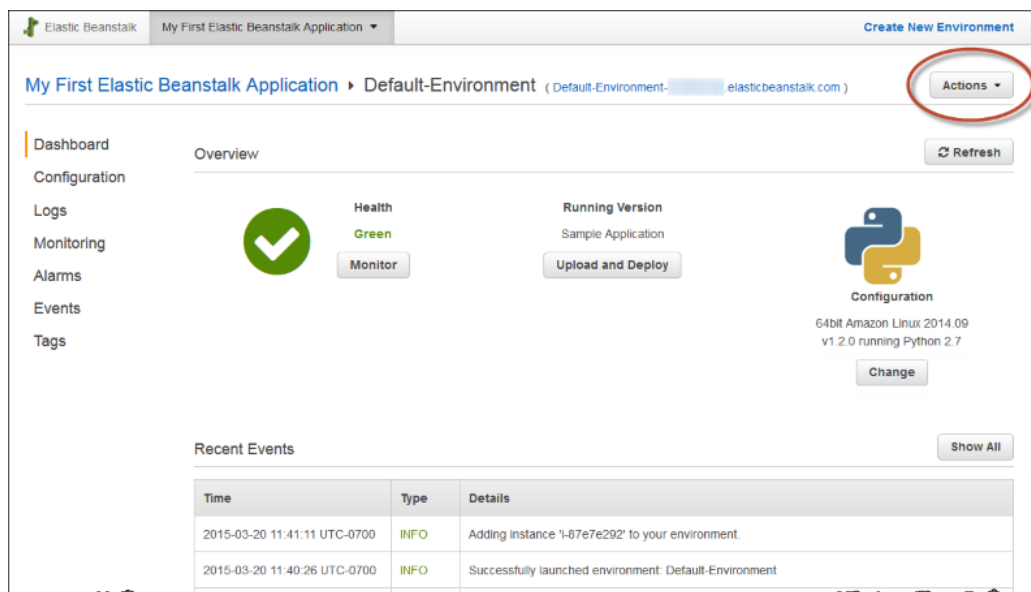
AWS Management Console

To clone an environment

1. Open the [Elastic Beanstalk console](#).
2. From the region list, select the region that includes the environment that you want to work with.
3. On the Elastic Beanstalk console applications page, click the name of the application, and then the name of the environment that you want to clone.



4. On the environment dashboard, click **Actions**, and then do one of the following:
 - Click **Clone Environment** if you want to clone the environment without any changes to the solution stack version.
 - Click **Clone with Latest Platform** if you want to clone the environment, but with a newer version of the original environment's solution stack.



5. On the **Clone Environment** page, review the information in the **Original Environment** section to verify that you chose the environment from which you want to create a clone.
6. In the **New Environment** section, you can optionally change the **Environment name**, **Environment URL**, **Description**, and **Platform** values that Elastic Beanstalk automatically set based on the original environment.

Note

For **Platform**, only solution stacks with the same language and web server configuration are shown. If a newer version of the solution stack used with the original environment is available, you will be prompted to update, but you cannot choose a different stack, even if it is for a different version of the same language. For more information, see [Supported Platforms \(p. 24\)](#).

Clone Environment ?

You can launch a new environment based on an existing environment's configuration settings while optionally choosing a different platform version for the new environment.

Original Environment

Environment name: firstBeanstalk-env
Environment URL: elasticbeanstalk.com
Platform: 64bit Amazon Linux 2014.03 v1.0.4 running Node.js

New Environment

Environment name:
Environment URL: .elasticbeanstalk.com
Description:
Platform:
Most recent version

- When you are ready, click **Clone**.

Elastic Beanstalk Command Line Interface (EB CLI)

Use the `eb clone` command to clone a running environment:

```
~/workspace/my-app$ eb clone my-env1
Enter name for Environment Clone
(default is my-env1-clone): my-env2
Enter DNS CNAME prefix
(default is my-env1-clone): my-env2
```

You can specify the name of the source environment in the clone command, or leave it out to clone the default environment for the current project folder. The EB CLI prompts you to enter a name and DNS prefix for the new environment.

By default, `eb clone` creates the new environment with the latest available version of the source environment's platform. To force the EB CLI to use the same version, even if there is a newer version available, use the `--exact` option:

```
~/workspace/my-app$ eb clone --exact
```

For more information about this command, see [eb clone \(p. 449\)](#).

Terminate an Environment

You can terminate a running environment using the AWS Management Console to avoid incurring charges for unused AWS resources. For more information about terminating an environment using the AWS Toolkit for Eclipse, see [Terminating an Environment \(p. 632\)](#).

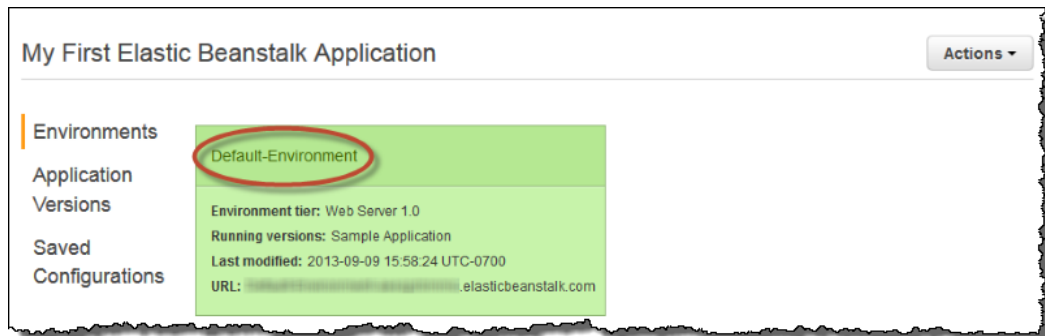
Note

You can always launch a new environment using the same version later. If you have data from an environment that you would like to preserve, create a snapshot of your current database instance before you terminate the environment. You can later use it as the basis for new DB instance when you create a new environment. For more information, see [Creating a DB Snapshot](#) in the [Amazon Relational Database Service User Guide](#).

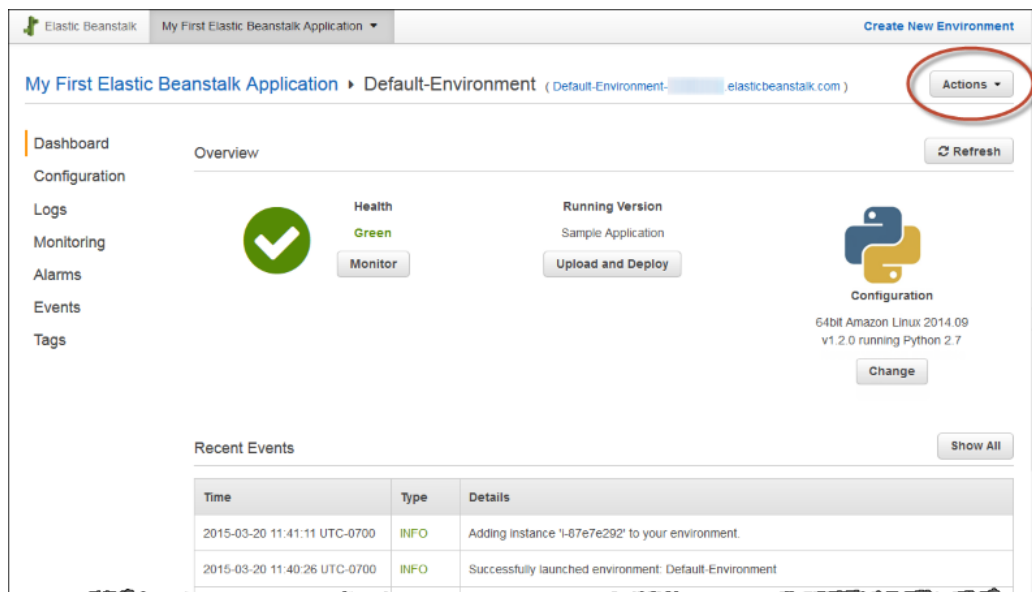
AWS Management Console

To terminate an environment

1. Open the [Elastic Beanstalk console](#).
2. From the region list, select the region that includes the environment that want to terminate.
3. From the Elastic Beanstalk console applications page, click the name of the environment that you want to terminate.



4. Click **Actions** and the select **Terminate Environment**.



5. Confirm that you are terminating the correct environment and then click **Terminate**.

Note

When you terminate your environment, the CNAME associated with the terminated environment becomes available for anyone to use.

It will take a few minutes for Elastic Beanstalk to terminate the AWS resources running in the environment.

CLI

To terminate an environment

- ```
$ aws elasticbeanstalk terminate-environment --environment-name my-env
```

## API

### To terminate an environment

- Call `TerminateEnvironment` with the following parameter:
  - `EnvironmentName` = `SampleAppEnv`

**Example**

```
https://elasticbeanstalk.us-west-2.amazonaws.com/?
EnvironmentName=SampleAppEnv
&Operation=TerminateEnvironment
&AuthParams
```

## Creating Elastic Beanstalk Environments with the AWS CLI

### To create an environment with the AWS CLI

1. Check if the CNAME for the environment is available.

```
$ aws elasticbeanstalk check-dns-availability --cname-prefix my-cname
{
 "Available": true,
 "FullyQualifiedCNAME": "my-cname.elasticbeanstalk.com"
}
```

2. Make sure your application version exists.

```
$ aws elasticbeanstalk describe-application-versions --application-
name my-app --version-label v1
```

3. Create a configuration template for the application.

```
$ aws elasticbeanstalk create-configuration-template --application-name my-app --template-name v1 --solution-stack-name "64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.2 (Passenger Standalone)"
```

4. Create environment.

```
$ aws elasticbeanstalk create-environment --cname-prefix my-cname --application-name my-app --template-name v1 --version-label v1 --environment-name v1clone --option-settings file://options.txt
```

Option Settings are defined in the **options.txt** file:

```
[
 {
 "Namespace": "aws:autoscaling:launchconfiguration",
 "OptionName": "IamInstanceProfile",
 "Value": "aws-elasticbeanstalk-ec2-role"
 }
]
```

The above option setting defines the IAM instance profile. You can specify the ARN or the profile name.

5. Determine if the new environment is Green and Ready.

```
$ aws elasticbeanstalk describe-environments --environment-names my-env
```

If the new environment does not come up Green and Ready, you should decide if you want to retry the operation or leave the environment in its current state for investigation. Make sure to terminate the environment after you are finished, and clean up any unused resources.

**Note**

You can adjust the timeout period if the environment doesn't launch in a reasonable time.

## Creating Elastic Beanstalk Environments with the API

### To launch a new environment

1. Call `CheckDNSAvailability` with the following parameter:

- `CNAMEPrefix = SampleApp`

#### Example

```
https://elasticbeanstalk.us-east-1.amazon.com/?
CNAMEPrefix=sampleapplication
&Operation=CheckDNSAvailability
&AuthParams
```

2. Call `DescribeApplicationVersions` with the following parameters:

- `ApplicationName = SampleApp`



- *VersionLabel* = Version2

### Example

```
https://elasticbeanstalk.us-east-1.amazonaws.com/?ApplicationName=SampleApp
&VersionLabel=Version2
&Operation=DescribeApplicationVersions
&AuthParams
```

3. Call `CreateConfigurationTemplate` with the following parameters:

- *ApplicationName* = SampleApp
- *TemplateName* = MyConfigTemplate
- *SolutionStackName* = 64bit%20Amazon%20Linux%202015.03%20v2.0.0%20running%20Ruby%202.2%20(Passenger%20Standalone)

### Example

```
https://elasticbeanstalk.us-east-1.amazonaws.com/?ApplicationName=SampleApp
&TemplateName=MyConfigTemplate
&Operation=CreateConfigurationTemplate
&SolutionStackName=64bit%20Amazon%20Linux%202015.03%20v2.0.0%20running%20Ruby%202.2%20(Passenger%20Standalone)
&AuthParams
```

4. Call `CreateEnvironment` with one of the following sets of parameters.

- a. Use the following for a web server environment tier:

- *EnvironmentName* = SampleAppEnv2
- *VersionLabel* = Version2
- *Description* = description
- *TemplateName* = MyConfigTemplate
- *ApplicationName* = SampleApp
- *CNAMEPrefix* = sampleapplication
- *OptionSettings.member.1.Namespace* = aws:autoscaling:launchconfiguration
- *OptionSettings.member.1.OptionName* = IamInstanceProfile
- *OptionSettings.member.1.Value* = ElasticBeanstalkProfile

## Example

```
https://elasticbeanstalk.us-east-1.amazon.com/?
ApplicationName=SampleApp
&VersionLabel=Version2
&EnvironmentName=SampleAppEnv2
&TemplateName=MyConfigTemplate
&CNAMEPrefix=sampleapplication
&Description=description
&Operation=CreateEnvironment
&OptionSettings.member.1.Namespace=aws%3Aautoscaling
%3Alaunchconfiguration
&OptionSettings.member.1.OptionName=IamInstanceProfile
&OptionSettings.member.1.Value=ElasticBeanstalkProfile
&AuthParams
```

b. Use the following for a worker environment tier:

- *EnvironmentName* = SampleAppEnv2
- *VersionLabel* = Version2
- *Description* = description
- *TemplateName* = MyConfigTemplate
- *ApplicationName* = SampleApp
- *Tier* = Worker
- *OptionSettings.member.1.Namespace* = aws:autoscaling:launchconfiguration
- *OptionSettings.member.1.OptionName* = IamInstanceProfile
- *OptionSettings.member.1.Value* = ElasticBeanstalkProfile
- *OptionSettings.member.2.Namespace* = aws:elasticbeanstalk:sqsd
- *OptionSettings.member.2.OptionName* = WorkerQueueURL
- *OptionSettings.member.2.Value* = sqsd.elasticbeanstalk.us-east-1.amazon.com
- *OptionSettings.member.3.Namespace* = aws:elasticbeanstalk:sqsd
- *OptionSettings.member.3.OptionName* = HttpPath
- *OptionSettings.member.3.Value* = /
- *OptionSettings.member.4.Namespace* = aws:elasticbeanstalk:sqsd
- *OptionSettings.member.4.OptionName* = MimeType
- *OptionSettings.member.4.Value* = application/json
- *OptionSettings.member.5.Namespace* = aws:elasticbeanstalk:sqsd
- *OptionSettings.member.5.OptionName* = HttpConnections
- *OptionSettings.member.5.Value* = 75
- *OptionSettings.member.6.Namespace* = aws:elasticbeanstalk:sqsd
- *OptionSettings.member.6.OptionName* = ConnectTimeout
- *OptionSettings.member.6.Value* = 10
- *OptionSettings.member.7.Namespace* = aws:elasticbeanstalk:sqsd
- *OptionSettings.member.7.OptionName* = InactivityTimeout
- *OptionSettings.member.7.Value* = 10
- *OptionSettings.member.8.Namespace* = aws:elasticbeanstalk:sqsd
- *OptionSettings.member.8.OptionName* = VisibilityTimeout

- `OptionSettings.member.8.Value = 60`
- `OptionSettings.member.9.Namespace = aws:elasticbeanstalk:sqs`
- `OptionSettings.member.9.OptionName = RetentionPeriod`
- `OptionSettings.member.9.Value = 345600`

### Example

```
https://elasticbeanstalk.us-east-1.amazonaws.com/?
ApplicationName=SampleApp
&VersionLabel=Version2
&EnvironmentName=SampleAppEnv2
&TemplateName=MyConfigTemplate
&Description=description
&Tier=Worker
&Operation=CreateEnvironment
&OptionSettings.member.1.Namespace=aws%3Aautoscaling
%3Alaunchconfiguration
&OptionSettings.member.1.OptionName=IamInstanceProfile
&OptionSettings.member.1.Value=ElasticBeanstalkProfile
&OptionSettings.member.2.Namespace=aws%3Aelasticbeanstalk%3Asqs
&OptionSettings.member.2.OptionName=WorkerQueueURL
&OptionSettings.member.2.Value=sqs.elasticbeanstalk.us-
east-1.amazonaws.com
&OptionSettings.member.3.Namespace=aws%3elasticbeanstalk%3sqs
&OptionSettings.member.3.OptionName=HttpPath
&OptionSettings.member.3.Value=%2F
&OptionSettings.member.4.Namespace=aws%3Aelasticbeanstalk%3Asqs
&OptionSettings.member.4.OptionName=MimeType
&OptionSettings.member.4.Value=application%2Fjson
&OptionSettings.member.5.Namespace=aws%3Aelasticbeanstalk%3Asqs
&OptionSettings.member.5.OptionName=HttpConnections
&OptionSettings.member.5.Value=75
&OptionSettings.member.6.Namespace=aws%3Aelasticbeanstalk%3Asqs
&OptionSettings.member.6.OptionName=ConnectTimeout
&OptionSettings.member.6.Value=10
&OptionSettings.member.7.Namespace=aws%3Aelasticbeanstalk%3Asqs
&OptionSettings.member.7.OptionName=InactivityTimeout
&OptionSettings.member.7.Value=10
&OptionSettings.member.8.Namespace=aws%3Aelasticbeanstalk%3Asqs
&OptionSettings.member.8.OptionName=VisibilityTimeout
&OptionSettings.member.8.Value=60
&OptionSettings.member.9.Namespace=aws%3Aelasticbeanstalk%3Asqs
&OptionSettings.member.9.OptionName=RetentionPeriod
&OptionSettings.member.9.Value=345600
&AuthParams
```

## Constructing a Launch Now URL

You can construct a custom uniform resource locator (URL) so that anyone can quickly deploy and run a predetermined web application in Elastic Beanstalk. This URL is called a Launch Now URL. You might need a Launch Now URL, for example, to demonstrate a web application that is built to run on Elastic Beanstalk. With Launch Now URL, you can use parameters to add the required information to the Create Application wizard in advance. When you do, anyone can use the URL link to launch an Elastic Beanstalk environment with your web application source in just a few clicks. This means users

don't need to manually upload or specify the location of the application source bundle or provide any additional input to the wizard.

A Launch Now URL gives Elastic Beanstalk the minimum information required to create an application: the application name, solution stack, instance type, and environment type. Elastic Beanstalk uses default values for other configuration details that are not explicitly specified in your custom Launch Now URL.

A Launch Now URL uses standard URL syntax. For more information, see [RFC 3986 - Uniform Resource Identifier \(URI\): Generic Syntax](#).

## URL Parameters

The URL must contain the following parameters, which are case-sensitive:

- **region** – Specify an AWS region. For a list of regions supported by Elastic Beanstalk, see [AWS Elastic Beanstalk](#) in the *Amazon Web Services General Reference*.
- **applicationName** – Specify the name of your application. Elastic Beanstalk displays the application name in the AWS Management Console to distinguish it from other applications. By default, the application name also forms the basis of the environment name and environment URL.
- **solutionStackName** – Specify the platform and version that will be used for the environment. For more information, see [Supported Platforms \(p. 24\)](#).

A Launch Now URL can optionally contain the following parameters. If you do not include the optional parameters in your Launch Now URL, Elastic Beanstalk uses default values to create and run your application. When you do not include the **sourceBundleUrl** parameter, Elastic Beanstalk uses the default sample application for the specified **solutionStackName**.

- **sourceBundleUrl** – Specify the location of your web application source bundle in URL format. For example, if you uploaded your source bundle to an Amazon Simple Storage Service bucket, you might specify the value of the **sourceBundleUrl** parameter as `http://s3.amazonaws.com/mybucket/myobject`.

### Note

You can specify the value of the **sourceBundleUrl** parameter as an HTTP URL, but the user's web browser will convert characters as needed by applying HTML URL encoding.

- **environmentType** – Specify whether the environment is load balancing and autoscaling or just a single instance. For more information, see [Environment Types \(p. 120\)](#). You can specify either `LoadBalancing` or `SingleInstance` as the parameter value.
- **tierName** – Specify whether the environment supports a web application that processes web requests or a web application that runs background jobs. For more information, see [Worker Environments \(p. 122\)](#). You can specify either `WebServer` or `Worker`.
- **instanceType** – Specify a server with the characteristics (including memory size and CPU power) that are most appropriate to your application. To see the instance types that are available in your Elastic Beanstalk region, see [InstanceType \(p. 148\)](#) in the topic [Configuration Options \(p. 131\)](#). To see the detailed specifications for each Amazon EC2 instance type, see [Instance Types](#).
- **withVpc** – Specify whether to create the environment in an Amazon VPC. You can specify either `true` or `false`. For more information about using Elastic Beanstalk with Amazon VPC, see [Using Elastic Beanstalk with Amazon VPC \(p. 390\)](#).
- **withRds** – Specify whether to create an Amazon RDS database instance with this environment. For more information, see [Using Elastic Beanstalk with Amazon RDS \(p. 380\)](#). You can specify either `true` or `false`.
- **rdsDBEngine** – Specify the database engine that you want to use for your Amazon EC2 instances in this environment. You can specify `mysql`, `oracle-sel`, `sqlserver-ex`, `sqlserver-web`, or `sqlserver-se`. The default value is `mysql`.

- **rdsDBAllocatedStorage** – Specify the allocated database storage size in gigabytes. You can specify the following values:
  - **MySQL** – 5 to 1024. The default is 5.
  - **Oracle** – 10 to 1024. The default is 10.
  - **Microsoft SQL Server Express Edition** – 30.
  - **Microsoft SQL Server Web Edition** – 30.
  - **Microsoft SQL Server Standard Edition** – 200.
- **rdsDBInstanceClass** – Specify the database instance type. The default value is `db.t1.micro`. For a list of database instance classes supported by Amazon RDS, see [DB Instance Class](#) in the *Amazon Relational Database Service User Guide*.
- **rdsMultiAZDatabase** – Specify whether Elastic Beanstalk needs to create the database instance across multiple Availability Zones. You can specify either `true` or `false`. For more information about multiple Availability Zone deployments with Amazon RDS, go to [Regions and Availability Zones](#) in the *Amazon Relational Database Service User Guide*.
- **rdsDBDeletionPolicy** – Specify whether to delete or snapshot the database instance on environment termination. You can specify either `Delete` or `Snapshot`.

## Example

The following is an example Launch Now URL. After you construct your own, you can give it to your users. For example, you might want to embed the URL on a web page or in training materials. When users create an application using the Launch Now URL, the Elastic Beanstalk Create an Application wizard requires no additional input.

```
https://console.aws.amazon.com/elasticbeanstalk/?region=us-west-2#/
newApplication?
applicationName=YourCompanySampleApp&solutionStackName=PHP&sourceBundleUrl=http://
s3.amazonaws.com/mybucket/
myobject&environmentType=SingleInstance&tierName=WebServer&instanceType=m1.small&withVpc=tr
```

When users click a Launch Now URL, Elastic Beanstalk displays a page similar to the following.

The screenshot shows the 'Application Information' page in the Elastic Beanstalk console. On the left, there is a navigation menu with 'Application Info' selected. The main content area is titled 'Application Information' and contains the following text: 'To create a new application, enter the details of your application. [Learn more.](#)' Below this, there are two input fields: 'Application name:' with the value 'YourCompanySampleApp' and a note 'Must be less than 100 characters and cannot contain a /', and 'Description:' which is empty with a note 'Optional.'. At the bottom right, there are three buttons: 'Cancel', 'Next', and 'Review and Launch'.

## To use the Launch Now URL

1. Click the Launch Now URL.
2. When the Elastic Beanstalk console opens, on the **Application Info** page, click **Review and Launch** to view the settings Elastic Beanstalk will use to create the application and launch the environment in which the application runs.
3. On the **Review** page, click **Launch** to create the application.

## Creating and Updating Groups of AWS Elastic Beanstalk Environments

With AWS Elastic Beanstalk's (Elastic Beanstalk's) `Compose Environments` API, you can create and update groups of Elastic Beanstalk environments within a single application. Each environment in the group can run a separate component of a service-oriented architecture application. The `Compose Environments` API takes a list of application versions and an optional group name. Elastic Beanstalk creates an environment for each application version, or, if the environments already exist, deploys the application versions to them.

Create links between Elastic Beanstalk environments to designate one environment as a dependency of another. When you create a group of environments with the `Compose Environments` API, Elastic Beanstalk creates dependent environments only after their dependencies are up and running. For more information on environment links, see [Creating Links Between AWS Elastic Beanstalk Environments](#) (p. 128).

The `Compose Environments` API uses an [environment manifest](#) (p. 219) to store configuration details that are shared by groups of environments. Each component application must have an `env.yaml` configuration file in its application source bundle that specifies the parameters used to create its environment.

`Compose Environments` requires the `EnvironmentName` and `SolutionStack` to be specified in the environment manifest for each component application.

You can use the `Compose Environments` API with the Elastic Beanstalk command line interface (EB CLI), the AWS CLI, or an SDK. See [Managing Multiple AWS Elastic Beanstalk Environments as a Group with the EB CLI](#) (p. 444) for EB CLI instructions.

### Using the `Compose Environments` API

For example, you could make an application named `Media Library` that lets users upload and manage images and videos stored in Amazon Simple Storage Service (Amazon S3). The application has a front-end environment, `front`, that runs a web application that lets users upload and download individual files, view their library, and initiate batch processing jobs.

Instead of processing the jobs directly, the front-end application adds jobs to an Amazon SQS queue. The second environment, `worker`, pulls jobs from the queue and processes them. `worker` uses a G2 instance type that has a high-performance GPU, while `front` can run on a more cost-effective generic instance type.

You would organize the project folder, `Media Library`, into separate directories for each component, with each directory containing an environment definition file (`env.yaml`) with the source code for each:

```
~/workspace/media-library
|-- front
| |-- env.yaml
|-- worker
| |-- env.yaml
```

The following listings show the `env.yaml` file for each component application.

```
~/workspace/media-library/front/env.yaml
```

```
EnvironmentName: front+
EnvironmentLinks:
```

```
"WORKERQUEUE" : "worker+"
AWSConfigurationTemplateVersion: 1.1.0.0
EnvironmentTier:
 Name: WebServer
 Type: Standard
SolutionStack: 64bit Amazon Linux 2015.09 v2.0.4 running Java 8
OptionSettings:
 aws:autoscaling:launchconfiguration:
 InstanceType: m4.large
```

**~/workspace/media-library/worker/env.yaml**

```
EnvironmentName: worker+
AWSConfigurationTemplateVersion: 1.1.0.0
EnvironmentTier:
 Name: Worker
 Type: SQS/HTTP
SolutionStack: 64bit Amazon Linux 2015.09 v2.0.4 running Java 8
OptionSettings:
 aws:autoscaling:launchconfiguration:
 InstanceType: g2.2xlarge
```

After [creating an application version \(p. 40\)](#) for the front-end (`front-v1`) and worker (`worker-v1`) application components, you call the `Compose Environments` API with the version names. In this example, we use the AWS CLI to call the API.

```
Create application versions for each component:
~$ aws elasticbeanstalk create-application-version --application-name
media-library --version-label front-v1 --source-bundle S3Bucket="my-
bucket",S3Key="front-v1.zip"
{
 "ApplicationVersion": {
 "ApplicationName": "media-library",
 "VersionLabel": "front-v1",
 "Description": "",
 "DateCreated": "2015-11-03T23:01:25.412Z",
 "DateUpdated": "2015-11-03T23:01:25.412Z",
 "SourceBundle": {
 "S3Bucket": "my-bucket",
 "S3Key": "front-v1.zip"
 }
 }
}
~$ aws elasticbeanstalk create-application-version --application-name
media-library --version-label worker-v1 --source-bundle S3Bucket="my-
bucket",S3Key="worker-v1.zip"
{
 "ApplicationVersion": {
 "ApplicationName": "media-library",
 "VersionLabel": "worker-v1",
 "Description": "",
 "DateCreated": "2015-11-03T23:01:48.151Z",
 "DateUpdated": "2015-11-03T23:01:48.151Z",
 "SourceBundle": {
 "S3Bucket": "my-bucket",
 "S3Key": "worker-v1.zip"
 }
 }
}
```

```
 }
 }
Create environments:
~$ aws elasticbeanstalk compose-environments --application-name media-library
--group-name dev --version-labels front-v1 worker-v1
```

The third call creates two environments, `front-dev` and `worker-dev`. The API creates the names of the environments by concatenating the `EnvironmentName` specified in the `env.yaml` file with the `group` name option specified in the `Compose Environments` call, separated by a hyphen. The total length of these two options and the hyphen must not exceed the maximum allowed environment name length of 23 characters.

The application running in the `front-dev` environment can access the name of the Amazon SQS queue attached to the `worker-dev` environment by reading the `WORKERQUEUE` variable. For more information on environment links, see [Creating Links Between AWS Elastic Beanstalk Environments](#) (p. 128).

## Deploying Applications to AWS Elastic Beanstalk Environments

You can use the AWS Management Console to upload an updated [source bundle](#) (p. 43) and deploy it to your AWS Elastic Beanstalk environment, or redeploy a previously uploaded version.

Deploying a new version of your application to an environment is typically a fairly quick process. The new source bundle is deployed to an instance and extracted, and then the web container or application server picks up the new version and restarts if necessary. During deployment, your application might still become unavailable to users for a few seconds. You can prevent this by configuring your environment to use [rolling deployments](#) (p. 99) to deploy the new version to instances in batches.

Each deployment is identified by a deployment ID. Deployment IDs start at one and increment by one with each deployment and instance configuration change. Elastic Beanstalk displays the deployment ID in both the [health console](#) (p. 295) and the [EB CLI](#) (p. 439) when it reports instance health status if you have enabled [enhanced health reporting](#) (p. 291). The deployment ID can help you determine the state of your environment when a rolling update fails.

If you need to ensure that your application source is always deployed to new instances, instead of updating existing instances, you can configure your environment to use [immutable updates](#) (p. 109) for deployments. In an immutable update, a second AutoScaling group is launched in your environment and the new version serves traffic alongside the old version until the new instance pass health checks.

### To configure deployments

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. Choose **Updates and Deployments**.
5. In the **Application Deployments** section, choose a [Deployment policy](#) (p. 99) and batch settings.
6. Choose **Apply**.

For deployments that are dependent on resource configuration changes or a new version that can't run alongside the old version, you can launch a new environment with the new version and perform a CNAME swap for a [blue/green deployment](#) (p. 103).



The following table compares deployment methods:

### Deployment Methods

| Method                               | Impact of Failed Deployment                                                                           | Deploy Time | Zero Downtime | No DNS Change | Rollback Process | Code Deployed To         |
|--------------------------------------|-------------------------------------------------------------------------------------------------------|-------------|---------------|---------------|------------------|--------------------------|
| <b>All at once</b>                   | Downtime                                                                                              | ⌚           | #             | ✓             | Re-deploy        | Existing instances       |
| <b>Rolling</b>                       | Single batch out of service. Any successful batches prior to failure running new application version. | ⌚⌚†         | ✓             | ✓             | Re-deploy        | Existing instances       |
| <b>Rolling with additional batch</b> | Minimal if first batch fails, otherwise similar to <b>Rolling</b> .                                   | ⌚⌚⌚†        | ✓             | ✓             | Re-deploy        | New & existing instances |
| <b>Immutable</b>                     | Minimal                                                                                               | ⌚⌚⌚⌚        | ✓             | ✓             | Re-deploy        | New instances            |
| <b>Blue/green</b>                    | Minimal                                                                                               | ⌚⌚⌚⌚        | ✓             | #             | Swap URL         | New instances            |

† *Varies depending on batch size.*

If you deploy often, consider using the [Elastic Beanstalk Command Line Interface \(p. 416\)](#) to manage your environments. The EB CLI creates a repository alongside your source code and can create a source bundle, upload it to Elastic Beanstalk, and deploy with a single command.

## Deployment Policies and Settings

AWS Elastic Beanstalk provides several options for how [deployments \(p. 98\)](#) are processed, including deployment policies (**All at once**, **Rolling**, **Rolling with additional batch**, and **Immutable**) and options that let you configure batch size and health check behavior during deployments. By default, your environment uses rolling deployments if you created it with the console or EB CLI, or all at once deployments if you created it with a different client (API, SDK or AWS CLI).

With rolling deployments, AWS Elastic Beanstalk splits the environments into batches and deploys the new version of the application to one batch at a time, leaving the rest of the instances in the environment running the old version of the application. During a rolling deployment, some instances serve requests with the old version of the application, while instances in completed batches serve other requests with the new version.

If you need to maintain full capacity during deployments, you can configure your environment to launch a new batch of instances prior to taking any instances out of service. This option is called a rolling deployment with an additional batch. When the deployment completes, Elastic Beanstalk terminates the additional batch of instances.

Immutable deployments perform an [immutable update \(p. 109\)](#) to launch a full set of new instances running the new version of the application in a separate Auto Scaling group alongside the instances running the old version. Immutable deployments can prevent issues caused by partially completed rolling deployments. If the new instances don't pass health checks, Elastic Beanstalk terminates them, leaving the original instances untouched.

If your application doesn't pass all health checks, but still operates correctly at a lower health status, you can allow instances to pass health checks with a lower status, such as `Warning`, by modifying the


**Healthy threshold** option. If your deployments fail because they don't pass health checks and you need to force an update regardless of health status, specify the **Ignore health check** option.

When you specify a batch size for rolling updates, Elastic Beanstalk also uses that value for rolling application restarts. Use rolling restarts when you need to restart the proxy and application servers running on your environment's instances without downtime.

## Configuring Application Deployments

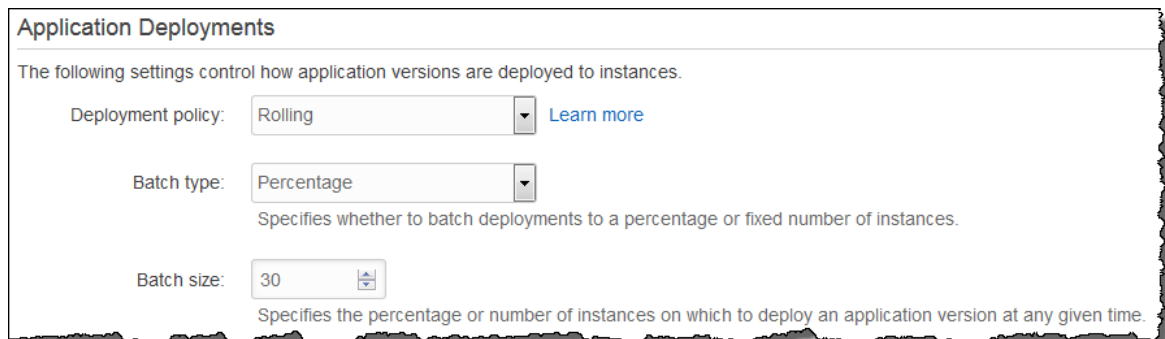
In the [environment management console \(p. 52\)](#), enable and configure batched application version deployments by editing **Updates and Deployments** on the environment's **Configuration** page.

### To configure deployments (console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Updates and Deployments** section, choose .
5. In the **Application Deployments** section, choose a **Deployment policy**, batch settings and health check options.
6. Choose **Apply**.

The **Application Deployments** section of the **Updates and Deployments** page has the following options for rolling updates:

- **Deployment policy** – Choose from the following deployment options:
  - **All at once** – Deploy the new version to all instances simultaneously. All instances in your environment are out of service for a short time while the deployment occurs.
  - **Rolling** – Deploy the new version in batches. Each batch is taken out of service during the deployment phase, reducing your environment's capacity by the number of instances in a batch.
  - **Rolling with additional batch** – Deploy the new version in batches, but first launch a new batch of instances to ensure full capacity during the deployment process.
  - **Immutable** – Deploy the new version to a fresh group of instances by performing an [immutable update \(p. 109\)](#).
- **Batch type** – Whether you want to allocate a percentage of the total number of EC2 instances in the Auto Scaling group or a fixed number to a batch of instances.
- **Batch size** – The number or percentage of instances to deploy in each batch, up to 100 percent or the maximum instance count in your environment's Auto Scaling configuration.



**Application Deployments**

The following settings control how application versions are deployed to instances.

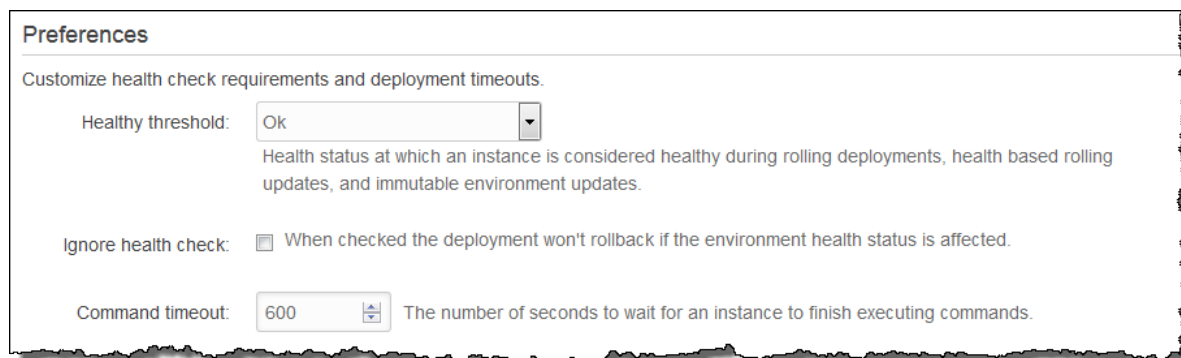
Deployment policy: Rolling [Learn more](#)

Batch type: Percentage  
Specifies whether to batch deployments to a percentage or fixed number of instances.

Batch size: 30  
Specifies the percentage or number of instances on which to deploy an application version at any given time.

The **Preferences** section contains options related to health checks.

- **Healthy threshold** – Lowers the threshold at which an instance is considered healthy during rolling deployments, rolling updates and immutable updates.
- **Ignore health check** – Prevents a deployment from rolling back when a batch fails to become healthy within the **Command timeout**.
- **Command timeout** – The number of seconds to wait for an instance to become healthy before cancelling the deployment or, if **Ignore health check** is set, to continue to the next batch.



The screenshot shows the 'Preferences' section of the AWS Elastic Beanstalk console. It contains three settings:

- Healthy threshold:** A dropdown menu set to 'Ok'. Below it is a description: 'Health status at which an instance is considered healthy during rolling deployments, health based rolling updates, and immutable environment updates.'
- Ignore health check:** A checkbox that is currently unchecked. To its right is the text: 'When checked the deployment won't rollback if the environment health status is affected.'
- Command timeout:** A text input field containing the number '600' and a spinner icon. To its right is the text: 'The number of seconds to wait for an instance to finish executing commands.'

## How Rolling Deployments Work

When processing a batch, Elastic Beanstalk detaches all instances in the batch from the load balancer, deploys the new application version, and then reattaches the instances. If you have [connection draining](#) (p. 240) enabled, Elastic Beanstalk drains existing connections from the EC2 instances in each batch before beginning the deployment.

After reattaching the instances in a batch to the load balancer, Elastic Load Balancing waits until they pass a minimum number of Elastic Load Balancing health checks (the **Healthy check count threshold** value), and then starts routing traffic to them. If no [health check URL](#) (p. 241) is configured, this can happen very quickly, because an instance will pass the health check as soon as it can accept a TCP connection. If a health check URL is configured, the load balancer doesn't route traffic to the updated instances until they return a 200 OK status code in response to an HTTP GET request to the health check URL.

Elastic Beanstalk waits until all instances in a batch are healthy before moving on to the next batch. With [basic health reporting](#) (p. 288), instance health depends on the Elastic Load Balancing health check status. When all instances in the batch pass enough health checks to be considered healthy by Elastic Load Balancing, the batch is complete. If [enhanced health reporting](#) (p. 291) is enabled, Elastic Beanstalk considers several other factors, including the result of incoming requests. With enhanced health reporting, all instances must pass 12 consecutive health checks with an **OK status** (p. 298) within 2 minutes for web server environments, and 18 health checks within three minutes for worker environments.

If a batch of instances does not become healthy within the [command timeout](#) (p. 100), the deployment fails. After a failed deployment, [check the health of the instances in your environment](#) (p. 295) for information about the cause of the failure, and perform another deployment with a fixed or known good version of your application to roll back.

If a deployment fails after one or more batches completed successfully, the completed batches run the new version of your application while any pending batches continue to run the old version. You can identify the version running on the instances in your environment on the [health page](#) (p. 295) in the console. This page displays the deployment ID of the most recent deployment that executed on each instance in your environment. If you terminate instances from the failed deployment, Elastic Beanstalk replaces them with instances running the application version from the most recent successful deployment.

## The `aws:elasticbeanstalk:command` Namespace

You can also use the [configuration options \(p. 131\)](#) in the `aws:elasticbeanstalk:command` ([p. 156](#)) namespace to configure rolling deployments.

Use the `DeploymentPolicy` option to set the deployment type. The following values are supported:

- `AllAtOnce` disables rolling deployments and always deploy to all instances simultaneously.
- `Rolling` enables standard rolling deployments.
- `RollingWithAdditionalBatch` launches an extra batch of instances prior to starting the deployment to maintain full capacity.
- `Immutable` performs an [immutable update \(p. 109\)](#) for every deployment.

When you enable rolling deployments, set the `BatchSize` and `BatchSizeType` options to configure the size of each batch. For example, to deploy 25% of all instances in each batch, specify the following options and values:

### Example `.ebextensions/rolling-updates.config`

```
option_settings:
 aws:elasticbeanstalk:command:
 DeploymentPolicy: Rolling
 BatchSizeType: Percentage
 BatchSize: 25
```

To deploy to five instances in each batch regardless of the number of instances running, and to bring up an extra batch of five instances running the new version prior to pulling any instances out of service, specify the following options and values:

### Example `.ebextensions/rolling-additionalbatch.config`

```
option_settings:
 aws:elasticbeanstalk:command:
 DeploymentPolicy: RollingWithAdditionalBatch
 BatchSizeType: Fixed
 BatchSize: 5
```

To perform an immutable update for each deployment with a health check threshold of **Warning**, and proceed with the deployment even if instances in a batch don't pass health checks within a timeout of 15 minutes, specify the following options and values:

### Example `.ebextensions/immutable-ignorehealth.config`

```
option_settings:
 aws:elasticbeanstalk:command:
 DeploymentPolicy: Immutable
 HealthCheckSuccessThreshold: Warning
 IgnoreHealthCheck: true
 Timeout: "900"
```

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values \(p. 176\)](#) for details.

## Blue/Green Deployments with AWS Elastic Beanstalk

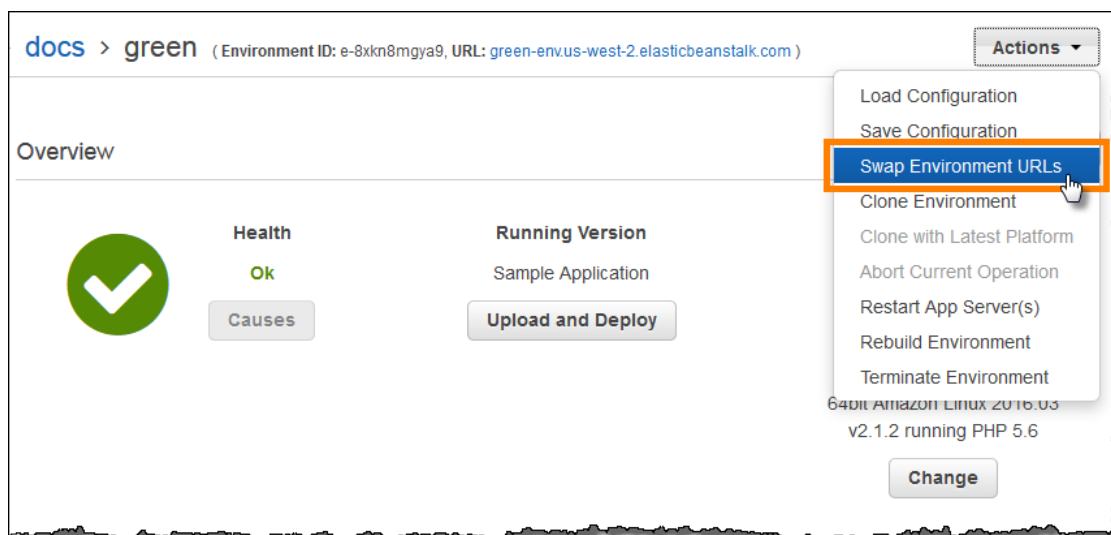
Because Elastic Beanstalk performs an in-place update when you update your application versions, your application may become unavailable to users for a short period of time. It is possible to avoid this downtime by performing a blue/green deployment, where you deploy the new version to a separate environment, and then swap CNAMEs of the two environments to redirect traffic to the new version instantly.

Blue/green deployments require that your environment runs independently of your production database, if your application uses one. If your environment has an Amazon RDS DB instance attached to it, the data will not transfer over to your second environment, and will be lost if you terminate the original environment.

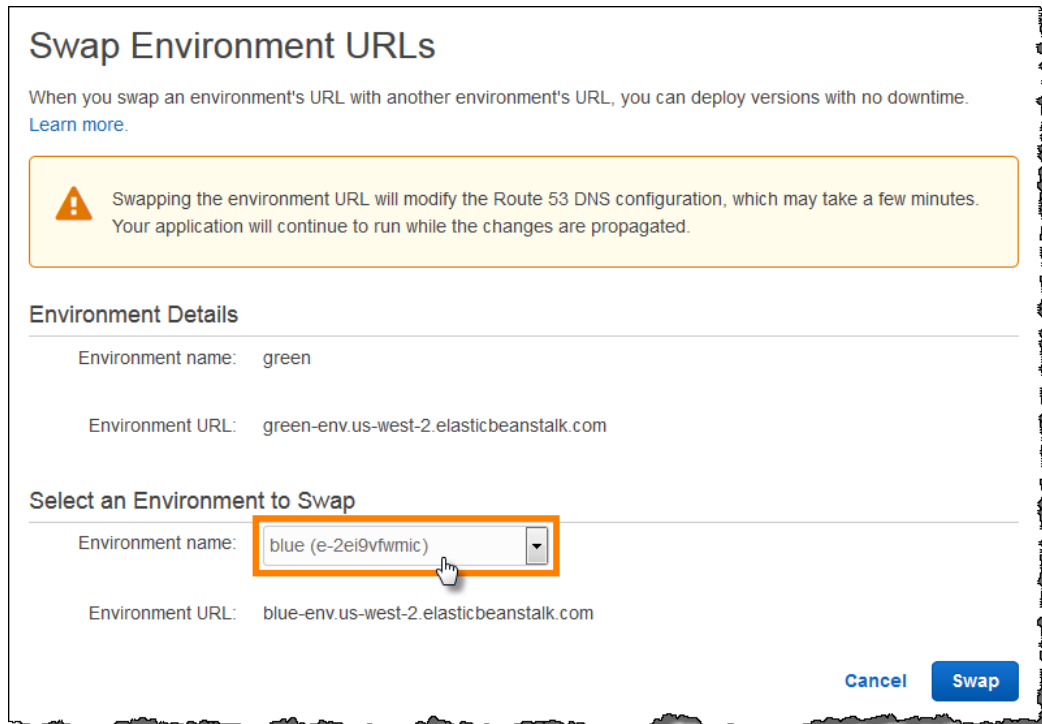
For details on configuring your application to connect to an external (not managed by Elastic Beanstalk) Amazon RDS instance, see [Using Elastic Beanstalk with Amazon RDS \(p. 380\)](#).

### To perform a blue/green deployment

1. Open the [Elastic Beanstalk console](#).
2. [Clone your current environment \(p. 85\)](#), or launch a new environment running the desired configuration.
3. [Deploy the new application version \(p. 104\)](#) to the new environment.
4. Test the new version on the new environment.
5. From the new environment's dashboard, choose **Actions** and then choose **Swap Environment URLs**.



6. From the **Environment name** drop-down list, select the current environment.



7. Choose **Swap**.
8. Elastic Beanstalk swaps the CNAME records of the old and new environment, redirecting traffic from the old version to the new version and vice-versa.

**Recent Events** [Show All](#)

| Time                         | Type | Details                                                                                                                           |
|------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------|
| 2016-05-26 14:28:24 UTC-0700 | INFO | Completed swapping CNAMEs for environments 'green' and 'blue'.                                                                    |
| 2016-05-26 14:28:24 UTC-0700 | INFO | 'blue-env.us-west-2.elasticbeanstalk.com' now points to 'awseb-e-8-AWSEBLoa-1CAXU4A2E218F-351266135.us-west-2.elb.amazonaws.com'. |
| 2016-05-26 14:28:20 UTC-0700 | INFO | Swapping CNAMEs for environments 'green' and 'blue'.                                                                              |
| 2016-05-26 14:28:20 UTC-0700 | INFO | swapEnvironmentCNAMEs is starting.                                                                                                |

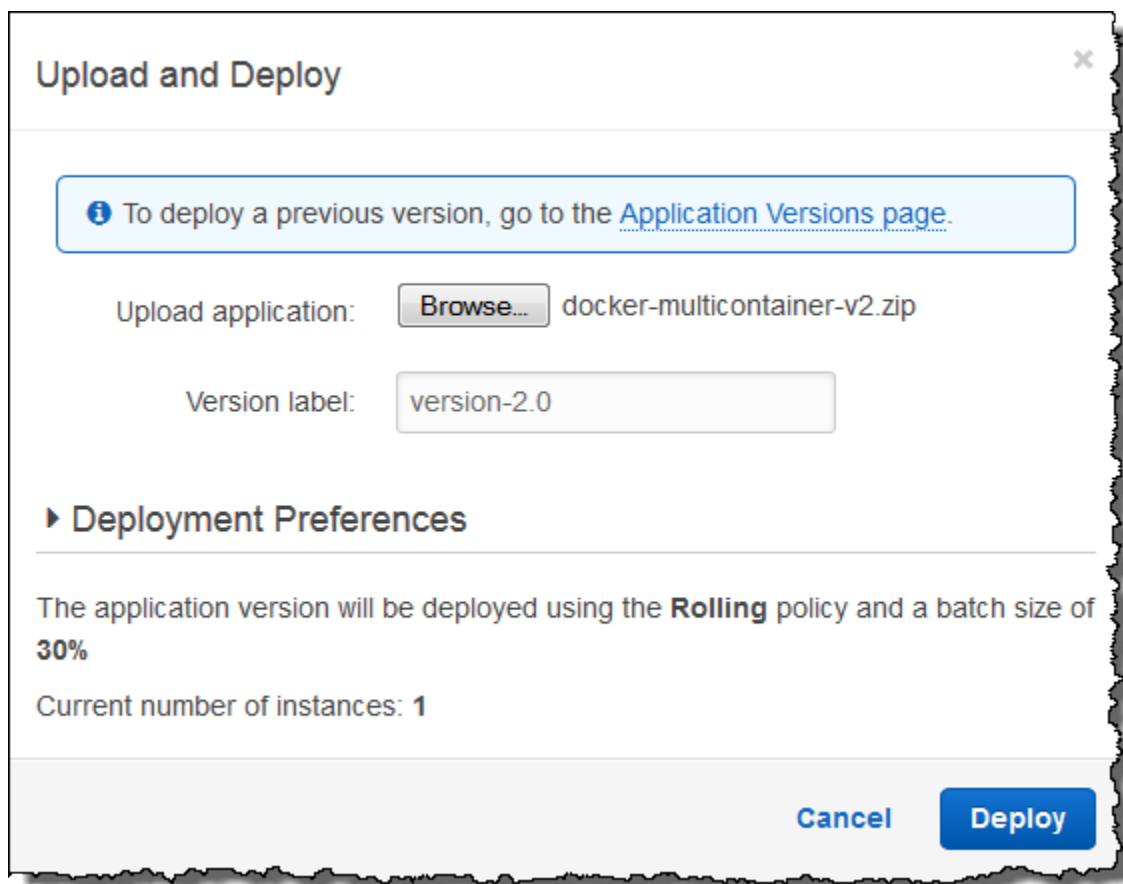
After Elastic Beanstalk completes the swap operation, verify that the new environment responds when you try to connect to the old environment URL. However, do not terminate your old environment until the DNS changes have been propagated and your old DNS records expire. DNS servers do not necessarily clear old records from their cache based on the time to live (TTL) you set on your DNS records.

## Deploying a New Application Version

You can perform deployments from your environment's dashboard.

### To deploy a new application version to an Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Upload and Deploy**,
4. Choose **Browse** to select the application source bundle for the application version you want to deploy.



5. For **Version label**, type a unique version label to represent the new application version.
6. Choose **Deploy**.

## Redeploying a Previous Version

You can also deploy a previously uploaded version of your application to any of its environments from the application versions page.

### To deploy an existing application version to an existing environment

1. Open the [Elastic Beanstalk console](#).
2. Choose **Actions** next to the application name and then choose **View Application Versions**.
3. Select the application version that you want to deploy, and then click **Deploy**.
4. Choose an environment and then choose **Deploy**.

## Configuration Changes

When you modify configuration option settings in the **Configuration** section of the [environment management console \(p. 52\)](#), AWS Elastic Beanstalk propagates the change to all affected resources. These resources include the load balancer that distributes traffic to the EC2 instances running your application, the Auto Scaling group that manages those instances, and the EC2 instances themselves.

Many configuration changes can be applied to a running environment without replacing existing instances. For example, setting a [health check URL \(p. 241\)](#) triggers an environment update to modify the load balancer settings, but doesn't cause any downtime because the instances running your application continue serving requests while the update is propagated.

Configuration changes that modify the [launch configuration \(p. 147\)](#) or [VPC settings \(p. 155\)](#) require terminating all instances in your environment and replacing them. For example, when you change the instance type or SSH key setting for your environment the environment must be terminated and replaced. To prevent downtime during these processes, Elastic Beanstalk applies these configuration changes in batches, keeping a minimum number of instances running and serving traffic at all times. This process is called a [rolling update \(p. 106\)](#).

[Immutable updates \(p. 109\)](#) are an alternative to rolling updates where a temporary Auto Scaling group is launched outside of your environment with a separate set of instances running on the new configuration, which are placed behind your environment's load balancer. Old and new instances both serve traffic until the new instances pass health checks, at which time the new instances are moved into your environment's Auto Scaling group and the temporary group and old instances are terminated.

### Topics

- [Elastic Beanstalk Rolling Environment Configuration Updates \(p. 106\)](#)
- [Immutable Environment Updates \(p. 109\)](#)
- [Tagging Your Elastic Beanstalk Environment's Resources \(p. 111\)](#)

## Elastic Beanstalk Rolling Environment Configuration Updates

When a [configuration change requires instances to be replaced \(p. 106\)](#), Elastic Beanstalk can perform the update in batches to avoid downtime while the change is propagated. During a rolling update, capacity is only reduced by the size of a single batch, which you can configure. Elastic Beanstalk takes one batch of instances out of service, terminates them, and then launches a batch with the new configuration. After the new batch starts serving requests, Elastic Beanstalk moves on to the next batch.

Rolling configuration update batches can be processed periodically (time-based), with a delay between each batch, or based on health. For time-based rolling updates, you can configure the amount of time that Elastic Beanstalk waits after completing the launch of a batch of instances before moving on to the next batch. This pause time allows your application to bootstrap and start serving requests.

With health-based rolling updates, Elastic Beanstalk waits until instances in a batch pass health checks before moving on to the next batch. The health of an instance is determined by the health reporting system, which can be basic or enhanced. With [basic health \(p. 288\)](#), a batch is considered healthy as soon as all instances in it pass ELB health checks.

With [enhanced health reporting \(p. 291\)](#), all of the instances in a batch must pass multiple consecutive health checks before Elastic Beanstalk will move on to the next batch. In addition to ELB health checks, which only check your instances, enhanced health monitors application logs and the



state of your environment's other resources. In a web server environment with enhanced health, all instances must pass 12 health checks over the course of two minutes (18 checks over three minutes for worker environments). If any instance fails one health check, the count resets.

If a batch does not become healthy within the rolling update timeout (default is 30 minutes), the update is cancelled. Rolling update timeout is a [configuration option \(p. 131\)](#) that is available in the `aws:autoscaling:updatepolicy:rollingupdate` (p. 108) namespace. If your application does not pass health checks with `Ok` status but is stable at a different level, you can set the `HealthCheckSuccessThreshold` option in the `aws:elasticbeanstalk:command namespace` (p. 156) to change the level at which Elastic Beanstalk considers an instance to be healthy.

If the rolling update process fails, Elastic Beanstalk starts another rolling update to rollback to the previous configuration. If the rollback fails, then you must terminate the environment and then launch a new environment. A rolling update can fail due to failed health checks or if launching new instances causes you to exceed the limits on your account. An alternative method is to deploy the new version of your application to a different environment and then perform a CNAME swap to redirect traffic with zero downtime. See [Blue/Green Deployments with AWS Elastic Beanstalk \(p. 103\)](#) for more information.

## Rolling Updates vs Rolling Deployments

Rolling updates occur when you change settings that require new EC2 instances to be provisioned for your environment. This includes changes to the Auto Scaling group configuration such as instance type and key pair settings, and changes to VPC settings. In a rolling update, each batch of instances is terminated prior to a new batch being provisioned to replace it.

[Rolling deployments \(p. 99\)](#) occur whenever you deploy your application and can typically be performed without replacing instances in your environment. Elastic Beanstalk takes each batch out of service, deploys the new application version, and then places it back in service.


The exception to this is if you change settings that require instance replacement at the same time you deploy a new application version. For example, if you change the [key name \(p. 147\)](#) settings in a [configuration file \(p. 178\)](#) in your source bundle and deploy it to your environment, you trigger a rolling update. Instead of deploying your new application version to each batch of existing instances, a new batch of instances is provisioned with the new configuration. A separate deployment does not occur in this case because the new instances are brought up with the new application version.

Any time that new instances are provisioned as part of an environment update, there is a deployment phase where your application's source code is deployed to the new instances and any configuration settings that modify the operating system or software on the instances are applied. [Deployment health check settings \(p. 100\)](#) (**Ignore health check**, **Healthy threshold** and **Command timeout**) also apply to health based rolling updates and immutable updates during the deployment phase.

## Configuring Rolling Updates

You can enable and configure rolling updates in the Elastic Beanstalk Management Console.

### To enable rolling updates

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Updates and Deployments** section, choose .
5. In the **Configuration Updates** section, select **Rolling configuration updates**.

**Configuration Updates**

The following settings control how changes to the environment's instances are propagated.

Rolling update type:  [Learn more](#)

Maximum batch size:  The maximum number of instances that should be modified at any given time.

Minimum instances in service:  The minimum number of instances that should be in service at any given time.

Pause time:  Hour  Minutes  Seconds  
The time to wait between changes to a batch of environments. Must be an hour or less.

6. Choose an **Update type** and batch settings.
7. Choose **Apply**.

The **Configuration Updates** section of the **Updates and Deployments** page has the following options for rolling updates:

- **Update type** – Choose from the following options: Elastic Beanstalk waits after it finishes updating a batch of instances before moving on to the next batch, to allow those instances to finish bootstrapping and start serving traffic.
- **Rolling based on Health** – Wait until instances in the current batch are healthy before placing instances in service and starting the next batch.
- **Rolling based on Time** – Specify an amount of time to wait between launching new instances and placing them in service before starting the next batch.
- **Immutable** – Apply the configuration change to a fresh group of instances by performing an [immutable update \(p. 109\)](#).
- **Maximum batch size** – The number of instances to replace in each batch, between 1 and 10000. By default, this value is one-third of the minimum size of the autoscaling group, rounded up.
- **Minimum instances in service** – The minimum number of instances to keep running while other instances are being updated, between 0 and 9999. The default value is either the minimum size of the autoscaling group or one less than the maximum size of the autoscaling group, whichever number is lower.
- **Pause time** (time-based only) – The amount of time to wait after a batch is updated before moving on to the next batch, to allow your application to start receiving traffic. Between 0 seconds to 1 hour.

## The `aws:autoscaling:updatepolicy:rollingupdate` namespace

You can also use the [configuration options \(p. 131\)](#) in the `aws:autoscaling:updatepolicy:rollingupdate` ([p. 153](#)) namespace to configure rolling updates.

Use the `RollingUpdateEnabled` option to enable rolling updates, and `RollingUpdateType` to choose the update type. The following values are supported for `RollingUpdateType`:

- `Health` – Wait until instances in the current batch are healthy before placing instances in service and starting the next batch.
- `Time` – Specify an amount of time to wait between launching new instances and placing them in service before starting the next batch.

- `Immutable` – Apply the configuration change to a fresh group of instances by performing an [immutable update](#) (p. 109).

When you enable rolling updates, set the `MaxBatchSize` and `MinInstancesInService` options to configure the size of each batch. For time-based and health-based rolling updates, you can also configure a `PauseTime` and `Timeout`, respectively.

For example, to launch up to five instances at a time, while maintaining at least two instances in service, and wait five minutes and 30 seconds between batches, specify the following options and values:

#### Example `.ebextensions/timebased.config`

```
option_settings:
 aws:autoscaling:updatepolicy:rollingupdate:
 RollingUpdateEnabled: true
 MaxBatchSize: 5
 MinInstancesInService: 2
 RollingUpdateType: Time
 PauseTime: PT5M30S
```

To enable health based rolling updates, with a 45 minute timeout for each batch, specify the following options and values:

#### Example `.ebextensions/healthbased.config`

```
option_settings:
 aws:autoscaling:updatepolicy:rollingupdate:
 RollingUpdateEnabled: true
 MaxBatchSize: 5
 MinInstancesInService: 2
 RollingUpdateType: Health
 Timeout: PT45M
```

Timeout and `PauseTime` values must be specified in [ISO8601 duration](#): `PT#H#M#S`, where each # is the number of hours, minutes, and/or seconds, respectively.

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values](#) (p. 176) for details.

## Immutable Environment Updates

Immutable environment updates are an alternative to [rolling updates](#) (p. 106) that ensure that configuration changes that require replacing instances are applied efficiently and safely. If an immutable environment update fails, the rollback process requires only terminating an Auto Scaling group. A failed rolling update, on the other hand, requires performing an additional rolling update to roll back the changes.

To perform an immutable environment update, Elastic Beanstalk creates a second, temporary Auto Scaling group behind your environment's load balancer to contain the new instances. First, Elastic Beanstalk launches a single instance with the new configuration in the new group. This instance serves traffic alongside all of the instances in the original Auto Scaling group that are running the previous configuration.

When the first instance passes health checks, Elastic Beanstalk launches additional instances with the new configuration, matching the number of instances running in the original Auto Scaling group.

When all of the new instances pass health checks, Elastic Beanstalk transfers them to the original Auto Scaling group, and terminates the temporary Auto Scaling group and old instances.

**Note**

During an immutable environment update, the capacity of your environment doubles for a short time when the instances in the new Auto Scaling group start serving requests and before the original Auto Scaling group's instances are terminated. If your environment has many instances, or instances with a low [on-demand limit](#), ensure that you have enough capacity to perform an immutable environment update. If you are near the limit, consider using rolling updates instead.

Immutable updates require [enhanced health reporting \(p. 291\)](#) to evaluate your environment's health during the update. Enhanced health reporting combines standard load balancer health checks with instance monitoring to ensure that the instances running the new configuration are [serving requests successfully \(p. 312\)](#).

You can also use immutable updates to deploy new versions of your application, as an alternative to rolling deployments. When you [configure Elastic Beanstalk to use immutable updates for application deployments \(p. 99\)](#), it replaces all instances in your environment every time you deploy a new version of your application. If an immutable application deployment fails, Elastic Beanstalk reverts the changes immediately by terminating the new Auto Scaling group. This can prevent partial fleet deployments, which can occur when a rolling deployment fails after some batches have already completed.

If an immutable update fails, the new instances upload [bundle logs \(p. 320\)](#) to Amazon S3 before Elastic Beanstalk terminates them. Elastic Beanstalk leaves logs from a failed immutable update in Amazon S3 for one hour before deleting them, instead of the standard 15 minutes for bundle and tail logs.

**Note**

If you use immutable updates for application version deployments, but not for configuration, you might encounter an error if you attempt to deploy an application version that contains configuration changes that would normally trigger a rolling update (for example, that change instance type). To avoid this, make the configuration change in a separate update, or configure immutable updates for both deployments and configuration changes.


You can't perform an immutable update in concert with resource configuration changes. For example, you can't change [settings that require instance replacement \(p. 106\)](#) while also updating other settings, or perform an immutable deployment with configuration files that change configuration settings or additional resources in your source code. If you attempt to change resource settings (for example, load balancer settings) and concurrently perform an immutable update, Elastic Beanstalk returns an error.

If your resource configuration changes aren't dependent on your source code change or on instance configuration, perform them in two updates. If they are dependent, perform a [blue/green deployment \(p. 103\)](#) instead.

## Configuring Immutable Updates

You can enable and configure immutable updates in the Elastic Beanstalk Management Console.

### To enable immutable updates (console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Updates and Deployments** section, choose .

- In the **Configuration Updates** section, set **Rolling update type** to **Immutable**.

**Configuration Updates**

The following settings control how changes to the environment's instances are propagated.

Rolling update type:  [Learn more](#)

Maximum batch size:  The maximum number of instances that should be modified at any given time.

Minimum instances in service:  The minimum number of instances that should be in service at any given time.

Pause time:  Hour  Minutes  Seconds  
The time to wait between changes to a batch of environments. Must be an hour or less.

- Choose **Apply**.

## The `aws:autoscaling:updatepolicy:rollingupdate` namespace

You can also use the options in the `aws:autoscaling:updatepolicy:rollingupdate` namespace to configure immutable updates. The following example [configuration file \(p. 178\)](#) enables immutable updates for configuration changes:

### Example `.ebextensions/immutable-updates.config`

```
option_settings:
 aws:autoscaling:updatepolicy:rollingupdate:
 RollingUpdateType: Immutable
```

The following example enables immutable updates for both configuration changes and deployments:

### Example `.ebextensions/immutable-all.config`

```
option_settings:
 aws:autoscaling:updatepolicy:rollingupdate:
 RollingUpdateType: Immutable
 aws:elasticbeanstalk:command:
 DeploymentPolicy: Immutable
```

## Tagging Your Elastic Beanstalk Environment's Resources

When you create an Elastic Beanstalk environment, you can specify tags to apply to resources in the environment. Tags can help you identify environments in cost allocation reports, especially if you have many to manage. You can also use tags to manage permissions at the resource level.

Elastic Beanstalk applies three tags by default. `elasticbeanstalk:environment-name` is the name of the environment. `elasticbeanstalk:environment-id` is the environment ID. `Name` is also the name of the environment. `Name` is used in the EC2 dashboard to identify and sort resources.

You can add an additional 7 tags during environment creation. Specify tags on the **Environment Tags** page of the [create environment wizard \(p. 61\)](#):

|    | Key (128 characters maximum)       | Value (256 characters maximum)        |
|----|------------------------------------|---------------------------------------|
| 1. | <input type="text" value="mytag"/> | <input type="text" value="tagvalue"/> |
| 2. | <input type="text"/>               | <input type="text"/>                  |

6 remaining

### Constraints

- Key-value pairs must be separated by commas.
- Keys and values can contain any alphabetic character in any language, any numeric character, white space, invisible separator, and the following symbols: `_ . : / + - @`
- Keys can contain up to 128 characters. Values can contain up to 256 characters.
- Keys and values are case sensitive.
- Values cannot match the environment name.
- Values cannot include either `aws:` or `elasticbeanstalk:`.

If you use the EB CLI to create environments, use the `--tags` option with `eb create` (p. 455) to add tags:

```
~/workspace/my-app$ eb create --tags mytag1=value1,mytag2=value2
```

With the AWS CLI or other API-based clients, use the `--tags` parameter on the `create-environment` command:

```
$ aws elasticbeanstalk create-environment --tags Key=mytag1,Value=value1
Key=mytag2,Value=value2 --application-name my-app --environment-name my-env
--cname-prefix my-app --version-label v1 --template-name my-saved-config
```

[Saved configurations](#) (p. 132) include user-defined tags. When you apply a saved configuration that contains tags during environment creation, those tags will be applied to the new environment, as long as you don't specify any new tags. If you add tags to an environment using one of the preceding methods, any tags defined in the saved configuration will be discarded.

You can use cost allocation reports to track your usage of AWS resources. The reports include both tagged and untagged resources, but they aggregate costs according to tags. For information about how cost allocation reports use tags, see [Use Cost Allocation Tags for Custom Billing Reports](#) in the *AWS Billing and Cost Management User Guide*.

# Updating Your Elastic Beanstalk Environment's Platform Version

## Managed Platform Updates

Elastic Beanstalk regularly releases [platform updates \(p. 113\)](#) to provide fixes, software updates and new features. With managed platform updates, you can configure your environment to automatically upgrade to the latest version of a platform during a scheduled [maintenance window \(p. 114\)](#). Your application remains in service during the update process with no reduction in capacity.

### Note

This feature is not available for the .NET on Windows Server platform.

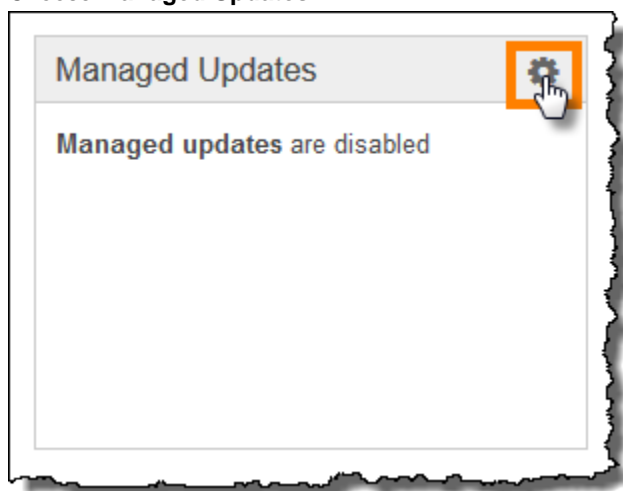
You can configure your environment to automatically apply [patch version updates \(p. 114\)](#), or both patch and minor version updates. Managed platform updates don't support major version updates, which may introduce changes that are backwards incompatible.

When you enable managed platform updates, you can also configure AWS Elastic Beanstalk to replace all instances in your environment during the maintenance window, even if a platform update isn't available. Replacing all instances in your environment is helpful if your application encounters bugs or memory issues when running for a long period.

Use the Elastic Beanstalk environment management console to enable managed platform updates.

### To enable managed platform updates

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. Choose **Managed Updates**.



5. Select **Enable managed updates**.
6. Choose a maintenance window and then choose **Update level**.
7. (optional) Select **Instance replacement** to enable weekly instance replacement.
8. Choose **Apply**.

Managed platform updates depend on [enhanced health reporting \(p. 291\)](#) to determine that your application is healthy enough to consider the platform update successful. See [Enabling AWS Elastic Beanstalk Enhanced Health Reporting \(p. 292\)](#) for instructions.

#### Sections

- [Permissions Required to Perform Managed Platform Updates \(p. 114\)](#)
- [The Managed Update Maintenance Window \(p. 114\)](#)
- [Minor and Patch Version Updates \(p. 114\)](#)
- [Immutable Environment Updates \(p. 114\)](#)
- [Managing Managed Updates \(p. 115\)](#)
- [Managed Action Option Namespaces \(p. 116\)](#)

## Permissions Required to Perform Managed Platform Updates

Elastic Beanstalk needs permission to initiate a platform update on your behalf. If you use the default [service role \(p. 17\)](#), the console adds the required permissions when you enable managed platform updates. If you don't use the default service role or manage your environments with a different client, [add the `AWSElasticBeanstalkService` managed profile to your service role \(p. 340\)](#).

#### Note

If you use [configuration files \(p. 178\)](#) to extend your environment to include additional resources, you might need to add additional permissions to your environment's service role. Typically you need to add additional permissions when you reference these resources by name in other sections or files.

If an update fails, you can find the reason for the failure on the [Managed Updates \(p. 115\)](#) page.

## The Managed Update Maintenance Window

When AWS releases a new version of your environment's platform configuration, Elastic Beanstalk schedules a managed platform update during the next weekly maintenance window. Maintenance windows are two hours long. Elastic Beanstalk starts a scheduled update during the maintenance window, but the update might not complete until after the windows ends.

## Minor and Patch Version Updates

You can enable managed platform updates to apply patch version updates only, or for both minor and patch version updates. Patch version updates provide bug fixes and performance improvements, and can include minor configuration changes to the on-instance software, scripts, and configuration options. Minor version updates provide support for new Elastic Beanstalk features. You can't apply major version updates, which might make changes that are backwards incompatible, with managed platform updates.

In a platform version number, the second number is the minor update version, and the third number is the patch version. For example, a version 2.0.7 platform version has a minor version of 0 and a patch version of 7.

## Immutable Environment Updates

Managed platform updates perform [immutable environment updates \(p. 109\)](#) to upgrade your environment to a new platform version. Immutable updates update your environment without taking any instances out of service or modifying your environment, prior to confirming that instances running the new configuration pass health checks.



In an immutable update, Elastic Beanstalk deploys as many instances as are currently running with the new platform version. The new instances begin to take requests alongside those running the old version. If the new set of instances passes all health checks, Elastic Beanstalk terminates the old set of instances, leaving only instances with the new configuration.

Managed platform updates always perform immutable updates, even when you apply them outside of the maintenance window. If you change the platform configuration from the **Dashboard**, Elastic Beanstalk applies the update policy that you've chosen for configuration updates.

## Managing Managed Updates

The Elastic Beanstalk environment management console shows detailed information about managed updates on the **Managed Updates** page.

### To view information about managed updates (console)

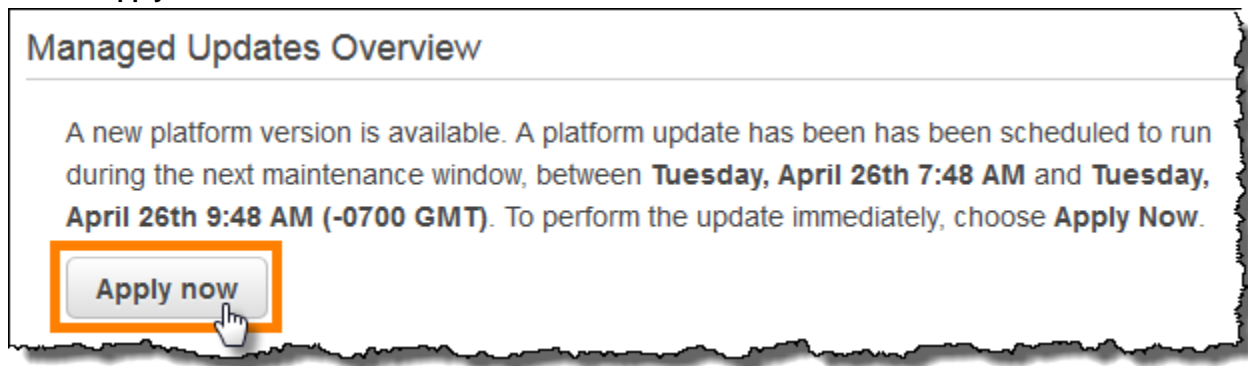
1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Managed Updates**.

The **Managed Updates Overview** section provides information about scheduled and pending managed updates. The **History** section lists successful updates and failed attempts.

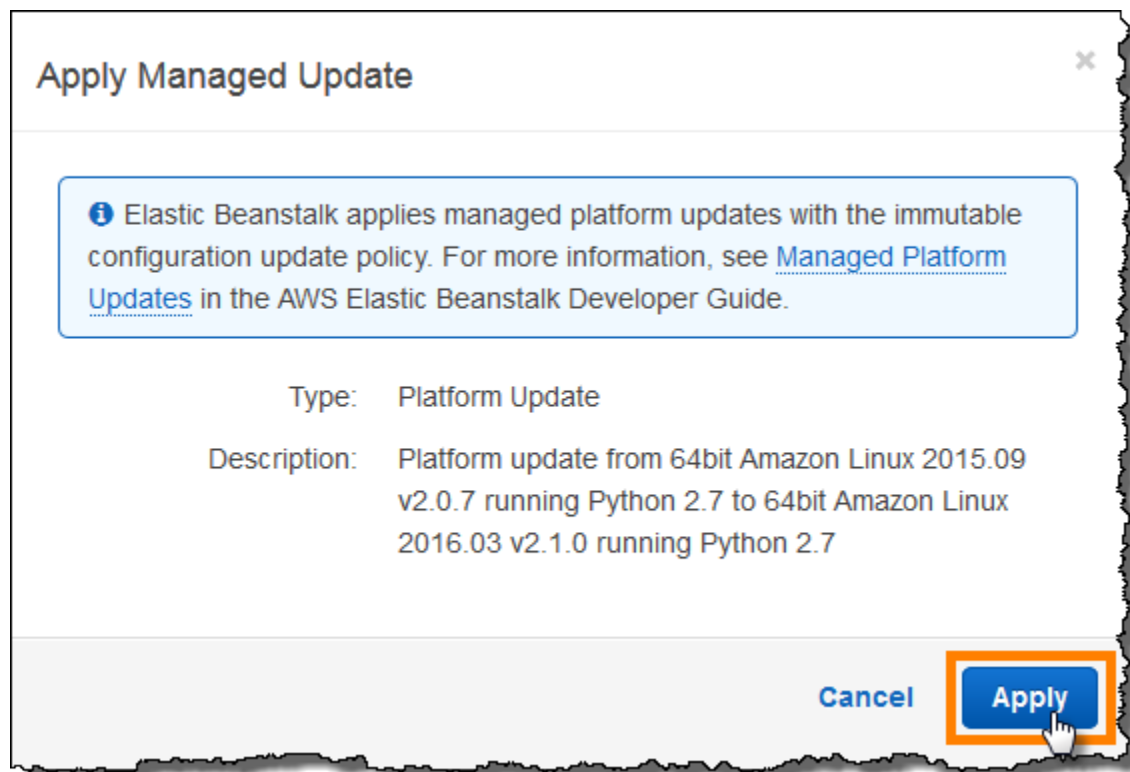
You can choose to apply a scheduled update immediately, instead of waiting until the maintenance window.

### To apply a managed platform update immediately (console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Managed Updates**.
4. Choose **Apply now**.



5. Choose **Apply**.



When you apply a managed platform update outside of the maintenance window, Elastic Beanstalk performs an immutable update. If you update the environment's platform from the [Dashboard \(p. 53\)](#), or by using a different client, Elastic Beanstalk uses the update type that you have selected for [configuration changes \(p. 106\)](#).

If you don't have a managed update scheduled, your environment may already be running the latest version. Other reasons for not having an update scheduled include:

- a [minor version \(p. 114\)](#) update is available, but your environment is configured to automatically apply only patch version updates.
- your environment hasn't been scanned since the update was released. Elastic Beanstalk typically checks for updates every hour.
- an update is pending or already in progress.

When your maintenance window starts or when you choose **Apply now**, scheduled updates goes into pending status prior to execution.

## Managed Action Option Namespaces

You can use [configuration options \(p. 131\)](#) in the `aws:elasticbeanstalk:managedactions` (p. 159) and `aws:elasticbeanstalk:managedactions:platformupdate` (p. 159) namespaces to enable and configure managed platform updates.

The `ManagedActionsEnabled` option turns on managed platform updates. Set this option to `true` to enable managed platform updates, and use the other options to configure update behavior.

Use `PreferredStartTime` to configure the beginning of the weekly maintenance window in `day:hour:minute` format.

Set `UpdateLevel` to `minor` or `patch` to apply both minor and patch version updates, or just patch version updates, respectively.

When managed platform updates are enabled, you can enable instance replacement by setting the `InstanceRefreshEnabled` option to `true`. When this setting is enabled, Elastic Beanstalk runs an immutable update on your environment every week, regardless of whether there is a new platform version available.

The following example [configuration file \(p. 178\)](#) enables managed platform updates for patch version updates with a maintenance window starting at 10:00 AM UTC each Tuesday:

#### Example `.ebextensions/managed-platform-update.config`

```
option_settings:
 aws:elasticbeanstalk:managedactions:
 ManagedActionsEnabled: true
 PreferredStartTime: "Tue:10:00"
 aws:elasticbeanstalk:managedactions:platformupdate
 UpdateLevel: patch
 InstanceRefreshEnabled: true
```

## Migrating Your Application from a Legacy Container Type

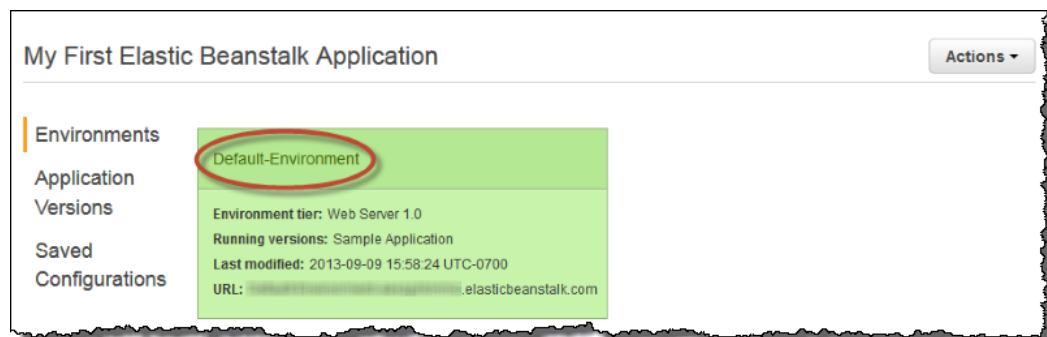
If you have deployed an Elastic Beanstalk application that uses a legacy container type, you should migrate your application to a new environment using a non-legacy container type so that you can get access to new features. If you are unsure whether you are running your application using a legacy container type, you can check in the Elastic Beanstalk console. For instructions, see [To check if you are using a legacy container type \(p. 117\)](#).

### Why are some container types marked legacy?

Some older platform configurations do not support the latest Elastic Beanstalk features. These configurations are marked **(legacy)** on the environment configuration page in the AWS Management Console.

#### To check if you are using a legacy container type

1. Open the [Elastic Beanstalk console](#).
2. From the Elastic Beanstalk console applications page, click the environment that you want to verify.



3. In the **Overview** section of the environment dashboard, view the **Configuration** name.

Your application is using a legacy container type if you see **(legacy)** next to the configuration.

### To migrate your application

1. Deploy your application to a new environment. For instructions, go to [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).
2. If you have an Amazon RDS DB Instance, update your database security group to allow access to your EC2 security group for your new environment. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see [Security Groups \(p. 233\)](#). For more information about configuring your EC2 security group, go to the "Authorizing Network Access to an Amazon EC2 Security Group" section of [Working with DB Security Groups](#) in the *Amazon Relational Database Service User Guide*.
3. Swap your environment URL. For instructions, go to [Blue/Green Deployments with AWS Elastic Beanstalk \(p. 103\)](#).
4. Terminate your old environment. For instructions, go to [Terminate an Environment \(p. 88\)](#).

### Note

If you use AWS Identity and Access Management (IAM) then you will need to update your policies to include AWS CloudFormation and Amazon RDS (if applicable). For more information, see [Using Elastic Beanstalk with AWS Identity and Access Management \(p. 332\)](#).

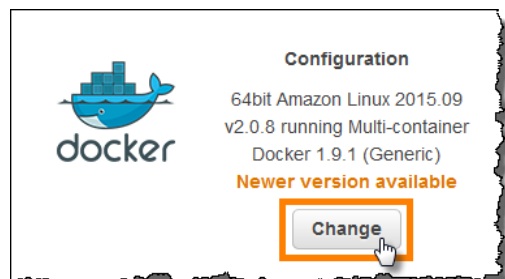
Elastic Beanstalk regularly releases updates for the Linux and Windows Server based [platforms \(p. 24\)](#) that run applications on an Elastic Beanstalk environment. A platform consists of a software component (an AMI running a specific version of an OS, tools, and Elastic Beanstalk-specific scripts), and a configuration component (the default [settings \(p. 131\)](#) applied to environments created with the platform). New platform versions provide updates to existing software components and support for new features and configuration options.

For platforms which support multiple incompatible major versions of the included web container, programming language, or framework, a separate *configuration* of the platform is provided for each. For example, the [Java with Tomcat \(p. 600\)](#) platform supports separate configurations for Tomcat 7 and Tomcat 8. Each configuration of a platform is versioned separately, but updates are generally released for all configurations of a given platform at the same time.

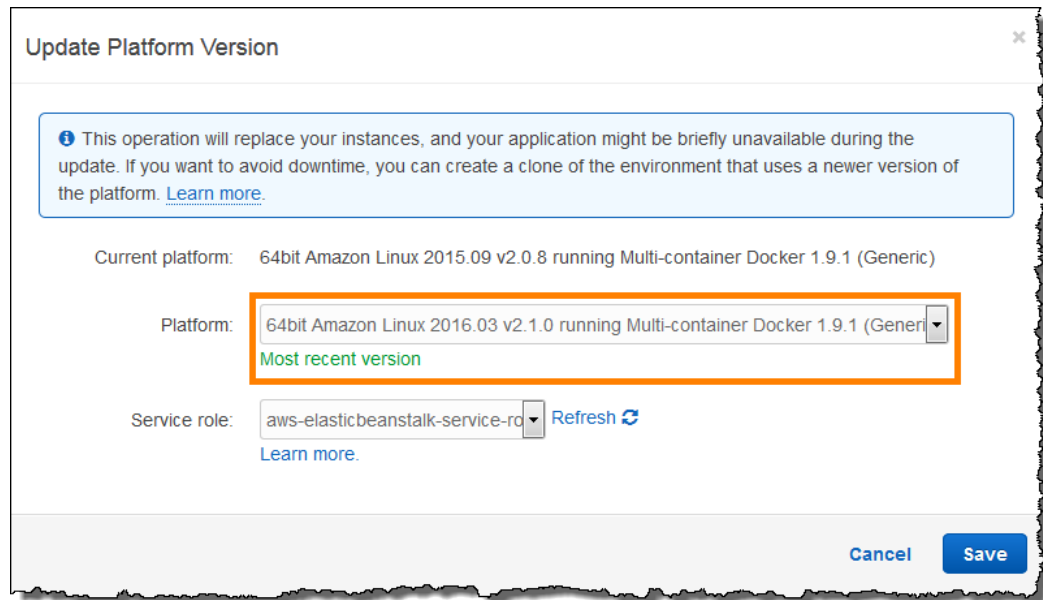
When a new version of your environment's platform configuration is available, Elastic Beanstalk shows a message in the [environment management console \(p. 52\)](#) and makes the **Change** button available. If you've previously created an environment using an older version of the same configuration, or upgraded your environment from an older configuration, you can also use the **Change** button to revert to a previous configuration version.

### To update your environment's platform

1. Navigate to the [management console \(p. 52\)](#) for your environment.
2. In the **Overview** section, under **Configuration**, click **Change**.



3. Choose a **Platform Version**. The newest platform version is selected automatically, but you can update to any version that you have used in the past if you choose.



4. Choose **Save**.

Configurations are specific to major language and tool versions. When a configuration is updated, the language and tools will not change major versions. For example, *Java 7 with Tomcat 7* and *Java 8 with Tomcat 8* are two different configurations of the *Java with Tomcat* platform. You cannot perform a platform update between configurations, only between versions of the same configuration, such as *Java 8 with Tomcat 8 version 1.4.5* and *Java 8 with Tomcat 8 version 2.0.0*.

Linux-based Elastic Beanstalk platforms are semantically versioned with three numbers, major, minor, and patch. For example, *Java 8 with Tomcat 8 version 2.1.0* has a major version of 2, a minor version of 1, and a patch version of 0. Major versions are only used for backwards incompatible changes. Minor versions add support for new Elastic Beanstalk features, and patch versions fix bugs, update OS and software components, and provide access to updated packages in the Amazon Linux yum repository.

You can configure your environment to apply minor and patch version updates automatically during a configurable weekly maintenance window with [Managed Platform Updates \(p. 113\)](#). Elastic Beanstalk applies managed updates with no downtime or reduction in capacity, and cancels the update immediately if instances running your application on the new version fail health checks.

Windows Server-based platforms are not semantically versioned and do not support managed platform updates. You can only launch the latest version of each Windows Server platform configuration and cannot roll back after an upgrade.

## Canceling Environment Configuration Updates and Application Deployments

You can cancel in-progress updates that are triggered by environment configuration changes. You can also cancel the deployment of a new application version in progress. For example, you might want to cancel an update if you decide you want to continue using the existing environment

configuration instead of applying new environment configuration settings. Or, you might realize that the new application version that you are deploying has problems that will cause it to not start or not run properly. By canceling an environment update or application version update, you can avoid waiting until the update or deployment process is done before you begin a new attempt to update the environment or application version.

### Note

During the cleanup phase in which old resources that are no longer needed are removed, after the last batch of instances has been updated, you can no longer cancel the update.

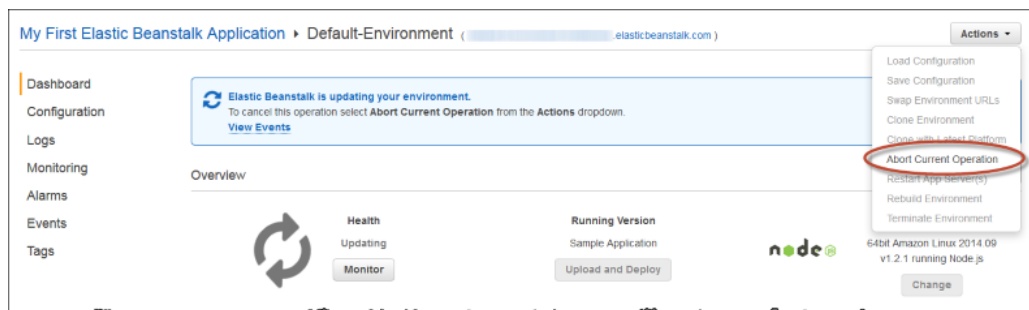
Elastic Beanstalk performs the rollback the same way that it performed the last successful update. For example, if you have time-based rolling updates enabled in your environment, then Elastic Beanstalk will wait the specified pause time between rolling back changes on one batch of instances before rolling back changes on the next batch. Or, if you recently turned on rolling updates, but the last time you successfully updated your environment configuration settings was without rolling updates, Elastic Beanstalk will perform the rollback on all instances simultaneously.

You cannot stop Elastic Beanstalk from rolling back to the previous environment configuration once it begins to cancel the update. The rollback process continues until all instances in the environment have the previous environment configuration or until the rollback process fails. For application version deployments, canceling the deployment simply stops the deployment; some instances will have the new application version and others will continue to run the existing application version. You can deploy the same or another application version later.

For more information about rolling updates, see [Elastic Beanstalk Rolling Environment Configuration Updates](#) (p. 106). For more information about batched application version deployments, see [Deployment Policies and Settings](#) (p. 99).

### To cancel an update

- On the environment dashboard, click **Actions**, and then click **Abort Current Operation**.



## Environment Types

In Elastic Beanstalk, you can create a load-balancing, autoscaling environment or a single-instance environment. The type of environment that you require depends on the application that you deploy. For example, you can develop and test an application in a single-instance environment to save costs and then upgrade that environment to a load-balancing, autoscaling environment when the application is ready for production.

### Note

A worker environment tier for a web application that processes background tasks does not include a load balancer. However, a worker environment does effectively scale out by adding instances to the autoscaling group to process data from the Amazon SQS queue when the load necessitates it.

## Load-balancing, Autoscaling Environment

A load-balancing and autoscaling environment uses the Elastic Load Balancing and Auto Scaling services to provision the Amazon EC2 instances that are required for your deployed application. Auto Scaling automatically starts additional instances to accommodate increasing load on your application. If the load on your application decreases, Auto Scaling stops instances but always leaves your specified minimum number of instances running. If your application requires scalability with the option of running in multiple Availability Zones, use a load-balancing, autoscaling environment. If you're not sure which environment type to select, you can pick one, and if required, switch the environment type later.

## Single-instance Environment


A single-instance environment contains one Amazon EC2 instance with an Elastic IP address. A single-instance environment doesn't have a load balancer, which can help you reduce costs compared to a load-balancing, autoscaling environment. Although a single-instance environment does use the Auto Scaling service, settings for the minimum number of instances, maximum number of instances, and desired capacity are all set to 1. Consequently, new instances are not started to accommodate increasing load on your application.

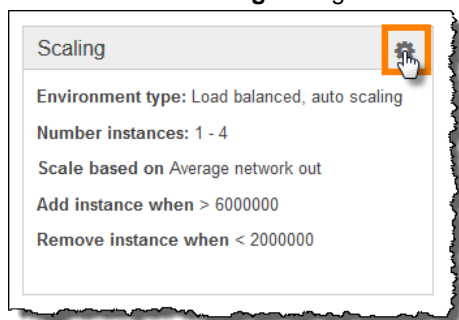
Use a single-instance environment if you expect your production application to have low traffic or if you are doing remote development. If you're not sure which environment type to select, you can pick one, and, if required, you can switch the environment type later. For more information, see [Changing Environment Type](#) (p. 121).

## Changing Environment Type

You can change your environment type to a single-instance or load-balancing, autoscaling environment by editing your environment's configuration. In some cases, you might want to change your environment type from one type to another. For example, let's say that you developed and tested an application in a single-instance environment in order to save costs. When your application is ready for production, you can change the environment type to a load-balancing, autoscaling environment so that it can scale to meet the demands of your customers.

### To change an environment's type

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. Click  for the **Scaling** settings.



5. In the **Environment Type** section, select the type of environment that you want.

The screenshot shows the 'Environment Type' configuration page in the AWS Elastic Beanstalk console. The 'Environment type' dropdown menu is highlighted with a red circle and contains the text 'Load balanced, auto scaling'. Below this, the 'Auto Scaling' section includes fields for 'Minimum instance count' (set to 1), 'Maximum instance count' (set to 4), 'Availability Zones' (set to 'Any'), 'Custom Availability Zones' (a list box containing 'us-east-1a', 'us-east-1b', 'us-east-1c', and 'us-east-1d'), and 'Scaling cooldown (seconds)' (set to 360). The 'Scaling Trigger' section shows 'Trigger measurement' set to 'NetworkOut'.

6. If your environment is in a VPC, select subnets to place ELB and EC2 instances in. Each availability zone that your application runs in must have both. See [Using Elastic Beanstalk with Amazon VPC \(p. 390\)](#) for details.
7. Click **Save**.

Note that it can take several minutes for the environment to update while Elastic Beanstalk provisions AWS resources.

## Worker Environments

If your application performs operations or workflows that take a long time to complete, you can offload those tasks to a dedicated *worker environment*. Decoupling your web application front-end from a process that performs blocking operations is a common way to ensure that your application stays responsive under load.

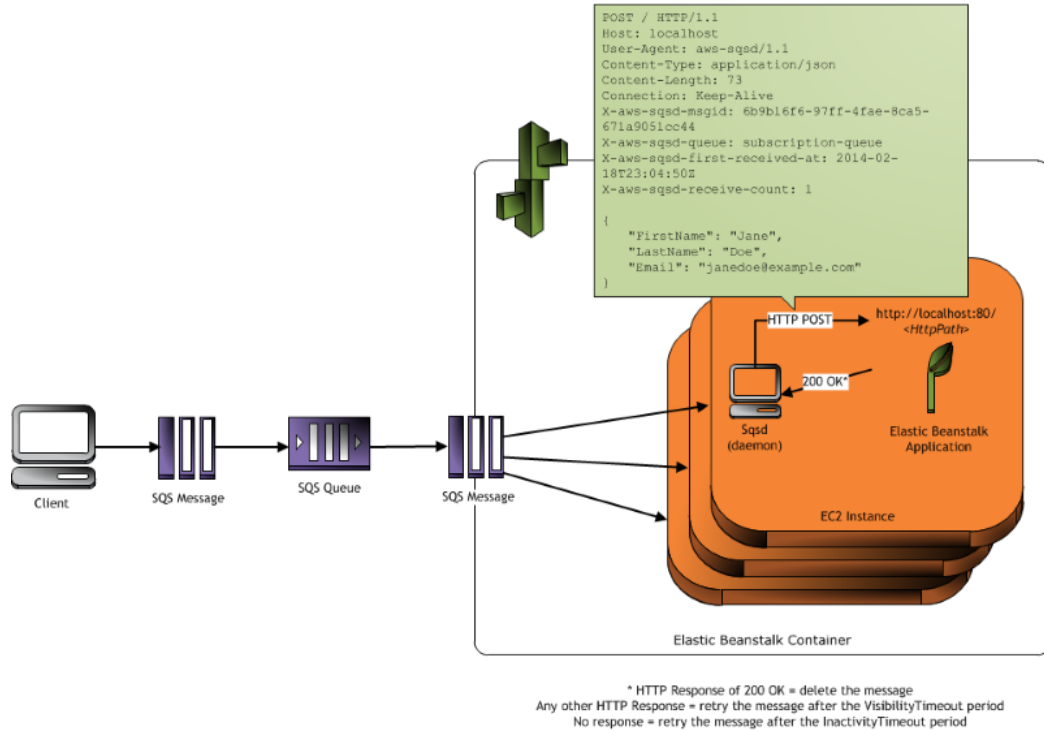
A long running task is anything that substantially increases the time it takes to complete a request, such as processing images or videos, sending email, or generating a ZIP archive. These operations may only take a second or two to complete, but a delay of a few seconds is a lot for a web request that would otherwise complete in less than 500ms.

One option is to spawn a worker process locally, return success, and process the task asynchronously. This works, as long as your instance can keep up with all of the tasks sent to it. Under high load, however, an instance can become overwhelmed with background tasks and become unresponsive to higher priority requests. If individual users can generate multiple tasks, the increase in load might not correspond to an increase in users, making it hard to scale out your web server tier effectively.

To avoid running long-running tasks locally, you can use the AWS SDK for your programming language to send them to an Amazon Simple Queue Service queue, and run the process that performs them on a separate set of instances. The worker instances only take items from the queue when they have capacity to run them, preventing them from becoming overwhelmed.

Elastic Beanstalk simplifies this process by managing the Amazon SQS queue and running a [daemon process \(p. 123\)](#) on each instance that reads from the queue for you. When the daemon pulls an item from the queue, it sends an HTTP POST request locally to `http://localhost/` with the contents of the queue message in the body. All that your application needs to do is perform the long-running task in response to the POST. You can [configure the daemon \(p. 126\)](#) to post to a different path, use a MIME type other than `application/json`, connect to an existing queue, or customize connections, timeouts, and retries.





With [periodic tasks \(p. 125\)](#), you can also configure the worker daemon to queue messages based on a cron schedule. Each periodic tasks can POST to a different path. Enable periodic tasks by including a YAML file in your source code that defines the schedule and path for each task.

#### Sections

- [The Worker Environment SQS Daemon \(p. 123\)](#)
- [Dead Letter Queues \(p. 124\)](#)
- [Periodic Tasks \(p. 125\)](#)
- [Use Amazon CloudWatch for Auto Scaling in Worker Environment Tiers \(p. 126\)](#)
- [Configuring Worker Environments \(p. 126\)](#)

## The Worker Environment SQS Daemon

Worker environments run a daemon process provided by Elastic Beanstalk. This daemon is updated regularly to add features and fix bugs. To get the latest version of the daemon, update to the latest [platform version \(p. 24\)](#).

| Feature                                            | Release Date      | Description                                                                                        |
|----------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------|
| <a href="#">Enhanced Health Reporting (p. 291)</a> | August 11, 2015   | Monitor environment health with more detail and accuracy.                                          |
| <a href="#">Periodic Tasks (p. 125)</a>            | February 17, 2015 | Run cron jobs that you configure in a <code>cron.yaml</code> file in your application source code. |
| <a href="#">Dead Letter Queues (p. 124)</a>        | May 27, 2014      | Send failed jobs to a dead letter queue for troubleshooting.                                       |

| Feature | Release Date | Description                                                            |
|---------|--------------|------------------------------------------------------------------------|
|         |              | Changed the default visibility timeout from 30 seconds to 300 seconds. |

When the application in the worker environment returns a 200 OK response to acknowledge that it has received and successfully processed the request, the daemon sends a `DeleteMessage` call to the SQS queue so that the message will be deleted from the queue. If the application returns any response other than 200 OK, then Elastic Beanstalk waits to put the message back in the queue after the configured `ErrorVisibilityTimeout` period. If there is no response, then Elastic Beanstalk waits to put the message back in the queue after the `InactivityTimeout` period so that the message is available for another attempt at processing.

**Note**

The properties of Amazon SQS queues (message order, at-least-once delivery, and message sampling) can affect how you design a web application for a worker environment. For more information, see [Properties of Distributed Queues](#) in the [Amazon Simple Queue Service Developer Guide](#).

SQS automatically deletes messages that have been in a queue for longer than the configured `RetentionPeriod`.

The daemon sets the following HTTP headers:

| HTTP Headers                |                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------|
| Name                        | Value                                                                               |
| User-Agent                  | <code>aws-sqs-d</code><br><code>aws-sqs-d/1.1<sup>1</sup></code>                    |
| X-Aws-Sqs-Msgid             | SQS message ID, used to detect message storms                                       |
| X-Aws-Sqs-Queue             | Name of the SQS queue                                                               |
| X-Aws-Sqs-First-Received-At | UTC time, in <a href="#">ISO 8601 format</a> , when the message was first received. |
| X-Aws-Sqs-Receive-Count     | SQS message receive count                                                           |
| Content-Type                | Mime type configuration; by default, <code>application/json</code>                  |

## Dead Letter Queues

Elastic Beanstalk worker environments support Amazon Simple Queue Service (SQS) dead letter queues. A dead letter queue is a queue where other (source) queues can send messages that for some reason could not be successfully processed. A primary benefit of using a dead letter queue is the ability to sideline and isolate the unsuccessfully processed messages. You can then analyze any messages sent to the dead letter queue to try to determine why they were not successfully processed.

A dead letter queue is enabled by default for a worker environment if you specify an autogenerated Amazon SQS queue at the time you create your worker environment tier. If you choose an existing SQS queue for your worker environment, you must use SQS to configure a dead letter queue independently. For information about how to use SQS to configure a dead letter queue, see [Using Amazon SQS Dead Letter Queues](#).

You cannot disable dead letter queues. Messages that cannot be delivered will always eventually be sent to a dead letter queue. You can, however, effectively disable this feature by setting the `MaxRetries` option to the maximum valid value of 100.

**Note**

The Elastic Beanstalk `MaxRetries` option is equivalent to the SQS `MaxReceiveCount` option. If your worker environment does not use an autogenerated SQS queue, use the `MaxReceiveCount` option in SQS to effectively disable your dead letter queue. For more information, see [Using Amazon SQS Dead Letter Queues](#).

For more information about the lifecycle of an SQS message, go to [Message Lifecycle](#).

## Periodic Tasks

You can define periodic tasks in a file named `cron.yaml` in your source bundle to add jobs to your worker environment's queue automatically at a regular interval.

For example, the following `cron.yaml` file creates two periodic tasks, one that runs every 12 hours and a second that runs at 11pm UTC every day:

**Example cron.yaml**

```
version: 1
cron:
 - name: "backup-job"
 url: "/backup"
 schedule: "0 */12 * * *"
 - name: "audit"
 url: "/audit"
 schedule: "0 23 * * *"
```

The **name** must be unique for each task. The URL is the path to which the POST request is sent to trigger the job. The schedule is a [CRON expression](#) that determines when the task runs.

When a task runs, the daemon posts a message to the environment's SQS queue with a header indicating the job that needs to be performed. Any instance in the environment can pick up the message and process the job.

Elastic Beanstalk uses leader election to determine which instance in your worker environment queues the periodic task. Each instance attempts to become leader by writing to a DynamoDB table. The first instance that succeeds is the leader, and must continue to write to the table to maintain leader status. If the leader goes out of service, another instance quickly takes its place.

For periodic tasks, the worker daemon sets the following additional headers:

| HTTP Headers                                   |                                                                                                                                                                                                                                                                                    |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                                           | Value                                                                                                                                                                                                                                                                              |
| X-Aws-Sqsd-Taskname                            | For periodic tasks, the name of the task to perform.                                                                                                                                                                                                                               |
| X-Aws-Sqsd-Attr- <i>message-attribute-name</i> | Custom message attributes assigned to the message being processed. The <code>message-attribute-name</code> is the actual message attribute name. All string and number message attributes are added to the header, Binary attributes are discarded and not included in the header. |
| X-Aws-Sqsd-Scheduled-At                        | Time at which the periodic task was scheduled                                                                                                                                                                                                                                      |

| HTTP Headers        |                                                 |
|---------------------|-------------------------------------------------|
| X-Aws-Sqs-Sender-Id | AWS account number of the sender of the message |

## Use Amazon CloudWatch for Auto Scaling in Worker Environment Tiers

Together, Auto Scaling and CloudWatch monitor the CPU utilization of the running instances in the worker environment. How you configure the autoscaling limit for CPU capacity determines how many instances the autoscaling group runs to appropriately manage the throughput of messages in the SQS queue. Each EC2 instance publishes its CPU utilization metrics to CloudWatch. Auto Scaling retrieves from CloudWatch the average CPU usage across all instances in the worker environment. You configure the upper and lower threshold as well as how many instances to add or terminate according to CPU capacity. When Auto Scaling detects that you have reached the specified upper threshold on CPU capacity, Elastic Beanstalk creates new instances in the worker environment. The instances are deleted when the CPU load drops back below the threshold.

### Note

Messages that have not been processed at the time an instance is terminated are returned to the queue where they can be processed by another daemon on an instance that is still running.

You can also set other CloudWatch alarms, as needed, by using the AWS Management Console, CLI, or the options file. For more information, go to [Using Elastic Beanstalk with Amazon CloudWatch \(p. 328\)](#) and [Use Auto Scaling Policies and Amazon CloudWatch Alarms for Dynamic Scaling](#).

## Configuring Worker Environments

You can manage a worker environment's configuration by editing **Worker Configuration** on the **Configuration** page in the [environment management console \(p. 52\)](#).

The screenshot displays the 'Worker Details' configuration page. It includes a 'Worker queue' dropdown set to 'Autogenerated queue' with a 'Refresh' button. Below are fields for 'Worker queue URL', 'HTTP path' (set to '/'), 'MIME type' (set to 'application/json'), 'HTTP connections' (set to 10), and 'Visibility timeout' (set to 300). A section titled 'Advanced Options' contains 'Max retries' (10), 'Connection timeout' (5), 'Inactivity timeout' (299), and 'Retention period' (345600). Each field has a description of its function.

## To configure the worker daemon

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. Choose **Worker Configuration**.

The **Worker Details** page has the following options:

- **Worker queue** – Specify the Amazon SQS queue from which the daemon reads. You can choose an existing queue, if you have one. If you choose **Autogenerated queue**, Elastic Beanstalk creates a new Amazon SQS queue and a corresponding **Worker queue URL**.
- **Worker queue URL** – If you choose an existing **Worker queue**, then this setting displays the URL associated with that Amazon SQS queue.
- **HTTP path** – Specify the relative path to the application that will receive the data from the Amazon SQS queue. The data is inserted into the message body of an HTTP POST message. The default value is `/`.
- **MIME type** – Indicate the MIME type that the HTTP POST message uses. The default value is `application/json`. However, any value is valid because you can create and then specify your own MIME type.
- **Max retries** – Specify the maximum number of times Elastic Beanstalk attempts to send the message to the Amazon SQS queue before moving the message to the dead letter queue. The default value is `10`. You can specify a value between `1` and `1000`.
- **HTTP connections** – Specify the maximum number of concurrent connections that the daemon can make to any application(s) within an Amazon EC2 instance. The default is `50`. You can specify a value between `1` and `100`.
- **Connection timeout** – Indicate the amount of time, in seconds, to wait for successful connections to an application. The default value is `5`. You can specify a value between `1` and `60` seconds.
- **Inactivity timeout** – Indicate the amount of time, in seconds, to wait for a response on an existing connection to an application. The default value is `180`. You can specify a value between `1` and `1800` seconds.
- **Visibility timeout** – Indicate the amount of time, in seconds, an incoming message from the Amazon SQS queue is locked for processing. After the configured amount of time has passed, the message is again made visible in the queue for another daemon to read. Choose a value that is longer than you expect your application requires to process messages, up to `43200` seconds.
- **Error visibility timeout** – Indicate the amount of time, in seconds, that elapses before Elastic Beanstalk returns a message to the Amazon SQS queue after an attempt to process it fails with an explicit error. You can specify a value between `0` and `43200`.
- **Retention period** – Indicate the amount of time, in seconds, a message is valid and will be actively processed. The default value is `345600`. You can specify a value between `60` and `1209600`.

If you use an existing Amazon SQS queue, the settings that you configure when you create a worker environment can conflict with settings you configured directly in Amazon SQS. For example, if you configure a worker environment with a `RetentionPeriod` value that is higher than the `MessageRetentionPeriod` value you set in Amazon SQS, then Amazon SQS will delete the message when it exceeds the `MessageRetentionPeriod`.

Conversely, if the `RetentionPeriod` value you configure in the worker environment settings is lower than the `MessageRetentionPeriod` value you set in Amazon SQS, then the daemon will delete the message before Amazon SQS can. For `VisibilityTimeout`, the value that you configure for the daemon in the worker environment settings overrides the Amazon SQS `VisibilityTimeout` setting. Ensure that messages are deleted appropriately by comparing your Elastic Beanstalk settings to your Amazon SQS settings.

# Creating Links Between AWS Elastic Beanstalk Environments

As your application grows in size and complexity, you may want to split it into components that have different development and operational lifecycles. This allows you to manage and scale each component independently providing you with greater agility. One of the challenges of this approach is the requirement for sharing connection information between components. This can be solved with AWS Elastic Beanstalk environment links.

## Note

Elastic Beanstalk currently supports environment links for all platforms except Multicontainer Docker.

With environment links, you can specify the connections between your application's component environments as named references. When you create an environment that defines a link, Elastic Beanstalk sets an environment variable with the same name as the link. The value of the variable is the endpoint that you can use to connect to the other component, which can be a web server or worker environment.

For example, if your application consists of a frontend that collects email addresses and a worker that sends a welcome email to the email addresses collected by the frontend, you can create a link to the worker in your frontend and have the frontend automatically discover the endpoint (queue URL) for your worker.

Define links to other environments in an [environment manifest \(p. 219\)](#), a YAML formatted file named `env.yaml` in the root of your application source. The following manifest defines a link to an environment named `worker`:

```
~/workspace/my-app/frontend/env.yaml
```

```
AWSCONFIGURATIONTEMPLATEVERSION: 1.1.0.0
EnvironmentLinks:
 "WORKERQUEUE": "worker"
```

When you create an environment with an application version that includes the above environment manifest, Elastic Beanstalk looks for an environment named `worker` that belongs to the same application. If that environment exists, Elastic Beanstalk creates an environment property named `WORKERQUEUE`. The value of `WORKERQUEUE` is the Amazon SQS queue URL. The frontend application can read this property in the same manner as an environment variable.

To use environment links, add an environment manifest to your application source and upload it with the EB CLI, AWS CLI or an SDK. If you use the AWS CLI or an SDK, set the `process` flag when you call `CreateApplicationVersion`:

```
$ aws elasticbeanstalk create-application-version --process --application-name my-app --version-label frontend-v1 --source-bundle S3Bucket="my-bucket",S3Key="front-v1.zip"
```

This option tells Elastic Beanstalk to validate the environment manifest and configuration files in your source bundle when you create the application version. The EB CLI sets this flag automatically when you have an environment manifest in your project directory.

Create your environments normally using any client. When you need to terminate environments, terminate the environment with the link first. If an environment is linked to by another environment, Elastic Beanstalk will prevent the linked environment from being terminated. To override this protection, use the `ForceTerminate` flag. This parameter is available in the AWS CLI as `--force-terminate`:

```
$ aws elasticbeanstalk terminate-environment --force-terminate --environment-
name worker
```

# AWS Elastic Beanstalk Environment Configuration

---

When you create an AWS Elastic Beanstalk environment, Elastic Beanstalk provisions and configures all of the AWS resources required to run and support your application. In addition to configuring your environment's metadata and update behavior, you can customize these resources by providing values for [configuration options](#) (p. 131). For example, you may want to add an Amazon SQS queue and an alarm on queue depth, or you might want to add an Amazon ElastiCache cluster.

Most of the configuration options have default values that are applied automatically by Elastic Beanstalk. You can override these defaults with configuration files, saved configurations, command line options, or by directly calling the Elastic Beanstalk API. The EB CLI and Elastic Beanstalk console also apply recommended values for some options.

You can easily customize your environment at the same time that you deploy your application version by including a configuration file with your source bundle. When customizing the software on your instance, it is more advantageous to use a configuration file than to create a custom AMI because you do not need to maintain a set of AMIs.

When deploying your applications, you may want to customize and configure the software that your application depends on. These files could be either dependencies required by the application—for example, additional packages from the yum repository—or they could be configuration files such as a replacement for `httpd.conf` to override specific settings that are defaulted by AWS Elastic Beanstalk.

## Topics

- [Configuration Options](#) (p. 131)
- [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178)
- [Using Elastic Beanstalk Saved Configurations](#) (p. 215)
- [Environment Manifest \(env.yaml\)](#) (p. 219)
- [Configuring Auto Scaling with Elastic Beanstalk](#) (p. 220)
- [Configuring the EC2 Instances in your Elastic Beanstalk Environment](#) (p. 230)
- [Configuring the Load Balancer in your Elastic Beanstalk Environment](#) (p. 235)
- [Configuring Databases with Elastic Beanstalk](#) (p. 243)
- [Configuring VPC with Elastic Beanstalk](#) (p. 245)
- [Configuring Amazon SNS Notifications with Elastic Beanstalk](#) (p. 246)
- [Your Elastic Beanstalk Environment's Domain Name](#) (p. 248)
- [Configuring HTTPS for your Elastic Beanstalk Environment](#) (p. 250)



# Configuration Options

This section lists the namespaces, options and values that can be specified in configuration files (`.ebextensions` (p. 178)), saved configurations, and option settings applied directly to an environment when it is created or updated using the Elastic Beanstalk console, the EB CLI, the AWS CLI, or an SDK.

Configuration option settings can be composed in text format and saved prior to environment creation, applied during environment creation using any supported client, and added, modified or removed after environment creation. For a detailed breakdown of all of the available methods for working with configuration options at each of these three stages, read the following topics:

- [Setting Configuration Options Before Environment Creation](#) (p. 131)
- [Setting Configuration Options During Environment Creation](#) (p. 135)
- [Setting Configuration Options After Environment Creation](#) (p. 139)

## Setting Configuration Options Before Environment Creation

AWS Elastic Beanstalk supports a large number of [configuration options](#) (p. 131) that let you modify the settings that are applied to resources in your environment. Several of these options have default values that can be overridden to customize your environment. Other options can be configured to enable additional features.

Elastic Beanstalk supports two methods of saving configuration option settings. Configuration files in YAML or JSON format can be included in your application's source code in a directory named `.ebextensions` and deployed as part of your application source bundle. You create and manage configuration files locally.

Saved configurations are templates that you create from a running environment or JSON options file and store in Elastic Beanstalk. Existing saved configurations can also be extended to create a new configuration.

### Note

Settings defined in configuration files and saved configurations have lower precedence than settings configured during or after environment creation, including recommended values applied by the Elastic Beanstalk console and [EB CLI](#) (p. 416). See [Precedence](#) (p. 175) for details.

Options can also be specified in a JSON document and provided directly to Elastic Beanstalk when you create or update an environment with the EB CLI or AWS CLI. Options provided directly to Elastic Beanstalk in this manner override all other methods.

For a full list of available options, see [Configuration Options](#) (p. 131).

### Methods

- [Configuration Files \(.ebextensions\)](#) (p. 131)
- [Saved Configurations](#) (p. 132)
- [JSON Document](#) (p. 134)
- [EB CLI Configuration](#) (p. 134)

## Configuration Files (`.ebextensions`)

Use `.ebextensions` to configure options that are required to make your application work, and provide default values for other options that can be overridden at a higher level of [precedence](#) (p. 175).

Options specified in `.ebextensions` have the lowest level of precedence and are overridden by settings at any other level.

To use configuration files, create a folder named `.ebextensions` at the top level of your project's source code. Add a file with the extension `.config` and specify options in the following manner:

```
option_settings:
 - namespace: namespace
 option_name: option name
 value: option value
 - namespace: namespace
 option_name: option name
 value: option value
```

For example, the following configuration file sets the application's health check url to `/health`:

`healthcheckurl.config`

```
option_settings:
 - namespace: aws:elasticbeanstalk:application
 option_name: Application Healthcheck URL
 value: /health
```

In JSON:

```
{
 "option_settings" :
 [
 {
 "namespace" : "aws:elasticbeanstalk:application",
 "option_name" : "Application Healthcheck URL",
 "value" : "/health"
 }
]
}
```

This configures the Elastic Load Balancing load balancer in your Elastic Beanstalk environment to make an HTTP request to the path `/health` to each EC2 instance to determine if it is healthy or not.

**Note**

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

Include the `.ebextensions` directory in your [Application Source Bundle \(p. 43\)](#) and deploy it to a new or existing Elastic Beanstalk environment.

Configuration files support several sections in addition to `option_settings` for customizing the software and files that run on the servers in your environment. For more information, see [Customizing Software on Linux Servers \(p. 180\)](#) and [Customizing Software on Windows Servers \(p. 191\)](#).

## Saved Configurations

Create a saved configuration to save settings that you have applied to an existing environment during or after environment creation by using the AWS Management Console, EB CLI, or AWS CLI. Saved configurations belong to an application and can be applied to new or existing environments for that application.

## Clients

- [Elastic Beanstalk Console](#) (p. 133)
- [EB CLI](#) (p. 133)
- [AWS CLI](#) (p. 133)

## Elastic Beanstalk Console

### To create a saved configuration (Elastic Beanstalk console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Click **Actions** and then click **Save Configuration**.
4. Enter a configuration name and description and then click **Save**.

Saved configurations are stored in the Elastic Beanstalk S3 bucket in a folder named after your application. For example, configurations for an application named `my-app` in the `us-west-2` region for account number `0123456789012` can be found at `s3://elasticbeanstalk-us-west-2-0123456789012/resources/templates/my-app`.

## EB CLI

The [EB CLI](#) (p. 416) also provides subcommands for interacting with saved configurations under `eb config` (p. 452):

### To create a saved configuration (EB CLI)

1. Save the attached environment's current configuration:

```
~/project$ eb config save --cfg my-app-v1
```

The EB CLI saves the configuration to `~/project/.elasticbeanstalk/saved_configs/my-app-v1.cfg.yml`

2. Modify the saved configuration locally if needed.
3. Upload the saved configuration to S3:

```
~/project$ eb config put my-app-v1
```

## AWS CLI

Create a saved configuration from a running environment with `aws elasticbeanstalk create-configuration-template`

### To create a saved configuration (AWS CLI)

1. Identify your Elastic Beanstalk environment's environment ID with `describe-environments`:

```
$ aws elasticbeanstalk describe-environments --environment-name my-env
{
 "Environments": [
 {
 "ApplicationName": "my-env",
 "EnvironmentName": "my-env",
```

```

 "VersionLabel": "89df",
 "Status": "Ready",
 "Description": "Environment created from the EB CLI using \"eb
create\",
 "EnvironmentId": "e-vcghmm2zwk",
 "EndpointURL": "awseb-e-v-
AWSEBLoa-1JUM8159RA11M-43V6ZI1194.us-west-2.elb.amazonaws.com",
 "SolutionStackName": "64bit Amazon Linux 2015.03 v2.0.2
running Multi-container Docker 1.7.1 (Generic)",
 "CNAME": "my-env-nfptuqaper.elasticbeanstalk.com",
 "Health": "Green",
 "AbortableOperationInProgress": false,
 "Tier": {
 "Version": " ",
 "Type": "Standard",
 "Name": "WebServer"
 },
 "HealthStatus": "Ok",
 "DateUpdated": "2015-10-01T00:24:04.045Z",
 "DateCreated": "2015-09-30T23:27:55.768Z"
 }
}
]
}

```

2. Save the environment's current configuration with `create-configuration-template`:

```

$ aws elasticbeanstalk create-configuration-template --environment-id e-
vcghmm2zwk --application-name my-app --template-name v1

```

Elastic Beanstalk saves the configuration to your Elastic Beanstalk bucket in Amazon S3.

## JSON Document

If you use the AWS CLI to create and update environments, you can also provide configuration options in JSON format. A library of configuration files in JSON is useful if you use the AWS CLI to create and manage environments.

For example, the following JSON document sets the application's health check url to `/health`:

`~/ebconfigs/healthcheckurl.json`

```

[
 {
 "Namespace": "aws:elasticbeanstalk:application",
 "OptionName": "Application Healthcheck URL",
 "Value": "/health"
 }
]

```

## EB CLI Configuration

In addition to supporting saved configurations and direct environment configuration with `eb config` commands, the EB CLI has a configuration file with an option named `default_ec2_keyname` that you can use to specify an Amazon EC2 key pair for SSH access to the instances in your environment. The EB CLI uses this option to set the `EC2KeyName` configuration option in the `aws:autoscaling:launchconfiguration` namespace.

`~/workspace/my-app/.elasticbeanstalk/config.yml`

```
branch-defaults:
 master:
 environment: my-env
 develop:
 environment: my-env-dev
deploy:
 artifact: ROOT.war
global:
 application_name: my-app
 default_ec2_keyname: my-keypair
 default_platform: Tomcat 8 Java 8
 default_region: us-west-2
 profile: null
 sc: git
```

## Setting Configuration Options During Environment Creation

When you create an AWS Elastic Beanstalk environment by using the AWS Management Console, EB CLI, AWS CLI, an SDK, or the Elastic Beanstalk API, you can provide values for configuration options to customize your environment and the AWS resources that are launched within it.

For anything other than a one-off configuration change, you can [store configuration files \(p. 131\)](#) locally, in your source bundle, or in Amazon S3.

This topic includes procedures for all of the methods of setting configuration options during environment creation.

### Clients

- [In the AWS Management Console \(p. 135\)](#)
- [With the EB CLI \(p. 136\)](#)
- [With the AWS CLI \(p. 138\)](#)

## In the AWS Management Console

When you create an Elastic Beanstalk environment in the AWS Management Console, you can provide configuration options using configuration files, saved configurations, and forms in the **Create New Environment** wizard.

### Methods

- [Using Configuration Files \(.ebextensions\) \(p. 135\)](#)
- [Using a Saved Configuration \(p. 136\)](#)
- [Using the New Environment Wizard \(p. 136\)](#)

## Using Configuration Files (.ebextensions)

Include `.config` files in your [application source bundle \(p. 43\)](#) in a folder named `.ebextensions`.

```
~/workspace/my-app-v1.zip
|-- .ebextensions
| |-- environmentvariables.config
```

```
| \-- healthcheckurl.config
| \-- index.php
| \-- styles.css
```

Upload the source bundle to Elastic Beanstalk normally during [environment creation \(p. 61\)](#).

The Elastic Beanstalk console applies [recommended values \(p. 176\)](#) for some configuration options and has form fields for others. Options configured by the Elastic Beanstalk console are applied directly to the environment and override settings in configuration files.

## Using a Saved Configuration

When you create a new environment using the Elastic Beanstalk console, one of the first steps is to choose a configuration. The configuration can be a [Predefined configuration \(p. 24\)](#), typically the latest version of a platform such as **PHP** or **Tomcat**, or it can be a **Saved configuration**.

### To apply a saved configuration during environment creation (AWS Management Console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application.
3. Choose **Saved Configurations**.
4. Choose an saved configuration and then choose **Launch environment**.
5. Proceed through the wizard to create your environment.

Saved configurations are application specific. See [Saved Configurations \(p. 132\)](#) for details on creating saved configurations.

## Using the New Environment Wizard

Most of the standard configuration options are presented on the **Configuration Details** and **Permissions** pages of the wizard. If you create an Amazon RDS database or configure a VPC for your environment, additional configuration options are available on the pages for those resources.

### To set configuration options during environment creation (AWS Management Console)

1. Open the [Elastic Beanstalk console](#).
2. Choose or [create \(p. 36\)](#) an application.
3. Choose **Create New Environment**.
4. Proceed through the wizard to the **Configuration Details** page.
5. Fill in the fields on this page to set the corresponding configuration options.
6. Proceed through the wizard to create your environment.

Any options that you set in the new environment wizard are set directly on the environment and override any option settings in saved configurations or configuration files (`.ebextensions`) that you apply. You can remove settings after the environment is created using the [EB CLI \(p. 141\)](#) or [AWS CLI \(p. 144\)](#) to allow the settings in saved configurations or configuration files to surface.

## With the EB CLI

### Methods

- [Using Configuration Files \(.ebextensions\) \(p. 137\)](#)
- [Using Saved Configurations \(p. 137\)](#)
- [Using Command Line Options \(p. 137\)](#)

## Using Configuration Files (.ebextensions)

Include `.config` files in your project folder under `.ebextensions` to deploy them with your application code.

```
~/workspace/my-app/
|-- .ebextensions
| |-- environmentvariables.config
| |-- healthcheckurl.config
|-- .elasticbeanstalk
| |-- config.yml
|-- index.php
|-- styles.css
```

Create your environment and deploy your source code to it with `eb create`:

```
~/workspace/my-app$ eb create my-env
```

## Using Saved Configurations

To apply a saved configuration when you create an environment with `eb create` (p. 455), use the `--cfg` option:

```
~/workspace/my-app$ eb create --cfg savedconfig
```

The saved configuration can be stored in your project folder or in your Elastic Beanstalk storage location on Amazon S3. In the above example, the EB CLI first looks for a saved configuration file named `savedconfig.cfg.yml` in the folder `.elasticbeanstalk/saved_configs/`. Do not include the file extensions (`.cfg.yml`) when applying a saved configuration with `--cfg`.

```
~/workspace/my-app/
|-- .ebextensions
| |-- healthcheckurl.config
|-- .elasticbeanstalk
| |-- saved_configs
| |-- savedconfig.cfg.yml
| |-- config.yml
|-- index.php
|-- styles.css
```

If the EB CLI does not find the configuration locally, it looks in the Elastic Beanstalk storage location in Amazon S3. For details on creating, editing and uploading saved configurations, see [Saved Configurations](#) (p. 132).

## Using Command Line Options

The EB CLI `eb create` command has several [options](#) (p. 455) that you can use to set configuration options during environment creation. These options can be used to add an RDS database to your environment, configure a VPC, or override [recommended values](#) (p. 176).

For example, the EB CLI will use the `t2.micro` instance type by default. To choose a different instance type, use the `--instance_type` option:

```
$ eb create my-env --instance_type t2.medium
```

To create an Amazon RDS database instance and attach it to your environment, use the `--database` options:

```
$ eb create --database.engine postgres --database.username dbuser
```

If you leave out the environment name, database password or any other parameters that are required to create your environment, the EB CLI prompts you to enter them.

See [eb create \(p. 455\)](#) for a full list of available options and usage examples.

## With the AWS CLI

When you use the `create-environment` command to create an Elastic Beanstalk environment with the AWS CLI, the AWS CLI does not apply any [recommended values \(p. 176\)](#). All configuration options defined in configuration files in the source bundle that you specify

### Methods

- [Using Configuration Files \(.ebextensions\) \(p. 138\)](#)
- [Using a Saved Configuration \(p. 139\)](#)
- [Using Command Line Options \(p. 139\)](#)

## Using Configuration Files (.ebextensions)

To apply configuration files to an environment that you create with the AWS CLI, include them in the application source bundle that you upload to Amazon S3.

```
~/workspace/my-app-v1.zip
|-- .ebextensions
| |-- environmentvariables.config
| |-- healthcheckurl.config
|-- index.php
`-- styles.css
```

## To upload an application source bundle and create an environment with the AWS CLI

1. If you don't already have an Elastic Beanstalk bucket in Amazon S3, create one with `create-storage-location`:

```
$ aws elasticbeanstalk create-storage-location
{
 "S3Bucket": "elasticbeanstalk-us-west-2-0123456789012"
}
```

2. Upload your application source bundle to Amazon S3:

```
$ aws s3 cp sourcebundle.zip s3://elasticbeanstalk-us-west-2-0123456789012/my-app/sourcebundle.zip
```

3. Create the application version:

```
$ aws elasticbeanstalk create-application-version --application-name my-app --version-label v1 --description MyAppv1 --source-bundle S3Bucket="elasticbeanstalk-us-west-2-0123456789012",S3Key="my-app/sourcebundle.zip" --auto-create-application
```



4. Create the environment:

```
$ aws elasticbeanstalk create-environment --application-name my-app --
environment-name my-env --version-label v1 --solution-stack-name "64bit
Amazon Linux 2015.03 v2.0.0 running Tomcat 8 Java 8"
```

## Using a Saved Configuration

To apply a saved configuration to an environment during creation, use the `--template-name` parameter:

```
$ aws elasticbeanstalk create-environment --application-name my-app --
environment-name my-env --template-name savedconfig --version-label v1
```

When you specify a saved configuration, do not also specify a solution stack name. Saved configurations already specify a solution stack and Elastic Beanstalk will return an error if you try to use both options.

## Using Command Line Options

Use the `--option-settings` parameter to specify configuration options in JSON format:

```
$ aws elasticbeanstalk create-environment --application-name my-app --
environment-name my-env --version-label v1 --template-name savedconfig --
option-settings '[
 {
 "Namespace": "aws:elasticbeanstalk:application",
 "OptionName": "Application Healthcheck URL",
 "Value": "/health"
 }
'
```

To load the JSON from a file, use the `file://` prefix:

```
$ aws elasticbeanstalk create-environment --application-name my-app --
environment-name my-env --version-label v1 --template-name savedconfig --
option-settings file://healthcheckurl.json
```

Elastic Beanstalk applies option settings that you specify with the `--option-settings` option directly to your environment. If the same options are specified in a saved configuration or configuration file, `--option-settings` overrides those values.

## Setting Configuration Options After Environment Creation

You can modify the option settings on a running environment by applying saved configurations, uploading a new source bundle with configuration files (`.ebextensions`), or a JSON document. The EB CLI and Elastic Beanstalk console also have client specific functionality for setting and updating options configuration options.

When you set or change a configuration option, you may trigger a full environment update, depending on the severity of the change. For example, changes to options in the

`aws:autoscaling:launchconfiguration` (p. 147), such as `InstanceType`, require that the EC2 instances in your environment must be reprovisioned. This will trigger a [rolling update](#) (p. 106). Other configuration changes can be applied without any interruption or reprovisioning.

You can remove option settings from an environment with EB CLI or AWS CLI commands. Removing an option that has been set directly on an environment at an API level allows settings in configuration files, which are otherwise masked by settings applied directly to an environment, to surface and take effect.

Settings in saved configurations and configuration files can be overridden by setting the same option directly on the environment with one of the other configuration methods, but can only be removed completely by applying an updated saved configuration or configuration file. When an option is not set in a saved configuration, configuration file, or directly on an environment, the default value applies, if there is one. See [Precedence](#) (p. 175) for details.

#### Clients

- [The Elastic Beanstalk console](#) (p. 140)
- [The EB CLI](#) (p. 141)
- [The AWS CLI](#) (p. 144)

## The Elastic Beanstalk console

You can update configuration option settings in the AWS Management Console by deploying an application source bundle that contains configuration files, applying a saved configuration, or modifying the environment directly with the **Configuration** page in the environment management console.

#### Methods

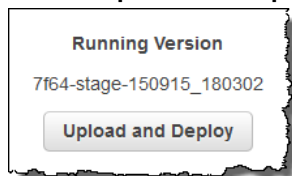
- [Using Configuration Files \(.ebextensions\)](#) (p. 140)
- [Using a Saved Configuration](#) (p. 141)
- [Using the Environment Management Console](#) (p. 141)

### Using Configuration Files (.ebextensions)

Update configuration files in your source directory, create a new source bundle, and deploy the new version to your Elastic Beanstalk environment to apply the changes.

#### To deploy an updated source bundle to your environment (Elastic Beanstalk console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Upload and Deploy**



4. Choose **Browse** and open the application source bundle.
5. Choose **Deploy**.

Changes made to configuration files will not override option settings in saved configurations or settings applied directly to the environment at the API level. See [Precedence](#) (p. 175) for details.

## Using a Saved Configuration

Apply a saved configuration to a running environment to apply option settings that it defines.

### To apply a saved configuration to a running environment (Elastic Beanstalk console)

1. Open the [Elastic Beanstalk console](#).
2. Choose the name of your application.
3. Choose **Saved Configurations**.
4. Select the saved configuration and then choose **Load**.
5. Select an environment and then choose **Load**.


Settings defined in a saved configuration override settings in configuration files, and are overridden by settings configured using the environment management console.

See [Saved Configurations \(p. 132\)](#) for details on creating saved configurations.

## Using the Environment Management Console

The Elastic Beanstalk console presents several configuration options on the **Configuration** page for each environment.

### Changing configuration options on a running environment (Elastic Beanstalk console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**
4. In the section that contains the option that you want to modify, choose .
5. Modify settings and choose **Apply**.

Changes made to configuration options in the environment management console are applied directly to the environment, overriding settings for the same options in configuration files or saved configurations. See [Precedence \(p. 175\)](#) for details.

## The EB CLI

You can update configuration option settings with the EB CLI by deploying source code that contains configuration files, applying settings from a saved configuration, or modifying the environment configuration directly with the `eb config` command.

### Methods

- [Using Configuration Files \(.ebextensions\) \(p. 141\)](#)
- [Using a Saved Configuration \(p. 142\)](#)
- [Using eb config \(p. 142\)](#)
- [Using eb setenv \(p. 143\)](#)

## Using Configuration Files (.ebextensions)

Include `.config` files in your project folder under `.ebextensions` to deploy them with your application code.

```
~/workspace/my-app/
|-- .ebextensions
```

```
| | -- environmentvariables.config
| | `-- healthcheckurl.config
|-- .elasticbeanstalk
| | `-- config.yml
|-- index.php
`-- styles.css
```

Deploy your source code with `eb deploy`:

```
~/workspace/my-app$ eb deploy
```

## Using a Saved Configuration

You can use the `eb config` command to apply a saved configuration to a running environment. Use the `--cfg` option with the name of the saved configuration to apply its settings to your environment:

```
$ eb config --cfg v1
```

In this example, `v1` is the name of a [previously created saved configuration file \(p. 132\)](#).

Settings applied to an environment with this command override settings that were applied during environment creation, and settings defined in configuration files in your application source bundle.

## Using `eb config`

The EB CLI's `eb config` command lets you set and remove option settings directly on an environment by using a text editor.

When you run `eb config`, the EB CLI shows settings applied to your environment from all sources, including configuration files, saved configurations, recommended values, options set directly on the environment, and API defaults.

### Note

`eb config` does not show environment properties. To set environment properties that you can read from within your application, use [`eb setenv` \(p. 143\)](#)

The following example shows settings applied in the `aws:autoscaling:launchconfiguration` namespace, including two recommended values (for `IamInstanceProfile` and `InstanceType` applied by the EB CLI during environment creation, an option set directly on the environment during creation based on repository configuration (`EC2KeyName`), and API defaults for the other values.

```
ApplicationName: tomcat
DateUpdated: 2015-09-30 22:51:07+00:00
EnvironmentName: tomcat
SolutionStackName: 64bit Amazon Linux 2015.03 v2.0.1 running Tomcat 8 Java 8
settings:
...
aws:autoscaling:launchconfiguration:
 BlockDeviceMappings: null
 EC2KeyName: my-key
 IamInstanceProfile: aws-elasticbeanstalk-ec2-role
 ImageId: ami-538a9563
 InstanceType: t2.micro
...
```

## To set or change configuration options with `eb config`

1. Run `eb config` to view your environment's configuration.

```
~/workspace/my-app/$ eb config
```

2. Change any of the setting values using the default text editor

```
aws:autoscaling:launchconfiguration:
 BlockDeviceMappings: null
 EC2KeyName: my-key
 IamInstanceProfile: aws-elasticbeanstalk-ec2-role
 ImageId: ami-538a9563
 InstanceType: t2.medium
```

3. Save the temporary configuration file and exit.
4. The EB CLI updates your environment configuration.

Setting configuration options with `eb config` overrides settings from all other sources.

You can also remove options from your environment with `eb config`.

### To remove configuration options (EB CLI)

1. Run `eb config` to view your environment's configuration.

```
~/workspace/my-app/$ eb config
```

2. Replace any value shown with the string `null`. You can also delete the entire line containing the option that you want to remove.

```
aws:autoscaling:launchconfiguration:
 BlockDeviceMappings: null
 EC2KeyName: my-key
 IamInstanceProfile: aws-elasticbeanstalk-ec2-role
 ImageId: ami-538a9563
 InstanceType: null
```

3. Save the temporary configuration file and exit.
4. The EB CLI updates your environment configuration.

Removing options from your environment with `eb config` allows settings for the same options to surface from configuration files in your application source bundle. See [Precedence \(p. 175\)](#) for details.

### Using `eb setenv`

To set environment properties with the EB CLI, use `eb setenv`:

```
~/workspace/my-app/$ eb setenv ENVVAR=TEST
INFO: Environment update is starting.
INFO: Updating environment my-env's configuration settings.
INFO: Environment health has transitioned from Ok to Info. Command is
 executing on all instances.
INFO: Successfully deployed new configuration to environment.
```

This command sets environment properties in the `aws:elasticbeanstalk:application:environment` namespace (p. 156). Environment properties set with `eb setenv` are available to your application after a short update process.

View environment properties set on your environment with `eb printenv`:

```
~/workspace/my-app/$ eb printenv
Environment Variables:
 ENVVAR = TEST
```

## The AWS CLI

You can update configuration option settings with the AWS CLI by deploying a source bundle that contains configuration files, applying a remotely stored saved configuration, or modifying the environment directly with the `aws elasticbeanstalk update-environment` command.

### Methods

- [Using Configuration Files \(.ebextensions\) \(p. 144\)](#)
- [Using a Saved Configuration \(p. 145\)](#)
- [Using Command Line Options \(p. 145\)](#)

### Using Configuration Files (.ebextensions)

To apply configuration files to a running environment with the AWS CLI, include them in the application source bundle that you upload to Amazon S3.

```
~/workspace/my-app-v1.zip
|-- .ebextensions
| |-- environmentvariables.config
| |-- healthcheckurl.config
|-- index.php
`-- styles.css
```

### To upload an application source bundle and apply it to a running environment (AWS CLI)

1. If you don't already have an Elastic Beanstalk bucket in Amazon S3, create one with `create-storage-location`:

```
$ aws elasticbeanstalk create-storage-location
{
 "S3Bucket": "elasticbeanstalk-us-west-2-0123456789012"
}
```

2. Upload your application source bundle to Amazon S3:

```
$ aws s3 cp sourcebundlev2.zip s3://elasticbeanstalk-us-west-2-0123456789012/my-app/sourcebundlev2.zip
```

3. Create the application version:

```
$ aws elasticbeanstalk create-application-version --application-name my-app --version-label v2 --description MyAppv2 --source-bundle S3Bucket="elasticbeanstalk-us-west-2-0123456789012",S3Key="my-app/sourcebundlev2.zip"
```

4. Update the environment:

```
$ aws elasticbeanstalk update-environment --environment-name my-env --
version-label v2
```

## Using a Saved Configuration

You can apply a saved configuration to a running environment with the `--template-name` option on the `aws elasticbeanstalk update-environment` command.

The saved configuration must be in your Elastic Beanstalk bucket in a path named after your application under `resources/templates`. For example, the `v1` template for the `my-app` application in the `us-west-2` region for account `0123456789012` is located at `s3://elasticbeanstalk-us-west-2-0123456789012/resources/templates/my-app/v1`

### To apply a saved configuration to a running environment (AWS CLI)

- Specify saved configuration in an `update-environment` call with the `--template-name` option.

```
$ aws elasticbeanstalk update-environment --environment-name my-env --
template-name v1
```

Elastic Beanstalk places saved configurations in this location when you create them with `aws elasticbeanstalk create-configuration-template`. You can also modify saved configurations locally and place them in this location yourself.

## Using Command Line Options

### To change configuration options with a JSON document (AWS CLI)

1. Define your option settings in JSON format in a local file.
2. Run `update-environment` with the `--option-settings` option:

```
$ aws elasticbeanstalk update-environment --environment-name my-env --
option-settings file://~/ebconfigs/as-zero.json
```

In this example, `as-zero.json` defines options that configures the environment with a minimum and maximum of zero instances. This stops the instances in the environment without terminating it:

`~/ebconfigs/as-zero.json`

```
[
 {
 "Namespace": "aws:autoscaling:asg",
 "OptionName": "MinSize",
 "Value": "0"
 },
 {
 "Namespace": "aws:autoscaling:asg",
 "OptionName": "MaxSize",
 "Value": "0"
 },
 {
 "Namespace": "aws:autoscaling:updatepolicy:rollingupdate",
 "OptionName": "RollingUpdateEnabled",
```

```
 "Value": "false"
 }
]
```

### Note

Setting configuration options with `update-environment` overrides settings from all other sources.

You can also remove options from your environment with `update-environment`.

### To remove configuration options (AWS CLI)

- Run `update-environment` command with the `--settings-to-remove` option:

```
$ aws elasticbeanstalk update-environment --options-to-remove
 Namespace=aws:autoscaling:launchconfiguration,OptionName=InstanceType
```

Removing options from your environment with `update-environment` allows settings for the same options to surface from configuration files in your application source bundle. If an option is not configured using any of these methods, the API default value applies, if one exists. See [Precedence \(p. 175\)](#) for details.

For a complete list of namespaces and options, including default and supported values for each, see [General Options for All Environments \(p. 146\)](#) and [Platform Specific Options \(p. 168\)](#).

## General Options for All Environments

### Namespaces

- [aws:autoscaling:asg \(p. 147\)](#)
- [aws:autoscaling:launchconfiguration \(p. 147\)](#)
- [aws:autoscaling:scheduledaction \(p. 151\)](#)
- [aws:autoscaling:trigger \(p. 152\)](#)
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- [aws:rds:dbinstance](#) (p. 167)

## aws:autoscaling:asg

| Namespace: <code>aws:autoscaling:asg</code> |                                                                                                                                                                                                                                                                       |       |                                                                                    |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------|
| Availability Zones                          | Availability Zones (AZs) are distinct locations within a region that are engineered to be isolated from failures in other AZs and provide inexpensive, low-latency network connectivity to other AZs in the same region. Choose the number of AZs for your instances. | Any 1 | Any 1<br>Any 2                                                                     |
| Cooldown                                    | Cooldown periods help to prevent Auto Scaling from initiating additional scaling activities before the effects of previous activities are visible.                                                                                                                    | 360   | 0 to 10000                                                                         |
| Custom Availability Zones                   | Define the AZs for your instances.                                                                                                                                                                                                                                    | None  | us-east-1a<br>us-east-1b<br>us-east-1c<br>us-east-1d<br>us-east-1e<br>eu-central-1 |
| MinSize                                     | Minimum number of instances you want in your Auto Scaling group.                                                                                                                                                                                                      | 1     | 1 to 10000                                                                         |
| MaxSize                                     | Maximum number of instances you want in your Auto Scaling group.                                                                                                                                                                                                      | 4     | 1 to 10000                                                                         |

## aws:autoscaling:launchconfiguration

| Namespace: <code>aws:autoscaling:launchconfiguration</code> |                                                                                                                                                                                                                                                       |      |  |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|
| EC2KeyName                                                  | A key pair enables you to securely log into your EC2 instance.                                                                                                                                                                                        | None |  |
| IamInstanceProfile                                          | An instance profile enables AWS Identity and Access Management (IAM) users and AWS services to access temporary security credentials to make AWS API calls. Specify the profile name or the ARN.<br><br>Example: <code>ElasticBeanstalkProfile</code> | None |  |

| Namespace: <b>aws:autoscaling:launchconfiguration</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                          |                       |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------|
|                                                       | <p><b>Example:</b><br/>arn:aws:iam::123456789012:instance-profile/ElasticBeanstalkProfile</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                       |
| ImageId                                               | <p>You can override the default Amazon Machine Image (AMI) by specifying your own custom AMI ID.</p> <p><b>Example:</b> ami-cbab67a2</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | None                     |                       |
| InstanceType                                          | <p>The instance type used to run your application in an Elastic Beanstalk environment.</p> <p>The instance types available depend on platform, solution stack (configuration) and region. To get a list of available instance types for your solution stack of choice, use the <a href="#">DescribeConfigurationOptions</a> action in the API, <a href="#">describe-configuration-options</a> command in the <a href="#">AWS CLI</a>.</p> <p>For example, the following command lists the available instance types for version 1.4.3 of the PHP 5.6 stack in the current region:</p> <pre>\$ aws elasticbeanstalk describe-configuration- options --options Namespace=aws:autoscaling:launchconfiguration,OptionName=InstanceType --solution-stack-name "64bit Amazon Linux 2015.03 v1.4.3 running PHP 5.6"</pre> | t1.micro                 |                       |
| MonitoringInterval                                    | <p>Interval at which you want Amazon CloudWatch metrics returned.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5 minutes                | 1 minute<br>5 minutes |
| SecurityGroups                                        | <p>Lists the Amazon EC2 security groups to assign to the EC2 instances in the Auto Scaling group in order to define firewall rules for the instances.</p> <p>You can provide a single string of comma-separated values that contain the name of existing Amazon EC2 security groups or references to AWS::EC2::SecurityGroup resources created in the template. If you use Amazon VPC with Elastic Beanstalk so that your instances are launched within a virtual private cloud (VPC), specify security group IDs instead of a security group name.</p>                                                                                                                                                                                                                                                           | elasticbeanstalk-default |                       |

| Namespace: <b>aws:autoscaling:launchconfiguration</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |  |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|
| SSHSourceRestriction                                  | <p>Used to lock down SSH access to an environment. For instance, you can lock down SSH access to the EC2 instances so that only a bastion host can access the instances in the private subnet.</p> <p>This string takes the following form:</p> <pre><i>protocol, fromPort, toPort, source_restriction</i></pre> <p><i>protocol</i><br/>The protocol for the ingress rule.</p> <p><i>fromPort</i><br/>The starting port number.</p> <p><i>toPort</i><br/>The ending port number.</p> <p><i>source_restriction</i><br/>The CIDR range or the name of a security group to allow traffic from. To specify a security group from another account (EC2-Classic only, must be in the same region), include the account ID prior to the security group name (e.g., <i>other_account_id/security_group_name</i>).</p> <p>Example: <code>tcp, 22, 22, 54.240.196.185/32</code></p> <p>Example: <code>tcp, 22, 22, my-security-group</code></p> <p>Example (EC2-Classic): <code>tcp, 22, 22, 0123456789012/their-security-group</code></p> | None |  |

| Namespace: <code>aws:autoscaling:launchconfiguration</code> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                  |                                                                                                             |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <code>BlockDeviceMappings</code>                            | <p>Attaches additional Amazon EBS volumes or instance store volumes on all the instances in the autoscaling group. When you map Amazon EBS volumes, you can specify either a volume size or a snapshot ID. When you map instance store volumes, you specify the virtual device name.</p> <p>Example: <code>/dev/sdj=:100,/dev/sdh=snap-51eef269,/dev/sdb=ephemeral0</code></p> <p>The format of the mapping is <code>device name=volume</code> with multiple mappings separated by a comma. This example attaches two Amazon EBS volumes, one blank 100GiB volume and one snapshot, and an instance store volume named <code>ephemeral0</code>. Multiple instance store volumes can be attached if the instance type supports it.</p> | None                                                                                             |                                                                                                             |
| <code>RootVolumeType</code>                                 | Volume type (magnetic, general purpose SSD or provisioned IOPS SSD) to use for the root Amazon EBS volume attached to your environment's EC2 instances.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Varies per platform.                                                                             | <p>standard for magnetic storage</p> <p>gp2 for general purpose SSD</p> <p>io1 for provisioned IOPS SSD</p> |
| <code>RootVolumeSize</code>                                 | <p>Storage capacity of the root Amazon EBS volume in whole GiB.</p> <p>Required if you set <code>RootVolumeType</code> to provisioned IOPS SSD.</p> <p>For example, "64".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Varies per platform for magnetic storage and general purpose SSD. None for provisioned IOPS SSD. | <p>10 to 16384 GiB for general purpose and provisioned IOPS SSD.</p> <p>8 to 1024 GiB for magnetic.</p>     |
| <code>RootVolumeIOPS</code>                                 | <p>Desired input/output operations per second (IOPS) for a provisioned IOPS SSD root volume.</p> <p>The maximum ratio of IOPS to volume size is 30 to 1. For example, a volume with 3000 IOPS must be at least 100 GiB.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | None                                                                                             | 100 to 20000                                                                                                |

## aws:autoscaling:scheduledaction

| Namespace: <code>aws:autoscaling:scheduledaction</code> |                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                                                                                                                                                |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DesiredCapacity                                         | The number of instances that you want running in the autoscaling group.                                                                                                                                                                                                                                                                                                                                                                | None  | 1 to 10000                                                                                                                                                                                                     |
| EndTime                                                 | A date and time in the future (in the UTC/GMT time zone) when you want the scheduled scaling action to stop.<br><br>If you don't specify an <b>EndTime</b> , the recurrence is ongoing until you configure it with an end date and time.<br><br>Example: 2015-04-28T04:07:2Z<br><br>For more information on the ISO-8601 timestamp format, visit <a href="http://www.w3.org/TR/NOTE-datetime">http://www.w3.org/TR/NOTE-datetime</a> . | None  | A unique date and time across all scheduled scaling actions.                                                                                                                                                   |
| MaxSize                                                 | The maximum number of instances that you want in the autoscaling group for the duration of the scheduled action.                                                                                                                                                                                                                                                                                                                       | None  | 0 to 10000                                                                                                                                                                                                     |
| MinSize                                                 | The minimum number of instances that you want in the autoscaling group for the duration of the scheduled action.                                                                                                                                                                                                                                                                                                                       | None  | 0 to 10000                                                                                                                                                                                                     |
| Recurrence                                              | The frequency with which you want the scheduled action to occur. If you do not specify a recurrence, then the scaling action will occur only once, as specified by the <code>StartTime</code> .                                                                                                                                                                                                                                        | None  | A CRON expression.<br><br>For more information about CRON, see <a href="#">Cron</a> .                                                                                                                          |
| StartTime                                               | A date and time in the future (in the UTC/GMT time zone) when you want the scheduled scaling action to start.                                                                                                                                                                                                                                                                                                                          | None  | A unique date and time across all scheduled actions in ISO 8601 time format. For example, 2015-04-28T04:07:02Z. For more information about ISO 8601 time format, go to <a href="#">Date and Time Formats</a> . |
| Suspend                                                 | Whether to temporarily stop the scheduled action.                                                                                                                                                                                                                                                                                                                                                                                      | false | True<br><br>False                                                                                                                                                                                              |

### Note

When you configure a scheduled scaling action, include a resource name with a unique value as the name for the scheduled scaling action. All option settings that share this resource name apply to the same scheduled action. For example:

```
option_settings:
- namespace: aws:autoscaling:scheduledaction
 resource_name: ScheduledAction01
 option_name: MinSize
 value: 2
- namespace: aws:autoscaling:scheduledaction
 resource_name: ScheduledAction01
 option_name: MaxSize
 value: 5
- namespace: aws:autoscaling:scheduledaction
 resource_name: ScheduledAction01
 option_name: StartTime
 value: "2015-05-14T19:25:00Z"
```

## aws:autoscaling:trigger

| Namespace: aws:autoscaling:trigger |                                                                                                                                           |            |                                                                                                                                                                                  |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BreachDuration                     | Amount of time a metric can be beyond its defined limit (as specified in the UpperThreshold and LowerThreshold) before the trigger fires. | 5          | 1 to 600                                                                                                                                                                         |
| LowerBreachScaleIncrement          | How many Amazon EC2 instances to remove when performing a scaling activity.                                                               | -1         |                                                                                                                                                                                  |
| LowerThreshold                     | If the measurement falls below this number for the breach duration, a trigger is fired.                                                   | 2000000    | 0 to 20000000                                                                                                                                                                    |
| MeasureName                        | Metric used for your Auto Scaling trigger.                                                                                                | NetworkOut | CPUUtilization<br>NetworkIn<br>NetworkOut<br>DiskWriteOps<br>DiskReadBytes<br>DiskReadOps<br>DiskWriteBytes<br>Latency<br>RequestCount<br>HealthyHostCount<br>UnhealthyHostCount |
| Period                             | Specifies how frequently Amazon CloudWatch measures the metrics for your trigger.                                                         | 5          |                                                                                                                                                                                  |
| Statistic                          | Statistic the trigger should use, such as Average.                                                                                        | Average    | Minimum                                                                                                                                                                          |

| Namespace: <code>aws:autoscaling:trigger</code> |                                                                                            |         |                                                                                                     |
|-------------------------------------------------|--------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------|
|                                                 |                                                                                            |         | Maximum<br>Sum<br>Average                                                                           |
| Unit                                            | Unit for the trigger measurement, such as Bytes.                                           | Bytes   | Seconds<br>Percent<br>Bytes<br>Bits<br>Count<br>Bytes/Second<br>Bits/Second<br>Count/Second<br>None |
| UpperBreachScaleIncrement                       | How many Amazon EC2 instances to add when performing a scaling activity.                   | 1       |                                                                                                     |
| UpperThreshold                                  | If the measurement is higher than this number for the breach duration, a trigger is fired. | 6000000 | 0 to 20000000                                                                                       |

## aws:autoscaling:updatepolicy:rollingupdate

| Namespace: <code>aws:autoscaling:updatepolicy:rollingupdate</code> |                                                                                                                            |                                                                                                                           |            |
|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------|
| MaxBatchSize                                                       | The number of instances included in each batch of the rolling update.                                                      | One-third of the minimum size of the autoscaling group, rounded to the next highest integer.                              | 1 to 10000 |
| MinInstancesInService                                              | The minimum number of instances that must be in service within the autoscaling group while other instances are terminated. | The minimum size of the AutoScaling group or one less than the maximum size of the autoscaling group, whichever is lower. | 0 to 9999  |

| Namespace: <code>aws:autoscaling:updatepolicy:rollingupdate</code> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                              |                                                                 |
|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|
| RollingUpdateEnabled                                               | <p>If <code>true</code>, enables rolling updates for an environment. Rolling updates are useful when you need to make small, frequent updates to your Elastic Beanstalk software application and you want to avoid application downtime.</p> <p>Setting this value to <code>true</code> automatically enables the <code>MaxBatchSize</code>, <code>MinInstancesInService</code>, and <code>PauseTime</code> options. Setting any of those options also automatically sets the <code>RollingUpdateEnabled</code> option value to <code>true</code>. Setting this option to <code>false</code> disables rolling updates.</p> | <code>false</code>                                           | <code>true</code><br><br><code>false</code>                     |
| RollingUpdateType                                                  | <p>Time-based rolling updates apply a <code>PauseTime</code> between batches. Health-based rolling updates wait for new instances to pass health checks before moving on to the next batch. <a href="#">Immutable updates (p. 109)</a> launch a full set of instances in a new <code>AutoScaling</code> group.</p>                                                                                                                                                                                                                                                                                                         | Time                                                         | Time<br><br>Health<br><br>Immutable                             |
| PauseTime                                                          | <p>The amount of time the Elastic Beanstalk service will wait after it has completed updates to one batch of instances before it continues on to the next batch.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Automatically computed based on instance type and container. | <code>PT0S*</code> (0 seconds) to<br><code>PT1H</code> (1 hour) |



| Namespace: <code>aws:autoscaling:updatepolicy:rollingupdate</code> |                                                                                                                             |                    |                                                                                                                                                                       |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Timeout                                                            | Maximum amount of time to wait for all instances in a batch of instances to pass health checks before canceling the update. | PT30M (30 minutes) | PT5M* (5 minutes) to PT1H (1 hour)<br><br>*ISO8601 duration format: <code>PT#H#M#S</code> where each # is the number of hours, minutes, and/or seconds, respectively. |

## aws:ec2:vpc

| Namespace: <code>aws:ec2:vpc</code> |                                                                                                                                                                                                                                                                                                             |      |                                             |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------|
| VPCId                               | The ID for your VPC.                                                                                                                                                                                                                                                                                        | None |                                             |
| Subnets                             | The IDs of the Auto Scaling group subnet or subnets. If you have multiple subnets, specify the value as a single comma-delimited string of subnet IDs (for example, "subnet-11111111,subnet-22222222").                                                                                                     | None |                                             |
| ELBSubnets                          | The IDs of the subnet or subnets for the elastic load balancer. If you have multiple subnets, specify the value as a single comma-delimited string of subnet IDs (for example, "subnet-11111111,subnet-22222222").                                                                                          | None |                                             |
| ELBScheme                           | Specify <code>internal</code> if you want to create an internal load balancer in your VPC so that your Elastic Beanstalk application cannot be accessed from outside your VPC.                                                                                                                              | None | <code>internal</code>                       |
| DBSubnets                           | Contains the IDs of the database subnets. This is only used if you want to add an Amazon RDS DB Instance as part of your application. If you have multiple subnets, specify the value as a single comma-delimited string of subnet IDs (for example, "subnet-11111111,subnet-22222222").                    | None |                                             |
| AssociatePublicIpAddress            | Specifies whether to launch instances with public IP addresses in your VPC. Instances with public IP addresses do not require a NAT device to communicate with the Internet. You must set the value to <code>true</code> if you want to include your load balancer and instances in a single public subnet. | None | <code>true</code><br><br><code>false</code> |

## aws:elasticbeanstalk:application

| Namespace: <code>aws:elasticbeanstalk:application</code> |                                                                                                                                                                                                          |      |                                                                                                   |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------|
| Application Healthcheck URL                              | The path to which to send health check requests. If not set, the load balancer attempts to make a TCP connection on port 80 to verify health. Set to a path starting with <code>/</code> to send an HTTP | None | <code>/</code> (HTTP GET to root path)<br><br><code>/health</code><br><br><code>HTTPS:443/</code> |

| Namespace: <code>aws:elasticbeanstalk:application</code> |                                                                                                                                                                        |  |                                  |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|
|                                                          | GET request to that path. You can also include a protocol (HTTP, HTTPS, TCP, or SSL) and port prior to the path to check HTTPS connectivity or use a non-default port. |  | HTTPS: 443/ <i>health</i><br>etc |

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values \(p. 176\)](#) for details.

## aws:elasticbeanstalk:application:environment

| Namespace: <code>aws:elasticbeanstalk:application:environment</code> |                          |      |                                 |
|----------------------------------------------------------------------|--------------------------|------|---------------------------------|
| Any environment variable name.                                       | Pass in key-value pairs. | None | Any environment variable value. |

### Note

The combined size of all environment properties defined for an environment is limited to 4096 bytes. The format of environment properties is `KEY1=VALUE1`, `KEY2=VALUE2`, which means that both the value and key of each variable are included in the total. When a platform has one or more predefined environment properties, such as `JDBC_CONNECTION_STRING`, those properties are also included in the total.

## aws:elasticbeanstalk:command

| Namespace: <code>aws:elasticbeanstalk:command</code> |                                                                                                                                                                                  |            |                                                                                     |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------|
| DeploymentPolicy                                     | Choose a <a href="#">deployment policy (p. 99)</a> for application version deployments.                                                                                          | AllAtOnce  | AllAtOnce<br>Rolling<br>RollingWithAdditionalBatching<br>Immutable                  |
| Timeout                                              | Number of seconds to wait for an instance to complete executing commands.                                                                                                        | "600"      | "1" to "3600"                                                                       |
| BatchSizeType                                        | The type of number that is specified in <b>BatchSize</b> .                                                                                                                       | Percentage | Percentage<br>Fixed                                                                 |
| BatchSize                                            | Percentage or fixed number of Amazon EC2 instances in the Auto Scaling group on which to simultaneously perform deployments. Valid values vary per <b>BatchSizeType</b> setting. | 100        | 1 to 100 (Percentage).<br>1 to <a href="#">aws:autoscaling:asg::MaxSize</a> (Fixed) |
| IgnoreHealthCheck                                    | Do not cancel a deployment due to failed health checks.                                                                                                                          | false      | true<br>false                                                                       |
| HealthCheckSuccessThreshold                          | Number of the threshold for instances to pass health checks.                                                                                                                     | Ok         | Ok                                                                                  |

| Namespace: <code>aws:elasticbeanstalk:command</code> |  |  |          |
|------------------------------------------------------|--|--|----------|
|                                                      |  |  | Warning  |
|                                                      |  |  | Degraded |
|                                                      |  |  | Severe   |

## aws:elasticbeanstalk:environment

| Namespace: <code>aws:elasticbeanstalk:environment</code> |                                                                                                               |              |                                |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------|--------------------------------|
| EnvironmentType                                          | The type of environment, either a load-balanced and auto-scaled environment or a single-instance environment. | LoadBalanced | SingleInstance<br>LoadBalanced |
| ServiceRole                                              | The name of an IAM role that Elastic Beanstalk uses to manage resources for the environment.                  | None         | Any role name.                 |
| LoadBalancerType                                         | Choose between a classic load balancer and an application load balancer.                                      | classic      | classic<br>application         |

## aws:elasticbeanstalk:environment:process:process\_name

| Namespace: <code>aws:elasticbeanstalk:environment:process:process_name</code> to configure a custom process |                                                                                                                |    |                  |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----|------------------|
| <code>aws:elasticbeanstalk:environment:process:default</code> to configure the default process              |                                                                                                                |    |                  |
| DeregistrationDelay                                                                                         | Time to wait for active requests to complete before deregistering                                              | 20 | 0 to 3600        |
| HealthCheckInterval                                                                                         | The interval at which Elastic Load Balancing will check the health of your application's Amazon EC2 instances. | 15 | 15 to 300        |
| HealthCheckPath                                                                                             | Path to which to send HTTP requests for health checks.                                                         | /  | A routable path. |
| HealthCheckTimeout                                                                                          | Time to wait for a response during a health check.                                                             | 5  | 1 to 60          |
| HealthyThresholdCount                                                                                       | Consecutive successful requests before Elastic Load Balancing changes the instance health status.              | 3  | 1 to 10          |

| <b>Namespace: <code>aws:elasticbeanstalk:environment:process:process_name</code> to configure a custom process</b> |                                                                                                     |                        |                        |
|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------|------------------------|
| <b><code>aws:elasticbeanstalk:environment:process:default</code> to configure the default process</b>              |                                                                                                     |                        |                        |
| MatcherHTTPCode                                                                                                    | HTTP code that indicates that an instance is healthy.                                               | None                   | 200 to 399             |
| Port                                                                                                               | Port on which the process listens.                                                                  | 80                     | 1 to 65535             |
| Protocol                                                                                                           | Protocol that the process uses.                                                                     | HTTP                   | HTTP<br>HTTPS          |
| StickinessEnabled                                                                                                  | Set to true to enable sticky sessions.                                                              | 'false'                | 'false'<br>'true'      |
| StickinessLBCookieDuration                                                                                         | Lifetime of the sticky session cookie in seconds.                                                   | 86400                  | 1 to 604800            |
| StickinessType                                                                                                     | Set to <code>lb_cookie</code> to use cookies for sticky sessions.                                   | <code>lb_cookie</code> | <code>lb_cookie</code> |
| UnhealthyThresholdCount                                                                                            | Consecutive unsuccessful requests before Elastic Load Balancing changes the instance health status. | 5                      | 1 to 10                |

## aws:elasticbeanstalk:healthreporting:system

| <b>Namespace: <code>aws:elasticbeanstalk:healthreporting:system</code></b> |                                                                                                                                                                                                                                             |       |                   |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|
| SystemType                                                                 | Health reporting system ( <a href="#">basic (p. 288)</a> or <a href="#">enhanced (p. 291)</a> ). Enhanced health reporting requires a <a href="#">service role (p. 17)</a> and a <a href="#">version 2 platform configuration (p. 24)</a> . | basic | basic<br>enhanced |
| ConfigDocument                                                             | A JSON document describing the environment and instance metrics to publish to CloudWatch.                                                                                                                                                   | None  |                   |

## aws:elasticbeanstalk:hostmanager

| <b>Namespace: <code>aws:elasticbeanstalk:hostmanager</code></b> |                                                                                                                          |       |               |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| LogPublicationControl                                           | Copy the log files for your application's Amazon EC2 instances to the Amazon S3 bucket associated with your application. | false | true<br>false |

## aws:elasticbeanstalk:managedactions

| Namespace: aws:elasticbeanstalk:managedactions |                                                                                                                                                                                                                |      |                                                      |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------|
| ManagedActionsEnabled                          | <p>Enable <a href="#">managed platform updates</a> (p. 116).</p> <p>When you set this to <code>true</code>, you must also specify a <code>PreferredStartTime</code> and <code>UpdateLevel</code> (p. 159).</p> | true | true<br>false                                        |
| PreferredStartTime                             | <p>Configure a maintenance window for managed actions in UTC.</p> <p>For example, "Tue:10:00".</p>                                                                                                             | None | Day and time in<br><i>day:hour:minute</i><br>format. |

## aws:elasticbeanstalk:managedactions:platformupdate

| Namespace: aws:elasticbeanstalk:managedactions:platformupdate |                                                                                                                                                                                                                           |       |                                                                                          |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------|
| UpdateLevel                                                   | <p>The highest level of update to apply with managed platform updates. Platforms are versioned <i>major.minor.patch</i>. For example, 2.0.8 has a major version of 2, a minor version of 0, and a patch version of 8.</p> | None  | patch for patch version updates only.<br>minor for both minor and patch version updates. |
| InstanceRefreshEnabled                                        | <p>Enable weekly instance replacement.</p> <p>Requires <code>ManagedActionsEnabled</code> to be set to <code>true</code>.</p>                                                                                             | false | true<br>false                                                                            |

## aws:elasticbeanstalk:monitoring

| Namespace: aws:elasticbeanstalk:monitoring  |                                                         |      |               |
|---------------------------------------------|---------------------------------------------------------|------|---------------|
| Automatically Terminate Unhealthy Instances | <p>Terminate an instance if it fails health checks.</p> | true | true<br>false |

## aws:elasticbeanstalk:sns:topics

| Namespace: aws:elasticbeanstalk:sns:topics |                                                                                               |      |  |
|--------------------------------------------|-----------------------------------------------------------------------------------------------|------|--|
| Notification Endpoint                      | <p>Endpoint where you want to be notified of important events affecting your application.</p> | None |  |

| Namespace: <code>aws:elasticbeanstalk:sns:topics</code> |                                                       |       |                                             |
|---------------------------------------------------------|-------------------------------------------------------|-------|---------------------------------------------|
| Notification Protocol                                   | Protocol used to send notifications to your endpoint. | email | http<br>https<br>email<br>email-json<br>sqs |
| Notification Topic ARN                                  | Amazon Resource Name for the topic you subscribed to. | None  |                                             |
| Notification Topic Name                                 | Name of the topic you subscribed to.                  | None  |                                             |

## aws:elasticbeanstalk:sqsd

| Namespace: <code>aws:elasticbeanstalk:sqsd</code> |                                                                                                                                                                                                                                                                               |                         |                                                                                                             |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------|
| WorkerQueueURL                                    | The URL of the queue from which the daemon in the worker environment tier reads messages                                                                                                                                                                                      | automatically generated | If you don't specify a value, then Elastic Beanstalk automatically creates a queue.                         |
| HttpPath                                          | The relative path to the application to which HTTP POST messages are sent                                                                                                                                                                                                     | /                       |                                                                                                             |
| MimeType                                          | The MIME type of the message sent in the HTTP POST request                                                                                                                                                                                                                    | application/json        | application/json<br>application/x-www-form-urlencoded<br>application/xml<br>text/plain<br>Custom MIME type. |
| HttpConnections                                   | The maximum number of concurrent connections to any application(s) within an Amazon EC2 instance                                                                                                                                                                              | 15                      | 1 to 100                                                                                                    |
| ConnectTimeout                                    | The amount of time, in seconds, to wait for successful connections to an application                                                                                                                                                                                          | 5                       | 1 to 60                                                                                                     |
| InactivityTimeout                                 | The amount of time, in seconds, to wait for a response on an existing connection to an application<br>The message is reprocessed until the daemon receives a 200 OK response from the application in the worker environment tier or the <code>RetentionPeriod</code> expires. | 180                     | 1 to 1800                                                                                                   |

| Namespace: <code>aws:elasticbeanstalk:sqs</code> |                                                                                                                                                                                                                                           |           |                    |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|
| VisibilityTimeout                                | The amount of time, in seconds, an incoming message from the Amazon SQS queue is locked for processing. After the configured amount of time has passed, then the message is again made visible in the queue for any other daemon to read. | 300       | 0 to 43200         |
| ErrorVisibilityTimeout                           | The amount of time, in seconds, that elapses before Elastic Beanstalk returns a message to the Amazon SQS queue after a processing attempt fails with an explicit error.                                                                  | 2 seconds | 0 to 43200 seconds |
| RetentionPeriod                                  | The amount of time, in seconds, a message is valid and will be actively processed                                                                                                                                                         | 345600    | 60 to 1209600      |
| MaxRetries                                       | The maximum number of attempts that Elastic Beanstalk attempts to send the message to the web application that will process it before moving the message to the dead letter queue.                                                        | 10        | 1 to 100           |

## aws:elb:healthcheck

| Namespace: <code>aws:elb:healthcheck</code> |                                                                                                                                                                                               |        |                                                |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------|
| HealthyThreshold                            | Consecutive successful requests before Elastic Load Balancing changes the instance health status.                                                                                             | 3      | 2 to 10                                        |
| Interval                                    | The interval at which Elastic Load Balancing will check the health of your application's Amazon EC2 instances.                                                                                | 10     | 5 to 300                                       |
| Timeout                                     | Number of seconds Elastic Load Balancing will wait for a response before it considers the instance nonresponsive.                                                                             | 5      | 2 to 60                                        |
| UnhealthyThreshold                          | Consecutive unsuccessful requests before Elastic Load Balancing changes the instance health status.                                                                                           | 5      | 2 to 10                                        |
| (deprecated)<br>Target                      | Destination on backend instance to which to send health checks. Use <code>Application Healthcheck URL</code> in the <code>aws:elasticbeanstalk:application</code> (p. 155) namespace instead. | TCP:80 | Target in the format <i>PROTOCOL:PORT/PATH</i> |

## aws:elb:loadbalancer

Configure your environment's load balancer.

Several of the options in this namespace have been deprecated in favor of listener-specific options in the `aws:elb:listener` (p. 162) namespace. The deprecated options only let you configure two listeners (one secure and one unsecure) on standard ports.

| Namespace: <code>aws:elb:loadbalancer</code> |                                                                                                                                                                                                                                                                                                                                                                 |       |                                 |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------|
| CrossZone                                    | Configure the load balancer to route traffic evenly across all instances in all Availability Zones rather than only within each zone.                                                                                                                                                                                                                           | false | true<br>false                   |
| SecurityGroups                               | Assign one or more security groups that you created to the load balancer.                                                                                                                                                                                                                                                                                       | None  | One or more security group IDs. |
| ManagedSecurityGroup                         | Choose the security group that Elastic Beanstalk will modify to allow ingress from the instances in your environment. Using this option prevents Elastic Beanstalk from creating a security group for your load balancer. The specified security group must also be in the list of security groups set with <code>aws:elb:loadbalancer::SecurityGroups</code> . | None  | A security group ID.            |
| (deprecated)<br>LoadBalancerHTTPPort         | Port to listen on for the unsecure listener.                                                                                                                                                                                                                                                                                                                    | 80    | OFF<br>80                       |
| (deprecated)<br>LoadBalancerPortProtocol     | Protocol to use on the unsecure listener.                                                                                                                                                                                                                                                                                                                       | HTTP  | HTTP<br>TCP                     |
| (deprecated)<br>LoadBalancerHTTPSPort        | Port to listen on for the secure listener.                                                                                                                                                                                                                                                                                                                      | OFF   | OFF<br>443<br>8443              |
| (deprecated)<br>LoadBalancerSSLPortProtocol  | Protocol to use on the secure listener.                                                                                                                                                                                                                                                                                                                         | HTTPS | HTTPS<br>SSL                    |
| (deprecated)<br>SSLCertificateId             | ARN of an SSL certificate to bind to the secure listener.                                                                                                                                                                                                                                                                                                       | None  |                                 |

## aws:elb:listener

| Namespace: <code>aws:elb:listener</code> : <i>listener_port</i> to configure a custom listener |                                                                         |                                    |                             |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------|-----------------------------|
| <code>aws:elb:listener</code> to configure the default listener on port 80                     |                                                                         |                                    |                             |
| ListenerProtocol                                                                               | The protocol used by the listener.                                      | HTTP                               | HTTP<br>HTTPS<br>TCP<br>SSL |
| InstancePort                                                                                   | The port that this listener uses to communicate with the EC2 instances. | The same as <i>listener_port</i> . | 1 to 65535                  |



| Namespace: <code>aws:elb:listener</code> : <i>listener_port</i> to configure a custom listener |                                                                                                                                                                                                         |                                                                                            |                                                                                                            |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <code>aws:elb:listener</code> to configure the default listener on port 80                     |                                                                                                                                                                                                         |                                                                                            |                                                                                                            |
| InstanceProtocol                                                                               | The protocol that this listener uses to communicate with the EC2 instances.                                                                                                                             | HTTP when ListenerProtocol is HTTP or HTTPS<br><br>TCP when ListenerProtocol is TCP or SSL | HTTP or HTTPS when ListenerProtocol is HTTP or HTTPS<br><br>TCP or SSL when ListenerProtocol is TCP or SSL |
| PolicyNames                                                                                    | A comma-separated list of policy names to apply to the port for this listener. We suggest that you use the LoadBalancerPorts option of the <a href="#">aws:elb:policies</a> (p. 163) namespace instead. | None                                                                                       |                                                                                                            |
| SSLCertificateId                                                                               | ARN of an SSL certificate to bind to the listener.                                                                                                                                                      | None                                                                                       |                                                                                                            |
| ListenerEnabled                                                                                | Specifies whether this listener is enabled. If you specify <code>false</code> , the listener is not included in the load balancer.                                                                      | true if any other option is set. false otherwise.                                          | true<br>false                                                                                              |

## aws:elb:policies

Modify the default stickiness and global load balancer policies.

| Namespace: <code>aws:elb:policies</code> |                                                                                                                                                                                                                           |       |                                                              |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------|
| ConnectionDrainingEnabled                | Specifies whether the load balancer maintains existing connections to instances that have become unhealthy or deregistered to complete in-progress requests.                                                              | false | true<br>false                                                |
| ConnectionDrainingTimeout                | The maximum number of seconds that the load balancer maintains existing connections to an instance during connection draining before forcibly closing the connections.                                                    | 20    | 1 to 3600                                                    |
| ConnectionSettingIdleTimeout             | The number of seconds that the load balancer waits for any data to be sent or received over the connection. If no data has been sent or received after this time period elapses, the load balancer closes the connection. | 60    | 1 to 3600                                                    |
| LoadBalancerPorts                        | A comma-separated list of the listener ports that the default policy ( <code>AWSEB-ELB-StickinessPolicy</code> ) applies to.                                                                                              | None  | You can use <code>:all</code> to indicate all listener ports |

| Namespace: <code>aws:elb:policies</code> |                                                                                                                                                                                                                              |       |               |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
| Stickiness Cookie Expiration             | The amount of time, in seconds, that each cookie is valid. Uses the default policy ( <code>AWSEB-ELB-StickinessPolicy</code> ).                                                                                              | 0     | 0 to 1000000  |
| Stickiness Policy                        | Binds a user's session to a specific server instance so that all requests coming from the user during the session are sent to the same server instance. Uses the default policy ( <code>AWSEB-ELB-StickinessPolicy</code> ). | false | true<br>false |

## aws:elb:policies:policy\_name

Create additional load balancer policies by specifying a policy name in the namespace.

| Namespace: <code>aws:elb:policies:policy_name</code> to configure a custom policy |                                                                                                                                                                                                                                                                                                              |      |                                       |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------|
| CookieName                                                                        | The name of the application-generated cookie that controls the session lifetimes of a <code>AppCookieStickinessPolicyType</code> policy. This policy can be associated only with HTTP/HTTPS listeners.                                                                                                       | None |                                       |
| InstancePorts                                                                     | A comma-separated list of the instance ports that this policy applies to.                                                                                                                                                                                                                                    | None | A list of ports, or <code>:all</code> |
| LoadBalancerPorts                                                                 | A comma-separated list of the listener ports that this policy applies to.                                                                                                                                                                                                                                    | None | A list of ports, or <code>:all</code> |
| ProxyProtocol                                                                     | For a <code>ProxyProtocolPolicyType</code> policy, specifies whether to include the IP address and port of the originating request for TCP messages. This policy can be associated only with TCP/SSL listeners.                                                                                              | None | true<br>false                         |
| PublicKey                                                                         | The contents of a public key for a <code>PublicKeyPolicyType</code> policy to use when authenticating the back-end server or servers. This policy cannot be applied directly to back-end servers or listeners; it must be part of a <code>BackendServerAuthenticationPolicyType</code> policy.               | None |                                       |
| PublicKeyPolicyNames                                                              | A comma-separated list of policy names (from the <code>PublicKeyPolicyType</code> policies) for a <code>BackendServerAuthenticationPolicyType</code> policy that controls authentication to a back-end server or servers. This policy can be associated only with back-end servers that are using HTTPS/SSL. | None |                                       |
| SSLProtocols                                                                      | A comma-separated list of SSL protocols to be enabled for a <code>SSLNegotiationPolicyType</code> policy that defines the ciphers and protocols that will be                                                                                                                                                 | None |                                       |

| Namespace: <code>aws:elb:policies:</code> <i>policy_name</i> to configure a custom policy |                                                                                                                                                                                                                                                                                                                     |       |               |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|
|                                                                                           | accepted by the load balancer. This policy can be associated only with HTTPS/SSL listeners.                                                                                                                                                                                                                         |       |               |
| SSLReferencePolicy                                                                        | The name of a predefined security policy that adheres to AWS security best practices and that you want to enable for a <code>SSLNegotiationPolicyType</code> policy that defines the ciphers and protocols that will be accepted by the load balancer. This policy can be associated only with HTTPS/SSL listeners. | None  |               |
| Stickiness Cookie Expiration                                                              | The amount of time, in seconds, that each cookie is valid.                                                                                                                                                                                                                                                          | 0     | 0 to 1000000  |
| Stickiness Policy                                                                         | Binds a user's session to a specific server instance so that all requests coming from the user during the session are sent to the same server instance.                                                                                                                                                             | false | true<br>false |

## aws:elbv2:listener:listener\_port

| Namespace: <code>aws:elbv2:listener:</code> <i>listener_port</i> to configure a custom listener |                                                                                                                        |                    |                                                |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------|
| <code>aws:elbv2:listener:default</code> to configure the default listener on port 80            |                                                                                                                        |                    |                                                |
| DefaultProcess                                                                                  | Name of the <a href="#">process (p. 157)</a> to which to forward traffic when no rules match.                          | default            | A process name.                                |
| ListenerEnabled                                                                                 | Set to <code>false</code> to disable the listener. You can use this option to disable the default listener on port 80. | true               | true<br>false                                  |
| Protocol                                                                                        | Protocol of traffic to process.                                                                                        | HTTP               | HTTP<br>HTTPS                                  |
| Rules                                                                                           | List of <a href="#">rules (p. 166)</a> to apply to the listener                                                        | None               | Comma separated list of rule names.            |
| SSLCertificateArns                                                                              | List of ARNs of SSL certificates to bind to the listener.                                                              | None               | The ARN of a certificate stored in IAM or ACM. |
| SSLPolicy                                                                                       | Specify a security policy to apply to the listener.                                                                    | None (ELB default) | The name of a load balancer security policy.   |

## aws:elbv2:listenerule:rule\_name

| Namespace: aws:elbv2:listenerule:rule_name |                                                                                                                                |         |                 |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------|-----------------|
| PathPatterns                               | List of path patterns to match. For example, /img/*.                                                                           | None    |                 |
| Priority                                   | Precedence of this rule when multiple rules match. The lower number takes precedence. No two rules can have the same priority. | 1       | 1 to 1000       |
| Process                                    | Name of the <a href="#">process (p. 157)</a> to which to forward traffic when this rule matches the request.                   | default | A process name. |

## aws:elbv2:loadbalancer

| Namespace: aws:elbv2:loadbalancer |                                                                                                                                                                                                                     |                                                                            |                                             |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------|
| AccessLogsS3Bucket                | Amazon S3 bucket in which to store access logs. The bucket must be in the same region as the environment and allow the load balancer write access.                                                                  | None                                                                       | A bucket name.                              |
| AccessLogsS3Enabled               | Enable access log storage.                                                                                                                                                                                          | false                                                                      | true<br>false                               |
| AccessLogsS3Prefix                | Prefix to prepend to access log names. By default, the load balancer uploads logs to a directory names AWSLogs in the bucket you specify. Specify a prefix to place the AWSLogs directory inside another directory. | None                                                                       |                                             |
| IdleTimeout                       | Time to wait for a request to complete before closing connections to client and instance.                                                                                                                           | None                                                                       | 1 to 3600                                   |
| ManagedSecurityGroup              | Security group that Elastic Beanstalk will modify to allow communication with your environment's EC2 instances. Specify a security group you created to prevent Elastic Beanstalk from creating one.                | The security group that Elastic Beanstalks creates for your load balancer. | A security group ID.                        |
| SecurityGroups                    | List of security groups to attach to the load balancer.                                                                                                                                                             | The security group that Elastic Beanstalks creates for your                | Comma separated list of security group IDs. |

| Namespace: <code>aws:elbv2:loadbalancer</code> |  |                |  |
|------------------------------------------------|--|----------------|--|
|                                                |  | load balancer. |  |

## aws:rds:dbinstance

| Namespace: <code>aws:rds:dbinstance</code> |                                                                                                                                                                   |                                                                                      |                                                                                                                            |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| DBAllocatedStorage                         | The allocated database storage size, specified in gigabytes.                                                                                                      | MySQL: 5<br>Oracle: 10<br>sqlserver-se: 200<br>sqlserver-ex: 30<br>sqlserver-web: 30 | MySQL: 5-1024<br>Oracle: 10-1024<br>sqlserver: cannot be modified                                                          |
| DBDeletionPolicy                           | Decides whether to delete or snapshot the DB instance on environment termination.<br><br><b>Warning</b><br>Deleting a DB instance results in permanent data loss. | Delete                                                                               | Delete<br>Snapshot                                                                                                         |
| DBEngine                                   | The name of the database engine to use for this instance.                                                                                                         | mysql                                                                                | mysql<br>oracle-se1<br>oracle-se<br>oracle-ee<br>sqlserver-ee<br>sqlserver-ex<br>sqlserver-web<br>sqlserver-se<br>postgres |
| DBEngineVersion                            | The version number of the database engine.                                                                                                                        | 5.5                                                                                  |                                                                                                                            |
| DBInstanceClass                            | The database instance type.                                                                                                                                       | db.t1.micro                                                                          | Go to <a href="#">DB Instance Class</a> in the <i>Amazon Relational Database Service User Guide</i> .                      |
| DBPassword                                 | The name of master user password for the database instance.                                                                                                       | None                                                                                 |                                                                                                                            |
| DBSnapshotIdentifier                       | The identifier for the DB snapshot to restore from.                                                                                                               | None                                                                                 |                                                                                                                            |

| Namespace: <code>aws:rds:dbinstance</code> |                                                                                                                                                                                                                                                                                                  |        |               |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|
| DBUser                                     | The name of master user for the DB Instance.                                                                                                                                                                                                                                                     | ebroot |               |
| MultiAZDatabase                            | Specifies whether a database instance Multi-AZ deployment needs to be created. For more information about Multi-AZ deployments with Amazon Relational Database Service (RDS), go to <a href="#">Regions and Availability Zones</a> in the <i>Amazon Relational Database Service User Guide</i> . | false  | true<br>false |

## Platform Specific Options

### Platforms

- [Docker Platform Options \(p. 168\)](#)
- [Go Platform Options \(p. 168\)](#)
- [Java SE Platform Options \(p. 168\)](#)
- [Java with Tomcat Platform Options \(p. 169\)](#)
- [.NET Platform Options \(p. 170\)](#)
- [Node.js Platform Options \(p. 171\)](#)
- [PHP Platform Options \(p. 172\)](#)
- [Python Platform Options \(p. 173\)](#)
- [Ruby Platform Options \(p. 174\)](#)

## Docker Platform Options

No Docker-specific configuration options are provided by Elastic Beanstalk

## Go Platform Options

### `aws:elasticbeanstalk:container:golang:staticfiles`

Map a path in your web application to a directory in the source bundle that contains static files. Each option that you define in this namespace maps a different path.

| Namespace: <code>aws:elasticbeanstalk:container:golang:staticfiles</code> |                                |     |     |
|---------------------------------------------------------------------------|--------------------------------|-----|-----|
| Application path.                                                         | Source directory.              | n/a | n/a |
| Example: <code>/images</code>                                             | Example: <code>myimages</code> |     |     |

## Java SE Platform Options

### `aws:elasticbeanstalk:container:java:staticfiles`

Map a path in your web application to a directory in the source bundle that contains static files. Each option that you define in this namespace maps a different path.

| Namespace: <code>aws:elasticbeanstalk:container:java:staticfiles</code> |                   |         |              |
|-------------------------------------------------------------------------|-------------------|---------|--------------|
| Name                                                                    | Description       | Default | Valid Values |
| Application path.                                                       | Source directory. | n/a     | n/a          |
| Example: /<br>images                                                    | Example: myimages |         |              |

## Java with Tomcat Platform Options

### Namespaces

- [aws:elasticbeanstalk:application:environment](#) (p. 169)
- [aws:elasticbeanstalk:container:tomcat:jvmoptions](#) (p. 169)
- [aws:elasticbeanstalk:environment:proxy](#) (p. 170)
- [aws:elasticbeanstalk:environment:proxy:staticfiles](#) (p. 170)

### `aws:elasticbeanstalk:application:environment`

| Namespace: <code>aws:elasticbeanstalk:application:environment</code> |                                                |         |              |
|----------------------------------------------------------------------|------------------------------------------------|---------|--------------|
| Name                                                                 | Description                                    | Default | Valid Values |
| JDBC_CONNECTION_STRING                                               | The connection string to an external database. | n/a     | n/a          |

#### Note

The combined size of all environment properties defined for an environment is limited to 4096 bytes. The format of environment properties is `KEY1=VALUE1`, `KEY2=VALUE2`, which means that both the value and key of each variable are included in the total. When a platform has one or more predefined environment properties, such as `JDBC_CONNECTION_STRING`, those properties are also included in the total.

### `aws:elasticbeanstalk:container:tomcat:jvmoptions`

| Namespace: <code>aws:elasticbeanstalk:container:tomcat:jvmoptions</code> |                                                                                          |         |              |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------|--------------|
| Name                                                                     | Description                                                                              | Default | Valid Values |
| JVM Options                                                              | Pass command-line options to the JVM at startup.                                         | n/a     | n/a          |
| Xmx                                                                      | Maximum JVM heap sizes.                                                                  | 256m    | n/a          |
| XX:MaxPermSize                                                           | Section of the JVM heap that is used to store class definitions and associated metadata. | 64m     | n/a          |
| Xms                                                                      | Initial JVM heap sizes.                                                                  | 256m    | n/a          |

#### Note

You can extend the number of parameters and specify the parameter names in the `aws:elasticbeanstalk:container:tomcat:jvmoptions` and `aws:elasticbeanstalk:application:environment` namespaces.

## aws:elasticbeanstalk:environment:proxy

| Namespace: aws:elasticbeanstalk:environment:proxy |                                                                          |         |                   |
|---------------------------------------------------|--------------------------------------------------------------------------|---------|-------------------|
| Name                                              | Description                                                              | Default | Valid Values      |
| GzipCompression                                   | Set to 'false' to disable response compression.                          | 'true'  | 'true'<br>'false' |
| ProxyServer                                       | Set to <code>nginx</code> to use nginx as a proxy instead of Apache 2.2. | apache  | apache<br>nginx   |

## aws:elasticbeanstalk:environment:proxy:staticfiles

Map a path in your web application to a directory in the source bundle that contains static files. Each option that you define in this namespace maps a different path.

| Namespace: aws:elasticbeanstalk:environment:proxy:staticfiles |                                                                                                                                              |         |              |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------|
| Name                                                          | Description                                                                                                                                  | Default | Valid Values |
| Application path.<br>Example: <code>/images</code>            | Source directory. If ProxyServer is set to "none", then the static file mappings will not take affect.<br><br>Example: <code>myimages</code> | n/a     | n/a          |

## .NET Platform Options

Namespaces

- [aws:elasticbeanstalk:application:environment](#) (p. 170)
- [aws:elasticbeanstalk:container:dotnet:apppool](#) (p. 170)

## aws:elasticbeanstalk:application:environment

| Namespace: aws:elasticbeanstalk:application:environment |                          |         |              |
|---------------------------------------------------------|--------------------------|---------|--------------|
| Name                                                    | Description              | Default | Valid Values |
| PARAM1 - PARAM5                                         | Pass in key-value pairs. | n/a     | n/a          |

### Note

The combined size of all environment properties defined for an environment is limited to 4096 bytes. The format of environment properties is `KEY1=VALUE1, KEY2=VALUE2`, which means that both the value and key of each variable are included in the total. When a platform has one or more predefined environment properties, such as `JDBC_CONNECTION_STRING`, those properties are also included in the total.

## aws:elasticbeanstalk:container:dotnet:apppool

| Namespace: aws:elasticbeanstalk:container:dotnet:apppool |             |         |              |
|----------------------------------------------------------|-------------|---------|--------------|
| Name                                                     | Description | Default | Valid Values |



| Namespace: <code>aws:elasticbeanstalk:container:dotnet:appool</code> |                                                                    |       |               |
|----------------------------------------------------------------------|--------------------------------------------------------------------|-------|---------------|
| Target Runtime                                                       | You can choose the version of .NET Framework for your application. | 4.0   | 2.0<br>4.0    |
| Enable 32-bit Applications                                           | Enable 32-bit applications.                                        | False | True<br>False |

## Node.js Platform Options

### Namespaces

- [aws:elasticbeanstalk:container:nodejs](#) (p. 171)
- [aws:elasticbeanstalk:container:nodejs:staticfiles](#) (p. 172)

### `aws:elasticbeanstalk:container:nodejs`

| Namespace: <code>aws:elasticbeanstalk:container:nodejs</code> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |              |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------|
| Name                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Default | Valid Values |
| NodeCommand                                                   | Command used to start the Node.js application. If an empty string is specified, <code>app.js</code> is used, then <code>server.js</code> , then "npm start" in that order.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ""      | n/a          |
| NodeVersion                                                   | <p>Version of Node.js. For example, 4.4.6</p> <p>Supported Node.js versions vary between versions of the Node.js platform configuration. See <a href="#">Node.js</a> (p. 29) on the supported platforms page for a list of the currently supported versions.</p> <p><b>Note</b><br/>When support for the version of Node.js that you are using is removed from the platform configuration, you must change or remove the version setting prior to doing a <a href="#">platform upgrade</a> (p. 113). This may occur when a security vulnerability is identified for one or more versions of Node.js. When this occurs, attempting to upgrade to a new version of the platform that does not support the configured <a href="#">NodeVersion</a> (p. 171) will fail. To avoid needing to create a new environment, change the <code>NodeVersion</code> configuration option to a version that is supported by both the old configuration version and the new one, or <a href="#">remove the option</a></p> | varies  | varies       |

| Namespace: <code>aws:elasticbeanstalk:container:nodejs</code> |                                                                                                                                                                                                   |       |                         |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|
|                                                               | setting (p. 139), and then perform the platform upgrade.                                                                                                                                          |       |                         |
| GzipCompression                                               | Specifies if gzip compression is enabled. If ProxyServer is set to "none", then gzip compression will be disabled.                                                                                | false | true<br>false           |
| ProxyServer                                                   | Specifies which web server should be used to proxy connections to Node.js. If ProxyServer is set to "none", then static file mappings will not take affect and gzip compression will be disabled. | nginx | apache<br>nginx<br>none |

### aws:elasticbeanstalk:container:nodejs:staticfiles

Map a path in your web application to a directory in the source bundle that contains static files. Each option that you define in this namespace maps a different path.

| Namespace: <code>aws:elasticbeanstalk:container:nodejs:staticfiles</code> |                                                                                                                                 |         |              |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------|--------------|
| Name                                                                      | Description                                                                                                                     | Default | Valid Values |
| Application path.<br>Example: /images                                     | Source directory. If ProxyServer is set to "none", then the static file mappings will not take affect.<br><br>Example: myimages | n/a     | n/a          |

## PHP Platform Options

### aws:elasticbeanstalk:container:php:phpini

| Namespace: <code>aws:elasticbeanstalk:container:php:phpini</code> |                                                                                                                        |         |                                                                     |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------|
| Name                                                              | Description                                                                                                            | Default | Valid Values                                                        |
| <a href="#">document_root (p. 734)</a>                            | Specify the child directory of your project that is treated as the public-facing web root.                             | /       | A blank string is treated as /, or specify a string starting with / |
| <a href="#">memory_limit (p. 734)</a>                             | Amount of memory allocated to the PHP environment.                                                                     | 256M    | n/a                                                                 |
| <a href="#">zlib.output_compression (p. 734)</a>                  | Specifies whether or not PHP should use compression for output.                                                        | Off     | On<br>Off                                                           |
| <a href="#">allow_url_fopen (p. 734)</a>                          | Specifies if PHP's file functions are allowed to retrieve data from remote locations, such as websites or FTP servers. | On      | On<br>Off                                                           |
| <a href="#">display_errors (p. 734)</a>                           | Specifies if error messages should be part of the output.                                                              | Off     | On<br>Off                                                           |

| Namespace: <code>aws:elasticbeanstalk:container:php:phpini</code> |                                                                                                                                                                                                                                                                                     |     |                                        |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------|
| <code>max_execution_time</code>                                   | Set the maximum time, in seconds, a script is allowed to run before it is terminated by the environment.                                                                                                                                                                            | 60  | 0 to 9223372036854775807 (PHP_INT_MAX) |
| <code>composer_options</code>                                     | Set custom options to use when installing dependencies using Composer through <code>composer.phar</code> install. For more information including available options, go to <a href="http://getcomposer.org/doc/03-cli.md#install">http://getcomposer.org/doc/03-cli.md#install</a> . | n/a | n/a                                    |

## Python Platform Options

### Namespaces

- [aws:elasticbeanstalk:application:environment](#) (p. 173)
- [aws:elasticbeanstalk:container:python](#) (p. 173)
- [aws:elasticbeanstalk:container:python:staticfiles](#) (p. 174)

### `aws:elasticbeanstalk:application:environment`

| Namespace: <code>aws:elasticbeanstalk:application:environment</code> |                                       |         |              |
|----------------------------------------------------------------------|---------------------------------------|---------|--------------|
| Name                                                                 | Description                           | Default | Valid Values |
| <code>DJANGO_SETTINGS_MODULE</code>                                  | Specifies which settings file to use. | n/a     | n/a          |

#### Note

The combined size of all environment properties defined for an environment is limited to 4096 bytes. The format of environment properties is `KEY1=VALUE1`, `KEY2=VALUE2`, which means that both the value and key of each variable are included in the total. When a platform has one or more predefined environment properties, such as `JDBC_CONNECTION_STRING`, those properties are also included in the total.

### `aws:elasticbeanstalk:container:python`

| Namespace: <code>aws:elasticbeanstalk:container:python</code> |                                                                                                                                        |                             |              |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|
| Name                                                          | Description                                                                                                                            | Default                     | Valid Values |
| <code>WSGIPath</code>                                         | The file that contains the WSGI application. This file must have an "application" callable.                                            | <code>application.py</code> | n/a          |
| <code>NumProcesses</code>                                     | The number of daemon processes that should be started for the process group when running WSGI applications.                            | 1                           | n/a          |
| <code>NumThreads</code>                                       | The number of threads to be created to handle requests in each daemon process within the process group when running WSGI applications. | 15                          | n/a          |

## aws:elasticbeanstalk:container:python:staticfiles

Map a path in your web application to a directory in the source bundle that contains static files. Each option that you define in this namespace maps a different path.

| Namespace: <code>aws:elasticbeanstalk:container:python:staticfiles</code> |                                                     |         |              |
|---------------------------------------------------------------------------|-----------------------------------------------------|---------|--------------|
| Name                                                                      | Description                                         | Default | Valid Values |
| Application path.<br>Example: <code>/images</code>                        | Source directory.<br>Example: <code>myimages</code> | n/a     | n/a          |

## Ruby Platform Options

### aws:elasticbeanstalk:application:environment

| Namespace: <code>aws:elasticbeanstalk:application:environment</code> |                                                                                                                                                                                                               |                  |               |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------|
| Name                                                                 | Description                                                                                                                                                                                                   | Default          | Valid Values  |
| RAILS_SKIP_MIGRATIONS                                                | Specifies whether to run <code>`rake db:migrate`</code> on behalf of the users' applications; or whether it should be skipped. This is only applicable to Rails 3 applications.                               | false            | true<br>false |
| RAILS_SKIP_ASSET_COMPILE                                             | Specifies whether the container should run <code>`rake assets:precompile`</code> on behalf of the users' applications; or whether it should be skipped. This is also only applicable to Rails 3 applications. | false            | true<br>false |
| BUNDLE_WITHOUT                                                       | A colon (:) separated list of groups to ignore when installing dependencies from a Gemfile.                                                                                                                   | test:development | n/a           |
| RACK_ENV                                                             | Specifies what environment stage an application can be run in. Examples of common environments include development, production, test.                                                                         | production       | n/a           |
| RAILS_ENV                                                            | Specifies what environment stage an application can be run in. Examples of common environments include development, production, test.                                                                         | production       | n/a           |

#### Note

The combined size of all environment properties defined for an environment is limited to 4096 bytes. The format of environment properties is `KEY1=VALUE1, KEY2=VALUE2`, which means that both the value and key of each variable are included in the total. When a platform has one or more predefined environment properties, such as `JDBC_CONNECTION_STRING`, those properties are also included in the total.

## Custom Options

Use the `aws:elasticbeanstalk:customoption` namespace to define options and values that can be read in `Resources` blocks in other configuration files. Use custom options to collect user specified settings in a single configuration file.

For example, you may have a complex configuration file that defines a resource that can be configured by the user launching the environment. If you use `Fn::GetOptionSetting` to retrieve the value of a custom option, you can put the definition of that option in a different configuration file, where it is more easily discovered and modified by the user.

Also, because they are configuration options, custom options can be set at the API level to override values set in a configuration file. See [Precedence \(p. 175\)](#) for more information.

Custom options are defined like any other option:

```
option_settings:
 aws:elasticbeanstalk:customoption:
 option name: option value
```

For example, the following configuration file creates an option named `ELBAlarmEmail` and sets the value to `someone@example.com`:

```
option_settings:
 aws:elasticbeanstalk:customoption:
 ELBAlarmEmail: someone@example.com
```

Elsewhere, a configuration file defines an SNS topic that reads the option with `Fn::GetOptionSetting` to populate the value of the `Endpoint` attribute:

```
Resources:
 MySNSTopic:
 Type: AWS::SNS::Topic
 Properties:
 Subscription:
 - Endpoint:
 Fn::GetOptionSetting:
 OptionName: ELBAlarmEmail
 DefaultValue: nobody@example.com
 Protocol: email
```

You can find more example snippets using `Fn::GetOptionSetting` at [Adding and Customizing Elastic Beanstalk Environment Resources \(p. 197\)](#).

### Topics

- [Precedence \(p. 175\)](#)
- [Recommended Values \(p. 176\)](#)

## Precedence

During environment creation, configuration options are applied from multiple sources with the following precedence, from highest to lowest:

- **Settings applied directly to the environment** – Settings specified during a create environment or update environment operation on the Elastic Beanstalk API by any client, including the AWS

Management Console, EB CLI, AWS CLI, and SDKs. The AWS Management Console and EB CLI also apply [recommended values \(p. 176\)](#) for some options that apply at this level unless overridden.

- **Saved Configurations** – Settings for any options that are not applied directly to the environment are loaded from a saved configuration, if specified.
- **Configuration Files (.ebextensions)** – Settings for any options that are not applied directly to the environment, and also not specified in a saved configuration, are loaded from configuration files in the `.ebextensions` folder at the root of the application source bundle.

Configuration files are executed in alphabetical order. For example, `.ebextensions/01run.config` is executed before `.ebextensions/02do.config`.

- **Default Values** – If a configuration option has a default value, it only applies when the option is not set at any of the above levels.

If the same configuration option is defined in more than one location, the setting with the highest precedence is applied. When a setting is applied from a saved configuration or settings applied directly to the environment, the setting is stored as part of the environment's configuration. These settings can be removed [with the AWS CLI \(p. 146\)](#) or [with the EB CLI \(p. 143\)](#).

Settings in configuration files are not applied directly to the environment and cannot be removed without modifying the configuration files and deploying a new application version. If a setting applied with one of the other methods is removed, the same setting will be loaded from configuration files in the source bundle.

For example, say you set the minimum number of instances in your environment to 5 during environment creation, using either the AWS Management Console, a command line option, or a saved configuration. The source bundle for your application also includes a configuration file that sets the minimum number of instances to 2.

When you create the environment, Elastic Beanstalk sets the `MinSize` option in the `aws:autoscaling:asg` namespace to 5. If you then remove the option from the environment configuration, the value in the configuration file is loaded, and the minimum number of instances is set to 2. If you then remove the configuration file from the source bundle and redeploy, Elastic Beanstalk uses the default setting of 1.

## Recommended Values

The Elastic Beanstalk Command Line Interface (EB CLI) and Elastic Beanstalk console provide recommended values for some configuration options. These values can be different from the default values and are set at the API level when your environment is created. Recommended values allow Elastic Beanstalk to improve the default environment configuration without making backwards incompatible changes to the API.

For example, both the EB CLI and Elastic Beanstalk console set the configuration option for EC2 instance type (`InstanceType` in the `aws:autoscaling:launchconfiguration` namespace). Each client provides a different way of overriding the default setting. In the console you can choose a different instance type from a drop down menu on the **Configuration Details** page of the **Create New Environment** wizard. With the EB CLI, you can use the `--instance_type` parameter for [`eb create` \(p. 455\)](#).

Because the recommended values are set at the API level, they will override values for the same options that you set in configuration files or saved configurations. The following options are set:

### Elastic Beanstalk console

- Namespace: `aws:elb:loadbalancer`

Option Name: `CrossZone`

- Namespace: `aws:elasticbeanstalk:command`

Option Name: `DeploymentPolicy`, `BatchSize` and `BatchSizeType`

- Namespace: `aws:autoscaling:launchconfiguration`

Option Names: `IamInstanceProfile`, `EC2KeyName`, `InstanceType`

- Namespace: `aws:elasticbeanstalk:healthreporting:system`

Option Name: `SystemType` and `HealthCheckSuccessThreshold`

- Namespace: `aws:elasticbeanstalk:environment`

Option Name: `ServiceRole`

- Namespace: `aws:elasticbeanstalk:application`

Option Name: `Application Healthcheck URL`

- Namespace: `aws:elb:policies`

Option Names: `ConnectionDrainingTimeout` and `ConnectionDrainingEnabled`

- Namespace: `aws:autoscaling:updatepolicy:rollingupdate`

Option Names: `RollingUpdateType` and `RollingUpdateEnabled`

- Namespace: `aws:elasticbeanstalk:sns:topics`

Option Name: `Notification Endpoint`

## EB CLI

- Namespace: `aws:elb:loadbalancer`

Option Name: `CrossZone`

- Namespace: `aws:elasticbeanstalk:command`

Option Name: `BatchSize` and `BatchSizeType`

- Namespace: `aws:autoscaling:launchconfiguration`

Option Names: `IamInstanceProfile`, `InstanceType`

- Namespace: `aws:elasticbeanstalk:healthreporting:system`

Option Name: `SystemType`

- Namespace: `aws:elasticbeanstalk:environment`

Option Name: `ServiceRole`

- Namespace: `aws:elb:policies`

Option Names: `ConnectionDrainingEnabled`

- Namespace: `aws:autoscaling:updatepolicy:rollingupdate`

Option Names: `RollingUpdateType` and `RollingUpdateEnabled`

If you use the Elastic Beanstalk console or EB CLI to create environments, and you want to set these options using configuration files or saved configurations, you can remove the options settings [with the AWS CLI \(p. 146\)](#) or [EB CLI \(p. 143\)](#) after the environment is created.

## Advanced Environment Customization with Configuration Files (`.ebextensions`)

You can add AWS Elastic Beanstalk configuration files (`.ebextensions`) to your web application's source code to configure your environment and customize the AWS resources that it contains. Configuration files are YAML formatted documents with a `.config` file extension that you place in a folder named `.ebextensions` and deploy in your application source bundle.

The `option_settings` section of a configuration file defines values for [configuration options](#) (p. 131). Configuration options let you configure your Elastic Beanstalk environment, the AWS resources in it, and the software that runs your application. Configuration files are only one of several ways to set configuration options.

The `resources` section lets you further customize the resources in your application's environment, and define additional AWS resources beyond the functionality provided by configuration options. You can use `resources` to add and configure any resources supported by AWS CloudFormation, which Elastic Beanstalk uses to create environments.

The other sections of a configuration file (`packages`, `sources`, `files`, `users`, `groups`, `commands`, `container_commands`, and `services`) let you configure the EC2 instances that are launched in your environment. Whenever a server is launched in your environment, Elastic Beanstalk runs the operations defined in these sections to prepare the operating system and storage system for your application.

One configuration file can contain multiple sections, or you can split your configuration into multiple files. Configuration files are processed in alphabetical order, so you can split your configuration activities into multiple stages.

To use configuration files, add them to a folder named `.ebextensions` in the root of your source and deploy it to your environment.

```
~/workspace/my-app/
|-- .ebextensions
| |-- environmentvariables.config
| |-- healthcheckurl.config
|-- .elasticbeanstalk
| |-- config.yml
|-- index.php
|-- styles.css
```

The process varies slightly depending on the client that you use to manage your environments. See the following sections for details:

- [Elastic Beanstalk Console](#) (p. 135)
- [EB CLI](#) (p. 137)
- [AWS CLI](#) (p. 138)

When you are developing or testing new configuration files, launch a clean environment running the default application and deploy to that. Poorly formatted configuration files will cause a new environment launch to fail unrecoverably.

### Topics

- [Option Settings](#) (p. 179)



- [Customizing Software on Linux Servers \(p. 180\)](#)
- [Customizing Software on Windows Servers \(p. 191\)](#)
- [Adding and Customizing Elastic Beanstalk Environment Resources \(p. 197\)](#)
- [Functions \(p. 214\)](#)

## Option Settings

You can use the `option_settings` key to modify the Elastic Beanstalk configuration and define variables that can be retrieved from your application using environment variables. Some namespaces allow you to extend the number of parameters, and specify the parameter names. For a list of namespaces and configuration options, see [Configuration Options \(p. 131\)](#).

Option settings can also be applied directly to an environment during environment creation or an environment update. Settings applied directly to the environment override the settings for the same options in configuration files. If you remove settings from an environment's configuration, settings in configuration files will take effect. See [Precedence \(p. 175\)](#) for details.

## Syntax

The standard syntax for option settings is an array of objects, each having a `namespace`, `option_name` and `value` key.

```
option_settings:
 - namespace: namespace
 option_name: option name
 value: option value
 - namespace: namespace
 option_name: option name
 value: option value
```

The `namespace` key is optional. If you do not specify a namespace, the default used is `aws:elasticbeanstalk:application:environment`:

```
option_settings:
 - option_name: option name
 value: option value
 - option_name: option name
 value: option value
```

Elastic Beanstalk also supports a shorthand syntax for option settings that lets you specify options as key-value pairs underneath the namespace:

```
option_settings:
 namespace:
 option name: option value
```

## Examples

The following examples set a Tomcat platform-specific option in the `aws:elasticbeanstalk:container:tomcat:jvmoptions` namespace and an environment property named `MYPARAMETER`. In standard YAML format:

### Example `.ebextensions/options.config`

```
option_settings:
 - namespace: aws:elasticbeanstalk:container:tomcat:jvmoptions
 option_name: Xmx
 value: 256m
 - option_name: MYPARAMETER
 value: parametervalue
```

In shorthand format:

### Example `.ebextensions/options.config`

```
option_settings:
 aws:elasticbeanstalk:container:tomcat:jvmoptions:
 Xmx: 256m
 aws:elasticbeanstalk:application:environment:
 MYPARAMETER: parametervalue
```

In JSON:

### Example `.ebextensions/options.config`

```
{
 "option_settings": [
 {
 "namespace": "aws:elasticbeanstalk:container:tomcat:jvmoptions",
 "option_name": "Xmx",
 "value": "256m"
 },
 {
 "option_name": "MYPARAMETER",
 "value": "parametervalue"
 }
]
}
```

## Accessing Environment Variables

The parameters specified in the `option_settings` section of the configuration file are passed in as environment variables to the EC2 instances. For coding examples, see the following sections:

- [Java \(p. 613\)](#)
- [.NET \(p. 636\)](#)
- [Node.js \(p. 701\)](#)
- [PHP \(p. 732\)](#)
- [Python \(p. 766\)](#)
- [Ruby \(p. 788\)](#)

## Customizing Software on Linux Servers

You may want to customize and configure the software that your application depends on. These files could be either dependencies required by the application—for example, additional packages from

the yum repository—or they could be configuration files such as a replacement for `httpd.conf` to override specific settings that are defaulted by Elastic Beanstalk.

**Note**

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

This section describes the type of information you can include in a configuration file to customize the software on your EC2 instances running Linux. For general information about customizing and configuring your Elastic Beanstalk environments, see [AWS Elastic Beanstalk Environment Configuration](#) (p. 130). For information about customizing software on your EC2 instances running Windows, see [Customizing Software on Windows Servers](#) (p. 191).

Configuration files support the following keys that affect the Linux server your application runs on.

## Example: Using Custom Amazon CloudWatch Metrics

Amazon CloudWatch is a web service that enables you to monitor, manage, and publish various metrics, as well as configure alarm actions based on data from metrics. You can define custom metrics for your own use, and Elastic Beanstalk will push those metrics to Amazon CloudWatch. Once Amazon CloudWatch contains your custom metrics, you can view those in the Amazon CloudWatch console.

The Amazon CloudWatch Monitoring Scripts for Linux are available to demonstrate how to produce and consume Amazon CloudWatch custom metrics. The scripts comprise a fully functional example that reports memory, swap, and disk space utilization metrics for an Amazon Elastic Compute Cloud (Amazon EC2) Linux instance. For more information about the Amazon CloudWatch Monitoring Scripts, go to [Amazon CloudWatch Monitoring Scripts for Linux](#) in the *Amazon CloudWatch Developer Guide*.

**Note**

Elastic Beanstalk [Enhanced Health Reporting](#) (p. 291) has native support for publishing a wide range of instance and environment metrics to CloudWatch. See [Publishing Amazon CloudWatch Custom Metrics for an Environment](#) (p. 300) for details.

### Topics

- [.ebextensions Configuration File](#) (p. 181)
- [Permissions](#) (p. 182)
- [Viewing Metrics in the CloudWatch Console](#) (p. 183)

## .ebextensions Configuration File

This example uses commands and option settings in an `.ebextensions` configuration file to download, install, and run monitoring scripts provided by Amazon CloudWatch.

To use this sample, save it to a file named `cloudwatch.config` in a directory named `.ebextensions` at the top level of your project directory, then deploy your application using the AWS Management Console (include the `.ebextensions` directory in your [source bundle](#) (p. 43)) or the [EB CLI](#) (p. 416).

For more information about configuration files, see [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178).

### **.ebextensions/cloudwatch.config**

```
packages:
 yum:
```

```

perl-DateTime: []
perl-Sys-Syslog: []
perl-LWP-Protocol-https: []
perl-Switch: []
perl-URI: []
perl-Bundle-LWP: []

sources:
 /opt/cloudwatch: http://aws-cloudwatch.s3.amazonaws.com/downloads/
 CloudWatchMonitoringScripts-1.2.1.zip

container_commands:
 01-setupcron:
 command: |
 echo '*/*5 * * * * root perl /opt/cloudwatch/aws-scripts-mon/
mon-put-instance-data.pl `{"Fn::GetOptionSetting" : { "OptionName" :
"CloudWatchMetrics", "DefaultValue" : "--mem-util --disk-space-util --disk-
path=/" }}` >> /var/log/cwpump.log 2>&1' > /etc/cron.d/cwpump
 02-changeperm:
 command: chmod 644 /etc/cron.d/cwpump
 03-changeperm:
 command: chmod u+x /opt/cloudwatch/aws-scripts-mon/mon-put-instance-
data.pl

option_settings:
 "aws:autoscaling:launchconfiguration" :
 IamInstanceProfile : "aws-elasticbeanstalk-ec2-role"
 "aws:elasticbeanstalk:customoption" :
 CloudWatchMetrics : "--mem-util --mem-used --mem-avail --disk-space-util
--disk-space-used --disk-space-avail --disk-path=/ --auto-scaling"

```

After you verify the configuration file works, you can conserve disk usage by changing the command redirect from a log file (>> /var/log/cwpump.log 2>&1') to /dev/null (> /dev/null).

## Permissions

In order to publish custom Amazon CloudWatch metrics, the instances in your environment need permission to use CloudWatch. You can grant permissions to your environment's instances by adding them to the environment's [instance profile](#) (p. 18). You can add permissions to the instance profile before or after deploying your application.

### To grant permissions to publish CloudWatch metrics

1. Open the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the navigation pane, choose **Roles**.
3. Choose your environment's instance profile role. By default, when you create an environment with the AWS Management Console or [EB CLI](#) (p. 416), this is `aws-elasticbeanstalk-ec2-role`.
4. Choose the **Permissions** tab.
5. Under **Inline Policies**, in the **Permissions** section, choose **Create Role Policy**.
6. Choose **Custom Policy**, and then choose **Select**.
7. Complete the following fields, and then choose **Apply Policy**:

**Policy Name**

The name of the policy.

## Policy Document

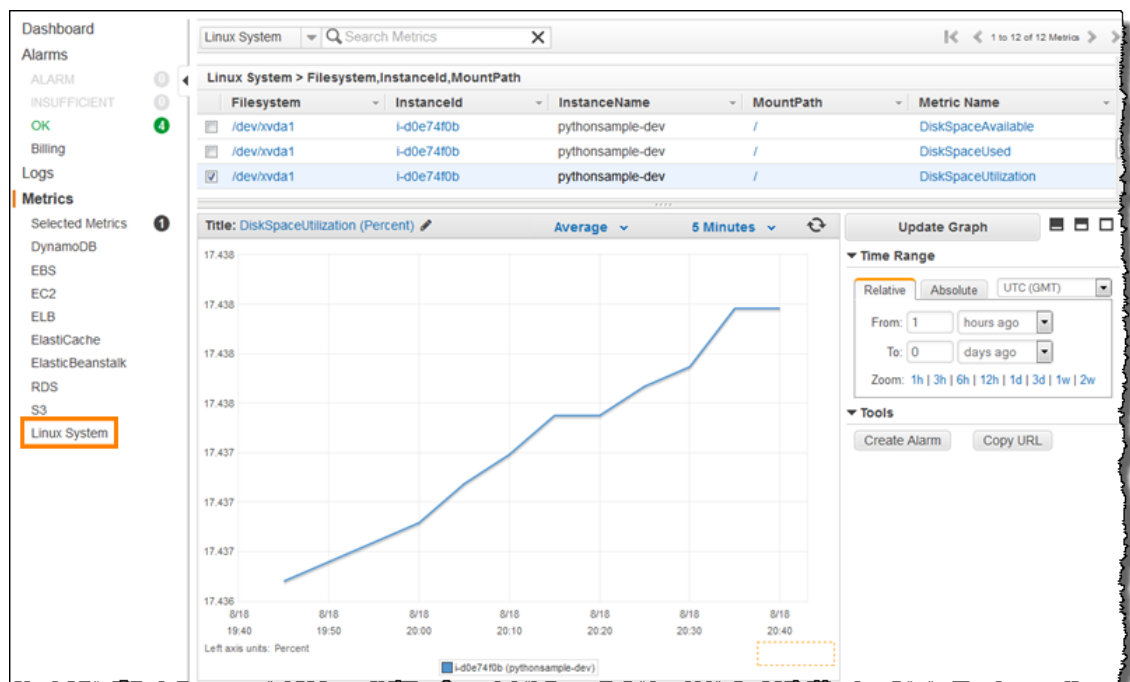
Copy and paste the following text into the policy document:

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "cloudwatch:PutMetricData",
 "ec2:DescribeTags"
],
 "Effect": "Allow",
 "Resource": [
 "*"
]
 }
]
}
```

For more information about managing policies, see [Working with Policies](#) in the *IAM User Guide*.

## Viewing Metrics in the CloudWatch Console

After deploying the CloudWatch configuration file to your environment, check the [Amazon CloudWatch console](#) to view your metrics. Custom metrics will have the prefix **Linux System**.



### Keys

- [Packages](#) (p. 184)
- [Groups](#) (p. 185)
- [Users](#) (p. 185)

- [Sources \(p. 186\)](#)
- [Files \(p. 186\)](#)
- [Commands \(p. 188\)](#)
- [Services \(p. 189\)](#)
- [Container Commands \(p. 190\)](#)

Keys are processed in the order that they are listed above.

## Packages

You can use the `packages` key to download and install prepackaged applications and components.

### Syntax

```
packages :
 name of package manager :
 package name : version
```

### Supported Package Formats

Elastic Beanstalk currently supports the following package managers: yum, rubygems, python, and rpm. Packages are processed in the following order: rpm, yum, and then rubygems and python. There is no ordering between rubygems and python, and packages within each package manager are not guaranteed to be installed in any order. Use a package manager supported by your operating system.

#### Note

Elastic Beanstalk supports two underlying package managers for Python, pip and easy\_install. However, in the syntax of the configuration file, you must specify the package manager name as `python`. When you use a configuration file to specify a Python package manager, Elastic Beanstalk uses Python 2.6. If your application relies on a different version of Python, you can specify the packages to install in a `requirements.txt` file. For more information, see [Configuration Files \(p. 767\)](#).

### Specifying Versions

Within each package manager, each package is specified as a package name and a list of versions. The version can be a string, a list of versions, or an empty string or list. An empty string or list indicates that you want the latest version. For rpm manager, the version is specified as a path to a file on disk or a URL. Relative paths are not supported.

If you specify a version of a package, Elastic Beanstalk attempts to install that version even if a newer version of the package is already installed on the instance. If a newer version is already installed, the deployment fails. Some package managers support multiple versions, but others may not. Please check the documentation for your package manager for more information. If you do not specify a version and a version of the package is already installed, Elastic Beanstalk does not install a new version—it assumes that you want to keep and use the existing version.

### Example Snippet

The following snippet specifies a version URL for rpm, requests the latest version from yum, and version 0.10.2 of chef from rubygems.

```
packages :
 yum :
```

```
libmemcached: []
ruby-devel: []
gcc: []
rpm:
 epel: http://download.fedoraproject.org/pub/epel/5/i386/epel-
release-5-4.noarch.rpm
rubygems:
 chef: '0.10.2'
```

## Groups

You can use the `groups` key to create Linux/UNIX groups and to assign group IDs. To create a group, add a new key-value pair that maps a new group name to an optional group ID. The groups key can contain one or more group names. The following table lists the available keys.

### Syntax

```
groups:
 name of group: {}
 name of group:
 gid: "group id"
```

### Options

`gid`

A group ID number.

If a group ID is specified, and the group already exists by name, the group creation will fail. If another group has the specified group ID, the operating system may reject the group creation.

### Example Snippet

The following snippet specifies a group named `groupOne` without assigning a group ID and a group named `groupTwo` that specified a group ID value of 45.

```
groups:
 groupOne: {}
 groupTwo:
 gid: "45"
```

## Users

You can use the `users` key to create Linux/UNIX users on the EC2 instance.

### Syntax

```
users:
 name of user:
 groups:
 - name of group
 uid: "id of the user"
 homeDir: "user's home directory"
```

## Options

`uid`

A user ID. The creation process fails if the user name exists with a different user ID. If the user ID is already assigned to an existing user, the operating system may reject the creation request.

`groups`

A list of group names. The user is added to each group in the list.

`homeDir`

The user's home directory.

Users are created as noninteractive system users with a shell of `/sbin/nologin`. This is by design and cannot be modified.

## Example Snippet

```
users:
 myuser:
 groups:
 - group1
 - group2
 uid: "50"
 homeDir: "/tmp"
```

## Sources

You can use the `sources` key to download an archive file from a public URL and unpack it in a target directory on the EC2 instance.

## Syntax

```
sources:
 target directory: location of archive file
```

## Supported Formats

Supported formats are tar, tar+gzip, tar+bz2, and zip. You can reference external locations such as Amazon Simple Storage Service (Amazon S3) (e.g., `http://s3.amazonaws.com/mybucket/myobject`) as long as the URL is publically accessible.

## Example Snippet

The following example downloads a public .zip file from an Amazon S3 bucket and unpacks it into `/etc/myapp`:

```
sources:
 /etc/myapp: http://s3.amazonaws.com/mybucket/myobject
```

## Files

You can use the `files` key to create files on the EC2 instance. The content can be either inline in the configuration file, or the content can be pulled from a URL. The files are written to disk in lexicographic order.



You can use the `files` key to download private files from Amazon S3 by providing an instance profile for authorization.

## Syntax

```
files:
 "target file location on disk":
 mode: "six-digit octal value"
 owner: name of owning user for file
 group: name of owning group for file
 source: URL
 authentication: authentication name:

 "target file location on disk":
 mode: "six-digit octal value"
 owner: name of owning user for file
 group: name of owning group for file
 content: |
 this is my content
 encoding: encoding format
 authentication: authentication name:
```

## Options

### content

String content to add to the file. Specify either `content` or `source`, but not both.

### source

URL of a file to download. Specify either `content` or `source`, but not both.

### encoding

The encoding format of the string specified with the `content` option.

Valid values: `plain` | `base64`

### group

Linux group that owns the file.

### owner

Linux user that owns the file.

### mode

A six-digit octal value representing the mode for this file (e.g, `000444`). The first three digits are used for symlinks and the last three digits are used for setting permissions on the file.

### authentication

The name of a [AWS CloudFormation authentication method](#) to use. You can add authentication methods to the autoscaling group metadata with the `Resources` key. See below for an example.

## Example Snippet

```
files:
 "/home/ec2-user/myfile" :
 mode: "000755"
 owner: root
 group: root
 source: http://foo.bar/myfile

 "/home/ec2-user/myfile2" :
 mode: "000755"
```

```
owner: root
group: root
content: |
 # this is my file
 # with content
```

Example using a symlink. This creates a link `/tmp/myfile2.txt` that points at the existing file `/tmp/myfile1.txt`.

```
files:
 "/tmp/myfile2.txt" :
 mode: "120400"
 content: "/tmp/myfile1.txt"
```

The following example uses the `Resources` key to add an authentication method named `S3Auth` and uses it to download a private file from an Amazon S3 bucket:

```
Resources:
 AWSEBAutoScalingGroup:
 Metadata:
 AWS::CloudFormation::Authentication:
 S3Auth:
 type: "s3"
 buckets: ["elasticbeanstalk-us-west-2-123456789012"]
 roleName:
 Fn::GetOptionSetting:
 Namespace: "aws:autoscaling:launchconfiguration"
 OptionName: "IamInstanceProfile"
 DefaultValue: "aws-elasticbeanstalk-ec2-role"

files:
 "/tmp/data.json" :
 mode: "000755"
 owner: root
 group: root
 authentication: "S3Auth"
 source: https://s3-us-west-2.amazonaws.com/elasticbeanstalk-us-west-2-123456789012/data.json
```

## Commands

You can use the `commands` key to execute commands on the EC2 instance. The commands are processed in alphabetical order by name, and they run before the application and web server are set up and the application version file is extracted.

By default, commands run in the root directory. To run commands from another directory, use the `cwd` option.

## Syntax

```
commands:
 command name:
 command: command to run
 cwd: working directory
 env:
```

```
variable name: variable value
test: conditions for command
ignoreErrors: true
```

## Options

### command

Either an array or a string specifying the command to run. If you use an array, you do not need to escape space characters or enclose command parameters in quotes.

### env

(Optional) Sets environment variables for the command. This property overwrites, rather than appends, the existing environment.

### cwd

(Optional) The working directory. If not specified, commands run from the root directory (/).

### test

(Optional) A command that must return the value `true` (exit code 0) in order for Elastic Beanstalk to process the command (e.g., a bash script) contained in the `command` key.

### ignoreErrors

(Optional) A boolean value that determines if other commands should run if the command contained in the `command` key fails (returns a nonzero value). Set this value to `true` if you want to continue running commands even if the command fails. Set it to `false` if you want to stop running commands if the command fails. The default value is `false`.

## Example Snippet

The following example snippet runs a python script.

```
commands:
 python_install:
 command: myscript.py
 cwd: /home/ec2-user
 env:
 myvarname: myvarvalue
 test: "[! -x /usr/bin/python]"
```

## Services

You can use the `services` key to define which services should be started or stopped when the instance is launched. The `services` key also allows you to specify dependencies on sources, packages, and files so that if a restart is needed due to files being installed, Elastic Beanstalk takes care of the service restart.

## Syntax

```
services:
 sysvinit:
 name of service:
 enabled: true
 ensureRunning: true
 files: "file name"
 sources: "directory"
 packages:
 name of package manager:
```

```
package name: version
commands:
 name of command
```

## Options

### ensureRunning

Set to `true` to ensure that the service is running after Elastic Beanstalk finishes.

Set to `false` to ensure that the service is not running after Elastic Beanstalk finishes.

Omit this key to make no changes to the service state.

### enabled

Set to `true` to ensure that the service is started automatically upon boot.

Set to `false` to ensure that the service is not started automatically upon boot.

Omit this key to make no changes to this property.

### files

A list of files. If Elastic Beanstalk changes one directly via the files block, the service is restarted.

### sources

A list of directories. If Elastic Beanstalk expands an archive into one of these directories, the service is restarted.

### packages

A map of the package manager to a list of package names. If Elastic Beanstalk installs or updates one of these packages, the service is restarted.

### commands

A list of command names. If Elastic Beanstalk runs the specified command, the service is restarted.

## Example Snippet

The following is an example snippet:

```
services:
 sysvinit:
 myservice:
 enabled: true
 ensureRunning: true
```

## Container Commands

You can use the `container_commands` key to execute commands that affect your application source code. Container commands run after the application and web server have been set up and the application version archive has been extracted, but before the application version is deployed. Non-container commands and other customization operations are performed prior to the application source code being extracted.

Container commands are run from the staging directory, where your source code is extracted prior to being deployed to the application server. Any changes you make to your source code in the staging directory with a container command will be included when the source is deployed to its final location.

You can use `leader_only` to only run the command on a single instance, or configure a `test` to only run the command when a test command evaluates to `true`. Leader-only container commands

are only executed during environment creation and deployments, while other commands and server customization operations are performed every time an instance is provisioned or updated.

## Syntax

```
container_commands:
 name of container_command:
 command: "command to run"
 leader_only: true
 name of container_command:
 command: "command to run"
```

## Options

### command

A string or array of strings to run.

### env

(Optional) Set environment variables prior to running the command, overriding any existing value.

### cwd

(Optional) The working directory. By default, this is the staging directory of the unzipped application.

### leader\_only

(Optional) Only run the command on a single instance chosen by Elastic Beanstalk. Leader-only container commands are run before other container commands. A command can be leader-only or have a `test`, but not both (`leader_only` takes precedence).

### test

(Optional) Run a test command that must return the `true` in order to run the container command. A command can be leader-only or have a `test`, but not both (`leader_only` takes precedence).

### ignoreErrors

(Optional) Do not fail deployments if the container command returns a value other than 0 (success). Set to `true` to enable.

## Example Snippet

The following is an example snippet.

```
container_commands:
 collectstatic:
 command: "django-admin.py collectstatic --noinput"
 01syncdb:
 command: "django-admin.py syncdb --noinput"
 leader_only: true
 02migrate:
 command: "django-admin.py migrate"
 leader_only: true
 99customize:
 command: "scripts/customize.sh"
```

## Customizing Software on Windows Servers

You may want to customize and configure the software that your application depends on. These files could be either dependencies required by the application—for example, additional packages

or services that need to be run. For general information on customizing and configuring your Elastic Beanstalk environments, see [AWS Elastic Beanstalk Environment Configuration \(p. 130\)](#).

When creating configuration files, we recommend you use an editor other than Visual Studio since configuration files require spaces instead of tabs.

Configuration files support the following keys that affect the Windows server your application runs on.

#### Keys

- [Packages \(p. 192\)](#)
- [Sources \(p. 193\)](#)
- [Files \(p. 193\)](#)
- [Commands \(p. 194\)](#)
- [Services \(p. 195\)](#)
- [Container Commands \(p. 196\)](#)

Keys are processed in the order that they are listed above.

#### Note

Older (non-versioned) versions of .NET platform configurations do not process configuration files in the correct order. See [Migrating to v1 Elastic Beanstalk Windows Server Platforms \(p. 636\)](#) for more information.

## Packages

You can use the `packages` key to download and install prepackaged applications and components.

### Syntax

```
packages:
 name of package manager:
 package name: version
```

### Supported Package Formats

Elastic Beanstalk currently supports MSI packages.

### Specifying Versions

Within the package manager, the package is specified as a package name and a URL to the software.

Elastic Beanstalk attempts to install the specified version even if a newer version of the package is already installed on the instance. Some package managers support this, but others may not. Please check the documentation for your package manager for more information. If you specify a version that is already installed, the deployment fails.

### Example Snippet

The following snippet specifies a URL to download mysql.

```
packages:
 msi:
 mysql: http://dev.mysql.com/get/Downloads/Connector-Net/mysql-connector-
net-6.6.5.msi/from/http://cdn.mysql.com/
```

## Sources

You can use the `sources` key to download an archive file from a public URL and unpack it in a target directory on the EC2 instance.

### Syntax

```
sources:
 target directory: location of archive file
```

### Supported Formats

Elastic Beanstalk currently supports .zip format. You can reference external locations such as Amazon Simple Storage Service (Amazon S3) (e.g., `http://s3.amazonaws.com/mybucket/myobject`) as long as the URL is publically accessible.

### Example Snippet

The following example downloads a public .zip file from an Amazon S3 bucket and unpacks it into `c:/myproject/myapp`:

```
sources:
 "c:/myproject/myapp": http://s3.amazonaws.com/mybucket/myobject.zip
```

## Files

You can use the `files` key to create files on the EC2 instance. The content can be either inline in the configuration file, or the content can be pulled from a URL. The files are written to disk in lexicographic order.

You can use the `files` key to download private files from Amazon S3 by providing an instance profile for authorization.

### Syntax

```
files:
 "target file location on disk":
 source: URL
 authentication: authentication name:

 "target file location on disk":
 content: |
 this is my content
 encoding: encoding format
 authentication: authentication name:
```

### Options

`content`  
A string.

`source`  
A URL to load the file from. This option cannot be specified with the `content` key.

`encoding`  
The encoding format. Only used if the content is a string. Encoding is not applied if you are using a `source`.

Valid values: `plain` | `base64`

`authentication`

The name of a [AWS CloudFormation authentication method](#) to use. You can add authentication methods to the autoscaling group metadata with the `Resources` key.

## Example Snippet

```
files:
 "c:\\targetdirectory\\targetfile.txt":
 source: http://foo.bar/myfile

 "c:/targetdirectory/targetfile.txt":
 content: |
 # this is my file
 # with content
```

### Note

If you use a backslash (`\`) in your file path, you must precede that with the escape character (`\\`) as shown in the example.

## Commands

You can use the `commands` key to execute commands on the EC2 instance. The commands are processed in alphabetical order by name, and they run before the application and web server are set up and the application version file is extracted.

## Syntax

```
commands:
 command name:
 command: command to run
 cwd: working directory
 env:
 variable name: variable value
 ignoreErrors: true
 waitAfterCompletion: number of seconds
```

## Options

`command`

Required. Either an array or a string specifying the command to run. If you use an array, you do not need to escape space characters or enclose command parameters in quotes.

`cwd`

Optional. The working directory. By default, Elastic Beanstalk attempts to find the directory location of your project. If not found, it uses `"c:\Windows\System32"` as the default.

`env`

Optional. Sets environment variables for the command. This property overwrites, rather than appends, the existing environment.

`ignoreErrors`

Optional. A boolean value that determines if other commands should run if the command contained in the `command` key fails (returns a nonzero value). Set this value to `true` if you want to continue running commands even if the command fails. Set it to `false` if you want to stop running commands if the command fails. The default value is `false`.



`test`

Optional. A command that must return the value `true` (exit code 0) in order for Elastic Beanstalk to process the command contained in the `command` key.

`waitAfterCompletion`

Optional. Seconds to wait after the command completes before running the next command. If the system requires a reboot after the command completes, the system reboots after the specified number of seconds elapses. If the system reboots as a result of a command, Elastic Beanstalk will recover. The default value is 60 seconds. You can also specify `forever`, but the system must reboot before you can run another command.

## Example Snippet

The following example snippet runs a command to copy the set values that are currently defined to the specified file. Elastic Beanstalk would run the next command, if there were one, immediately after the command completes. Or, if the command required a reboot, the system would reboot immediately after the command completes.

```
commands:
 test:
 command: set > c:\\myapp\\set.txt
 waitAfterCompletion: 0
```

## Services

You can use the `services` key to define which services should be started or stopped when the instance is launched. The `services` key also allows you to specify dependencies on sources, packages, and files so that if a restart is needed due to files being installed, Elastic Beanstalk takes care of the service restart.

## Syntax

```
services:
 windows:
 name of service:
 enabled: true
 ensureRunning: true
 files: "file name"
 sources: "directory"
 packages:
 name of package manager:
 package name: version
 commands:
 name of command:
```

## Options

`ensureRunning`

Set to `true` to ensure that the service is running after Elastic Beanstalk finishes.

Set to `false` to ensure that the service is not running after Elastic Beanstalk finishes.

Omit this key to make no changes to the service state.

`enabled`

Set to `true` to ensure that the service is started automatically upon boot.

Set to `false` to ensure that the service is not started automatically upon boot.

Omit this key to make no changes to this property.

**files**

A list of files. If Elastic Beanstalk changes one directly via the files block, the service is restarted.

**sources**

A list of directories. If Elastic Beanstalk expands an archive into one of these directories, the service is restarted.

**packages**

A map of the package manager to a list of package names. If Elastic Beanstalk installs or updates one of these packages, the service is restarted.

**commands**

A list of command names. If Elastic Beanstalk runs the specified command, the service is restarted.

## Example Snippet

The following is an example snippet:

```
services:
 windows:
 myservice:
 enabled: true
 ensureRunning: true
```

## Container Commands

You can use the `container_commands` key to execute commands that affect your application source code. Container commands run after the application and web server have been set up and the application version archive has been extracted, but before the application version is deployed. Non-container commands and other customization operations are performed prior to the application source code being extracted.

Container commands are run from the staging directory, where your source code is extracted prior to being deployed to the application server. Any changes you make to your source code in the staging directory with a container command will be included when the source is deployed to its final location.

You can use `leader_only` to only run the command on a single instance, or configure a `test` to only run the command when a test command evaluates to `true`. Leader-only container commands are only executed during environment creation and deployments, while other commands and server customization operations are performed every time an instance is provisioned or updated.

## Syntax

```
container_commands:
 name of container_command:
 command: command to run
 leader_only: true
 name of container_command:
 command: command to run
```

## Options

**command**

A string or array of strings to run.

**env**

(Optional) Set environment variables prior to running the command, overriding any existing value.

- `cwd`  
(Optional) The working directory. By default, this is the staging directory of the unzipped application.
- `leader_only`  
(Optional) Only run the command on a single instance chosen by Elastic Beanstalk. Leader-only container commands are run before other container commands. A command can be leader-only or have a `test`, but not both (`leader_only` takes precedence).
- `test`  
(Optional) Run a test command that must return the `true` in order to run the container command. A command can be leader-only or have a `test`, but not both (`leader_only` takes precedence).
- `ignoreErrors`  
(Optional) Do not fail deployments if the container command returns a value other than 0 (success). Set to `true` to enable.

## Example Snippet

The following is an example that runs a command to copy the set values that are currently defined to the specified file. It will only run the command on one instance, and it will reboot immediately after the command completes.

```
container_commands:
 foo:
 command: set > c:\myapp\set.txt
 leader_only: true
 waitAfterCompletion: 0
```

## Adding and Customizing Elastic Beanstalk Environment Resources

You may also want to customize your environment resources that are part of your Elastic Beanstalk environment. For example, you may want to add an Amazon SQS queue and an alarm on queue depth, or you might want to add an Amazon ElastiCache cluster. You can easily customize your environment at the same time that you deploy your application version by including a configuration file with your source bundle.

You can use the `Resources` key in a [configuration file \(p. 178\)](#) to create and customize AWS resources in your environment. Resources defined in configuration files are added to the AWS CloudFormation template used to launch your environment. All AWS CloudFormation [resources types](#) are supported.

For example, the following configuration file adds an Auto Scaling lifecycle hook to the default Auto Scaling group created by Elastic Beanstalk:

`~/my-app/.ebextensions/as-hook.config`

```
Resources:
 hookrole:
 Type: AWS::IAM::Role
 Properties:
 AssumeRolePolicyDocument: {
 "Version" : "2012-10-17",
 "Statement": [{
 "Effect": "Allow",
 "Principal": {
 "Service": ["autoscaling.amazonaws.com"]
```

```

 },
 "Action": ["sts:AssumeRole"]
 }]
}
Policies: [{
 "PolicyName": "SNS",
 "PolicyDocument": {
 "Version": "2012-10-17",
 "Statement": [{
 "Effect": "Allow",
 "Resource": "*",
 "Action": [
 "sqs:SendMessage",
 "sqs:GetQueueUrl",
 "sns:Publish"
]
 }]
 }
}]
hooktopic:
 Type: AWS::SNS::Topic
 Properties:
 Subscription:
 - Endpoint: "my-email@example.com"
 Protocol: email
lifecyclehook:
 Type: AWS::AutoScaling::LifecycleHook
 Properties:
 AutoScalingGroupName: { "Ref" : "AWSEBAutoScalingGroup" }
 LifecycleTransition: autoscaling:EC2_INSTANCE_TERMINATING
 NotificationTargetARN: { "Ref" : "hooktopic" }
 RoleARN: { "Fn::GetAtt" : ["hookrole", "Arn"] }

```

This example defines three resources, `hookrole`, `hooktopic` and `lifecyclehook`. The first two resources are an IAM role, which grants Auto Scaling permission to publish messages to Amazon SNS, and an SNS topic, which relays messages from the Auto Scaling group to an email address. Elastic Beanstalk creates these resources with the specified properties and types.

The final resource, `lifecyclehook`, is the lifecycle hook itself:

```

lifecyclehook:
 Type: AWS::AutoScaling::LifecycleHook
 Properties:
 AutoScalingGroupName: { "Ref" : "AWSEBAutoScalingGroup" }
 LifecycleTransition: autoscaling:EC2_INSTANCE_TERMINATING
 NotificationTargetARN: { "Ref" : "hooktopic" }
 RoleARN: { "Fn::GetAtt" : ["hookrole", "Arn"] }

```

The lifecycle hook definition uses a few [intrinsic functions](#) to populate values for the hook's properties. `{ "Ref" : "AWSEBAutoScalingGroup" }` retrieves the name of the Auto Scaling group created by Elastic Beanstalk for the environment. `AWSEBAutoScalingGroup` is one of the standard [resource names](#) (p. 212) provided by Elastic Beanstalk.

For `AWS::IAM::Role`, `Ref` only returns the name of the role, not the ARN. To get the ARN for the `RoleARN` parameter, you use another intrinsic function, `Fn::GetAtt` instead, which can get any attribute from a resource. `RoleARN: { "Fn::GetAtt" : [ "hookrole", "Arn" ] }` gets the `Arn` attribute from the `hookrole` resource.

`{ "Ref" : "hooktopic" }` gets the ARN of the Amazon SNS topic created earlier in the configuration file. The value returned by `Ref` varies per resource type and can be found in the AWS CloudFormation User Guide [topic for the AWS::SNS::Topic resource type](#).

## Example Snippets: ElastiCache

The following samples add an Amazon ElastiCache cluster to EC2-Classic and EC2-VPC (both default and custom VPC) platforms. For more information about these platforms and how you can determine which ones EC2 supports for your region and your AWS account, see <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-supported-platforms.html>. Then refer to the section in this topic that applies to your platform.

- [EC2-Classic Platforms](#) (p. 199)
- [EC2-VPC \(Default\)](#) (p. 200)
- [EC2-VPC \(Custom\)](#) (p. 202)

### EC2-Classic Platforms

This sample adds an Amazon ElastiCache cluster to an environment with instances launched into the EC2-Classic platform. All of the properties that are listed in this example are the minimum required properties that must be set for each resource type. You can download the example at [ElastiCache Example](#).

#### Note

This example creates AWS resources, which you may be charged for. For more information about AWS pricing, go to <http://aws.amazon.com/pricing/>. Some services are part of the AWS Free Usage Tier. If you are a new customer, you may test drive these services for free. Go to <http://aws.amazon.com/free/> for more information.

To use this example, do the following:

1. Create an `.ebextensions` directory in the top-level directory of your source bundle.
2. Create two configuration files with the `.config` extension and place them in your `.ebextensions` directory. One configuration file defines the resources, and the other configuration file defines the options.
3. Deploy your application to Elastic Beanstalk.

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

Create a configuration file (e.g., `elasticache.config`) that defines the resources. In this example, we create the ElastiCache cluster by specifying the name of the ElastiCache cluster resource (`MyElastiCache`), declaring its type, and then configuring the properties for the cluster. The example references the name of the ElastiCache security group resource that gets created and defined in this configuration file. Next, we create an ElastiCache security group. We define the name for this resource, declare its type, and add a description for the security group. Finally, we set the ingress rules for the ElastiCache security group to allow access only from instances inside the ElastiCache security group (`MyCacheSecurityGroup`) and the Elastic Beanstalk security group (`AWSEBSecurityGroup`). The parameter name, `AWSEBSecurityGroup`, is a fixed resource name provided by Elastic Beanstalk. You must add `AWSEBSecurityGroup` to your ElastiCache security group ingress rules in order for your Elastic Beanstalk application to connect to the instances in your ElastiCache cluster.

```
#This sample requires you to create a separate configuration file that
defines the custom option settings for CacheCluster properties.
```

```
Resources:
 MyElasticCache:
 Type: AWS::ElasticCache::CacheCluster
 Properties:
 CacheNodeType:
 Fn::GetOptionSetting:
 OptionName : CacheNodeType
 DefaultValue: cache.m1.small
 NumCacheNodes:
 Fn::GetOptionSetting:
 OptionName : NumCacheNodes
 DefaultValue: 1
 Engine:
 Fn::GetOptionSetting:
 OptionName : Engine
 DefaultValue: memcached
 CacheSecurityGroupNames:
 - Ref: MyCacheSecurityGroup
 MyCacheSecurityGroup:
 Type: AWS::ElasticCache::SecurityGroup
 Properties:
 Description: "Lock cache down to webserver access only"
 MyCacheSecurityGroupIngress:
 Type: AWS::ElasticCache::SecurityGroupIngress
 Properties:
 CacheSecurityGroupName:
 Ref: MyCacheSecurityGroup
 EC2SecurityGroupName:
 Ref: AWSEBSecurityGroup
```

For more information about the resources used in this example configuration file, see the following references:

- [AWS::ElasticCache::CacheCluster](#)
- [AWS::ElasticCache::SecurityGroup](#)
- [AWS::ElasticCache:SecurityGroupIngress](#)

Create a separate configuration file called `options.config` and define the custom option settings.

```
option_settings:
 "aws:elasticbeanstalk:customoption":
 CacheNodeType : cache.m1.small
 NumCacheNodes : 1
 Engine : memcached
```

These lines tell Elastic Beanstalk to get the values for the **CacheNodeType**, **NumCacheNodes**, and **Engine** properties from the **CacheNodeType**, **NumCacheNodes**, and **Engine** values in a config file (`options.config` in our example) that contains an `option_settings` section with an **aws:elasticbeanstalk:customoption** section that contains a name-value pair that contains the actual value to use. In the example above, this means `cache.m1.small`, `1`, and `memcached` would be used for the values. For more information about `Fn::GetOptionSetting`, see [Functions \(p. 214\)](#).

## EC2-VPC (Default)

This sample adds an Amazon ElastiCache cluster to an environment with instances launched into the EC2-VPC platform. Specifically, the information in this section applies to a scenario where EC2

launches instances into the default VPC. All of the properties in this example are the minimum required properties that must be set for each resource type. For more information about default VPCs, see [Your Default VPC and Subnets](#).

**Note**

This example creates AWS resources, which you may be charged for. For more information about AWS pricing, go to <http://aws.amazon.com/pricing/>. Some services are part of the AWS Free Usage Tier. If you are a new customer, you may test drive these services for free. Go to <http://aws.amazon.com/free/> for more information.

To use this example, do the following:

1. Create an `.ebextensions` directory in the top-level directory of your source bundle.
2. Create two configuration files with the `.config` extension and place them in your `.ebextensions` directory. One configuration file defines the resources, and the other configuration file defines the options.
3. Deploy your application to Elastic Beanstalk.

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

Now name the resources configuration file `elasticache.config`. To create the ElastiCache cluster, this example specifies the name of the ElastiCache cluster resource (`MyElastiCache`), declares its type, and then configures the properties for the cluster. The example references the ID of the security group resource that we create and define in this configuration file.

Next, we create an EC2 security group. We define the name for this resource, declare its type, add a description, and set the ingress rules for the security group to allow access only from instances inside the Elastic Beanstalk security group (`AWSEBSecurityGroup`). (The parameter name, `AWSEBSecurityGroup`, is a fixed resource name provided by Elastic Beanstalk. You must add `AWSEBSecurityGroup` to your ElastiCache security group ingress rules in order for your Elastic Beanstalk application to connect to the instances in your ElastiCache cluster.)

The ingress rules for the EC2 security group also define the IP protocol and port numbers on which the cache nodes can accept connections. For Redis, the default port number is 6379.

```
#This sample requires you to create a separate configuration file that
defines the custom option settings for CacheCluster properties.
```

```
Resources:
 MyCacheSecurityGroup:
 Type: "AWS::EC2::SecurityGroup"
 Properties:
 GroupDescription: "Lock cache down to webserver access only"
 SecurityGroupIngress :
 - IpProtocol : "tcp"
 FromPort :
 Fn::GetOptionSetting:
 OptionName : "CachePort"
 DefaultValue: "6379"
 ToPort :
 Fn::GetOptionSetting:
 OptionName : "CachePort"
 DefaultValue: "6379"
 SourceSecurityGroupName:
 Ref: "AWSEBSecurityGroup"
 MyElastiCache:
```

```

Type: "AWS::ElastiCache::CacheCluster"
Properties:
 CacheNodeType:
 Fn::GetOptionSetting:
 OptionName : "CacheNodeType"
 DefaultValue : "cache.t1.micro"
 NumCacheNodes:
 Fn::GetOptionSetting:
 OptionName : "NumCacheNodes"
 DefaultValue : "1"
 Engine:
 Fn::GetOptionSetting:
 OptionName : "Engine"
 DefaultValue : "redis"
 VpcSecurityGroupIds:
 -
 Fn::GetAtt:
 - MyCacheSecurityGroup
 - GroupId

Outputs:
 ElastiCache:
 Description : "ID of ElastiCache Cache Cluster with Redis Engine"
 Value :
 Ref : "MyElastiCache"

```

For more information about the resources used in this example configuration file, see the following references:

- [AWS::ElastiCache::CacheCluster](#)
- [AWS::EC2::SecurityGroup](#)

Next, name the options configuration file `options.config` and define the custom option settings.

```

option_settings:
 "aws:elasticbeanstalk:customoption":
 CacheNodeType : cache.t1.micro
 NumCacheNodes : 1
 Engine : redis
 CachePort : 6379

```

These lines tell Elastic Beanstalk to get the values for the `CacheNodeType`, `NumCacheNodes`, `Engine`, and `CachePort` properties from the `CacheNodeType`, `NumCacheNodes`, `Engine`, and `CachePort` values in a config file (`options.config` in our example). That file includes an `aws:elasticbeanstalk:customoption` section (under `option_settings`) that contains name-value pairs with the actual values to use. In the preceding example, `cache.t1.micro`, `1`, `redis`, and `6379` would be used for the values. For more information about `Fn::GetOptionSetting`, see [Functions](#) (p. 214).

## EC2-VPC (Custom)

If you create a custom VPC on the EC2-VPC platform and specify it as the VPC into which EC2 launches instances, the process of adding an Amazon ElastiCache cluster to your environment differs from that of a default VPC. The main difference is that you must create a subnet group for the ElastiCache cluster. All of the properties in this example are the minimum required properties that must be set for each resource type.



**Note**

This example creates AWS resources, which you may be charged for. For more information about AWS pricing, go to <http://aws.amazon.com/pricing/>. Some services are part of the AWS Free Usage Tier. If you are a new customer, you may test drive these services for free. Go to <http://aws.amazon.com/free/> for more information.

To use this example, do the following:

1. Create an `.ebextensions` directory in the top-level directory of your source bundle.
2. Create two configuration files with the `.config` extension and place them in your `.ebextensions` directory. One configuration file defines the resources, and the other configuration file defines the options.
3. Deploy your application to Elastic Beanstalk.

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

Now name the resources configuration file `elasticache.config`. To create the ElastiCache cluster, this example specifies the name of the ElastiCache cluster resource (`MyElasticache`), declares its type, and then configures the properties for the cluster. The properties in the example reference the name of the subnet group for the ElastiCache cluster as well as the ID of security group resource that we create and define in this configuration file.

Next, we create an EC2 security group. We define the name for this resource, declare its type, add a description, the VPC ID, and set the ingress rules for the security group to allow access only from instances inside the Elastic Beanstalk security group (`AWSEBSecurityGroup`). (The parameter name, `AWSEBSecurityGroup`, is a fixed resource name provided by Elastic Beanstalk. You must add `AWSEBSecurityGroup` to your ElastiCache security group ingress rules in order for your Elastic Beanstalk application to connect to the instances in your ElastiCache cluster.)

The ingress rules for the EC2 security group also define the IP protocol and port numbers on which the cache nodes can accept connections. For Redis, the default port number is `6379`. Finally, this example creates a subnet group for the ElastiCache cluster. We define the name for this resource, declare its type, and add a description and ID of the subnet in the subnet group.

**Note**

We recommend that you use private subnets for the ElastiCache cluster. For more information about a VPC with a private subnet, see [http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC\\_Scenario2.html](http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Scenario2.html).

```
#This sample requires you to create a separate configuration file that
defines the custom option settings for CacheCluster properties.
```

```
Resources:
 MyElasticache:
 Type: "AWS::Elasticache::CacheCluster"
 Properties:
 CacheNodeType:
 Fn::GetOptionSetting:
 OptionName : "CacheNodeType"
 DefaultValue : "cache.t1.micro"
 NumCacheNodes:
 Fn::GetOptionSetting:
 OptionName : "NumCacheNodes"
 DefaultValue : "1"
 Engine:
 Fn::GetOptionSetting:
```

```

 OptionName : "Engine"
 DefaultValue : "redis"
 CacheSubnetGroupName:
 Ref: "MyCacheSubnets"
 VpcSecurityGroupIds:
 - Ref: "MyCacheSecurityGroup"
MyCacheSecurityGroup:
 Type: "AWS::EC2::SecurityGroup"
 Properties:
 GroupDescription: "Lock cache down to webserver access only"
 VpcId:
 Fn::GetOptionSetting:
 OptionName : "VpcId"
 SecurityGroupIngress :
 - IpProtocol : "tcp"
 FromPort :
 Fn::GetOptionSetting:
 OptionName : "CachePort"
 DefaultValue: "6379"
 ToPort :
 Fn::GetOptionSetting:
 OptionName : "CachePort"
 DefaultValue: "6379"
 SourceSecurityGroupId:
 Ref: "AWSEBSecurityGroup"
MyCacheSubnets:
 Type: "AWS::ElastiCache::SubnetGroup"
 Properties:
 Description: "Subnets for ElastiCache"
 SubnetIds:
 Fn::GetOptionSetting:
 OptionName : "CacheSubnets"
Outputs:
 ElastiCache:
 Description : "ID of ElastiCache Cache Cluster with Redis Engine"
 Value :
 Ref : "MyElastiCache"

```

For more information about the resources used in this example configuration file, see the following references:

- [AWS::ElastiCache::CacheCluster](#)
- [AWS::EC2::SecurityGroup](#)
- [AWS::ElastiCache::SubnetGroup](#)

Next, name the options configuration file `options.config` and define the custom option settings.

**Note**

In the following example, replace the example `CacheSubnets` and `VpcId` values with your own subnets and VPC.

```

option_settings:
 "aws:elasticbeanstalk:customoption":
 CacheNodeType : cache.t1.micro
 NumCacheNodes : 1
 Engine : redis
 CachePort : 6379
 CacheSubnets:

```

```
- subnet-1a1a1a1a
- subnet-2b2b2b2b
- subnet-3c3c3c3c
VpcId: vpc-4d4d4d4d
```

These lines tell Elastic Beanstalk to get the values for the `CacheNodeType`, `NumCacheNodes`, `Engine`, `CachePort`, `CacheSubnets`, and `VpcId` properties from the `CacheNodeType`, `NumCacheNodes`, `Engine`, `CachePort`, `CacheSubnets`, and `VpcId` values in a config file (`options.config` in our example). That file includes an `aws:elasticbeanstalk:customoption` section (under `options_settings`) that contains name-value pairs with sample values. In the example above, `cache.t1.micro`, `1`, `redis`, `6379`, `subnet-1a1a1a1a`, `subnet-2b2b2b2b`, `subnet-3c3c3c3c`, and `vpc-4d4d4d4d` would be used for the values. For more information about `Fn::GetOptionSetting`, see [Functions](#) (p. 214).

## Example Snippet: SQS, CloudWatch, and SNS

This example adds an Amazon SQS queue and an alarm on queue depth to the environment. The properties that you see in this example are the minimum required properties that you must set for each of these resources. You can download the example at [SQS, SNS, and CloudWatch](#).

### Note

This example creates AWS resources, which you may be charged for. For more information about AWS pricing, go to <http://aws.amazon.com/pricing/>. Some services are part of the AWS Free Usage Tier. If you are a new customer, you may test drive these services for free. Go to <http://aws.amazon.com/free/> for more information.

To use this example, do the following:

1. Create an `.ebextensions` directory in the top-level directory of your source bundle.
2. Create two configuration files with the `.config` extension and place them in your `.ebextensions` directory. One configuration file defines the resources, and the other configuration file defines the options.
3. Deploy your application to Elastic Beanstalk.

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

Create a configuration file (e.g., `sqs.config`) that defines the resources. In this example, we create an SQS queue and define the `VisibilityTimeout` property in the `MySQSQueue` resource. Next, we create an SNS `Topic` and specify that email gets sent to `someone@example.com` when the alarm is fired. Finally, we create a CloudWatch alarm if the queue grows beyond 10 messages. In the `Dimensions` property, we specify the name of the dimension and the value representing the dimension measurement. We use `Fn::GetAtt` to return the value of `QueueName` from `MySQSQueue`.

```
#This sample requires you to create a separate configuration file to define
the custom options for the SNS topic and SQS queue.
Resources:
 MySQSQueue:
 Type: AWS::SQS::Queue
 Properties:
 VisibilityTimeout:
 Fn::GetOptionSetting:
 OptionName: VisibilityTimeout
 DefaultValue: 30
 AlarmTopic:
 Type: AWS::SNS::Topic
```

```

Properties:
 Subscription:
 - Endpoint:
 Fn::GetOptionSetting:
 OptionName: AlarmEmail
 DefaultValue: "nobody@amazon.com"
 Protocol: email
QueueDepthAlarm:
 Type: AWS::CloudWatch::Alarm
 Properties:
 AlarmDescription: "Alarm if queue depth grows beyond 10 messages"
 Namespace: "AWS/SQS"
 MetricName: ApproximateNumberOfMessagesVisible
 Dimensions:
 - Name: QueueName
 Value : { "Fn::GetAtt" : ["MySQSQueue", "QueueName"] }
 Statistic: Sum
 Period: 300
 EvaluationPeriods: 1
 Threshold: 10
 ComparisonOperator: GreaterThanThreshold
 AlarmActions:
 - Ref: AlarmTopic
 InsufficientDataActions:
 - Ref: AlarmTopic

Outputs :
 QueueURL:
 Description : "URL of newly created SQS Queue"
 Value : { Ref : "MySQSQueue" }
 QueueARN :
 Description : "ARN of newly created SQS Queue"
 Value : { "Fn::GetAtt" : ["MySQSQueue", "Arn"] }
 QueueName :
 Description : "Name newly created SQS Queue"
 Value : { "Fn::GetAtt" : ["MySQSQueue", "QueueName"] }

```

For more information about the resources used in this example configuration file, see the following references:

- [AWS::SQS::Queue](#)
- [AWS::SNS::Topic](#)
- [AWS::CloudWatch::Alarm](#)

Create a separate configuration file called `options.config` and define the custom option settings.

```

option_settings:
 "aws:elasticbeanstalk:customoption":
 VisibilityTimeout : 30
 AlarmEmail : "nobody@example.com"

```

These lines tell Elastic Beanstalk to get the values for the **VisibilityTimeout** and **Subscription Endpoint** properties from the **VisibilityTimeout** and **Subscription Endpoint** values in a config file (`options.config` in our example) that contains an `option_settings` section with an **aws:elasticbeanstalk:customoption** section that contains a name-value pair that contains the actual value to use. In the example above, this means 30 and "nobody@amazon.com" would be used for the values. For more information about `Fn::GetOptionSetting`, see [Functions \(p. 214\)](#)

## Example: DynamoDB, CloudWatch, and SNS

This configuration file sets up the DynamoDB table as a session handler for a PHP-based application using the AWS SDK for PHP 2. To use this example, you must have an IAM instance profile, which is added to the instances in your environment and used to access the DynamoDB table.

You can download the sample that we'll use in this step at [DynamoDB Session Support Example](#). The sample contains the following files:

- The sample application, `index.php`
- A configuration file, `dynamodb.config`, to create and configure a DynamoDB table and other AWS resources as well as install software on the EC2 instances that host the application in an Elastic Beanstalk environment
- An configuration file, `options.config`, that overrides the defaults in `dynamodb.config` with specific settings for this particular installation

### `index.php`

```
<?php

// Include the SDK using the Composer autoloader
require '../vendor/autoload.php';

use Aws\DynamoDb\DynamoDbClient;

// Grab the session table name and region from the configuration file
list($tableName, $region) = file(__DIR__ . '/../sessiontable');
$tableName = rtrim($tableName);
$region = rtrim($region);

// Create a DynamoDB client and register the table as the session handler
$dynamodb = DynamoDbClient::factory(array('region' => $region));
$handler = $dynamodb->registerSessionHandler(array('table_name' =>
 $tableName, 'hash_key' => 'username'));

// Grab the instance ID so we can display the EC2 instance that services the
request
$instanceId = file_get_contents("http://169.254.169.254/latest/meta-data/
instance-id");
?>
<h1>Elastic Beanstalk PHP Sessions Sample</h1>
<p>This sample application shows the integration of the Elastic Beanstalk PHP
container and the session support for DynamoDB from the AWS SDK for PHP 2.
Using DynamoDB session support, the application can be scaled out across
multiple web servers. For more details, see the
PHP Developer Center.</p>

<form id="SimpleForm" name="SimpleForm" method="post" action="index.php">
<?php
echo 'Request serviced from instance ' . $instanceId . '
';
echo '
';

if (isset($_POST['continue'])) {
 session_start();
 $_SESSION['visits'] = $_SESSION['visits'] + 1;
 echo 'Welcome back ' . $_SESSION['username'] . '
';
 echo 'This is visit number ' . $_SESSION['visits'] . '
';
}
```

```

 session_write_close();
 echo '
';
 echo '<input type="Submit" value="Refresh" name="continue" id="continue"/
>';
 echo '<input type="Submit" value="Delete Session" name="killsession"
id="killsession"/>';
} elseif (isset($_POST['killsession'])) {
 session_start();
 echo 'Goodbye ' . $_SESSION['username'] . '
';
 session_destroy();
 echo 'Username: <input type="text" name="username" id="username" size="30"/
>
';
 echo '
';
 echo '<input type="Submit" value="New Session" name="newsession"
id="newsession"/>';
} elseif (isset($_POST['newsession'])) {
 session_start();
 $_SESSION['username'] = $_POST['username'];
 $_SESSION['visits'] = 1;
 echo 'Welcome to a new session ' . $_SESSION['username'] . '
';
 session_write_close();
 echo '
';
 echo '<input type="Submit" value="Refresh" name="continue" id="continue"/
>';
 echo '<input type="Submit" value="Delete Session" name="killsession"
id="killsession"/>';
} else {
 echo 'To get started, enter a username.
';
 echo '
';
 echo 'Username: <input type="text" name="username" id="username" size="30"/
>
';
 echo '<input type="Submit" value="New Session" name="newsession"
id="newsession"/>';
}
?>
</form>

```

#### **.ebextensions/dynamodb.config**

```

Resources:
 SessionTable:
 Type: AWS::DynamoDB::Table
 Properties:
 KeySchema:
 HashKeyElement:
 AttributeName:
 Fn::GetOptionSetting:
 OptionName : SessionHashKeyName
 DefaultValue: "username"
 AttributeType:
 Fn::GetOptionSetting:
 OptionName : SessionHashKeyType
 DefaultValue: "S"
 ProvisionedThroughput:
 ReadCapacityUnits:
 Fn::GetOptionSetting:
 OptionName : SessionReadCapacityUnits
 DefaultValue: 1

```

```

 WriteCapacityUnits:
 Fn::GetOptionSetting:
 OptionName : SessionWriteCapacityUnits
 DefaultValue: 1

SessionWriteCapacityUnitsLimit:
 Type: AWS::CloudWatch::Alarm
 Properties:
 AlarmDescription: { "Fn::Join" : ["", [{ "Ref" :
"AWSEBEnvironmentName" }, " write capacity limit on the session table."]] }
 Namespace: "AWS/DynamoDB"
 MetricName: ConsumedWriteCapacityUnits
 Dimensions:
 - Name: TableName
 Value: { "Ref" : "SessionTable" }
 Statistic: Sum
 Period: 300
 EvaluationPeriods: 12
 Threshold:
 Fn::GetOptionSetting:
 OptionName : SessionWriteCapacityUnitsAlarmThreshold
 DefaultValue: 240
 ComparisonOperator: GreaterThanThreshold
 AlarmActions:
 - Ref: SessionAlarmTopic
 InsufficientDataActions:
 - Ref: SessionAlarmTopic

SessionReadCapacityUnitsLimit:
 Type: AWS::CloudWatch::Alarm
 Properties:
 AlarmDescription: { "Fn::Join" : ["", [{ "Ref" :
"AWSEBEnvironmentName" }, " read capacity limit on the session table."]] }
 Namespace: "AWS/DynamoDB"
 MetricName: ConsumedReadCapacityUnits
 Dimensions:
 - Name: TableName
 Value: { "Ref" : "SessionTable" }
 Statistic: Sum
 Period: 300
 EvaluationPeriods: 12
 Threshold:
 Fn::GetOptionSetting:
 OptionName : SessionReadCapacityUnitsAlarmThreshold
 DefaultValue: 240
 ComparisonOperator: GreaterThanThreshold
 AlarmActions:
 - Ref: SessionAlarmTopic
 InsufficientDataActions:
 - Ref: SessionAlarmTopic

SessionThrottledRequestsAlarm:
 Type: AWS::CloudWatch::Alarm
 Properties:
 AlarmDescription: { "Fn::Join" : ["", [{ "Ref" :
"AWSEBEnvironmentName" }, " : requests are being throttled."]] }
 Namespace: AWS/DynamoDB
 MetricName: ThrottledRequests
 Dimensions:

```

```

 - Name: TableName
 Value: { "Ref" : "SessionTable" }
Statistic: Sum
Period: 300
EvaluationPeriods: 1
Threshold:
 Fn::GetOptionSetting:
 OptionName: SessionThrottledRequestsThreshold
 DefaultValue: 1
ComparisonOperator: GreaterThanThreshold
AlarmActions:
 - Ref: SessionAlarmTopic
InsufficientDataActions:
 - Ref: SessionAlarmTopic

SessionAlarmTopic:
 Type: AWS::SNS::Topic
 Properties:
 Subscription:
 - Endpoint:
 Fn::GetOptionSetting:
 OptionName: SessionAlarmEmail
 DefaultValue: "nobody@amazon.com"
 Protocol: email

files:
 "/var/app/sessiontable":
 mode: "000444"
 content: |
 `{"Ref" : "SessionTable"}`
 `{"Ref" : "AWS::Region"}`

 "/var/app/composer.json":
 mode: "000744"
 content:
 {
 "require": {
 "aws/aws-sdk-php": "*"
 }
 }

container_commands:
 "1-install-composer":
 command: "cd /var/app; curl -s http://getcomposer.org/installer | php"
 "2-install-dependencies":
 command: "cd /var/app; php composer.phar install"
 "3-clean-up-composer":
 command: "rm -Rf /var/app/composer.*"

```

In the sample configuration file, we first create the DynamoDB table and configure the primary key structure for the table and the capacity units to allocate sufficient resources to provide the requested throughput. Next, we create CloudWatch alarms for `WriteCapacity` and `ReadCapacity`. We create an SNS topic that sends email to "nobody@amazon.com" if the alarm thresholds are breached.

After we create and configure our AWS resources for our environment, we need to customize the EC2 instances. We use the `files` key to pass the details of the DynamoDB table to the EC2 instances in our environment as well as add a "require" in the `composer.json` file for the AWS SDK for PHP 2. Finally, we run container commands to install composer, the required dependencies, and then remove the installer.



#### `.ebextensions/options.config`

```
option_settings:
 "aws:elasticbeanstalk:customoption":
 SessionHashKeyName : username
 SessionHashKeyType : S
 SessionReadCapacityUnits : 1
 SessionReadCapacityUnitsAlarmThreshold : 240
 SessionWriteCapacityUnits : 1
 SessionWriteCapacityUnitsAlarmThreshold : 240
 SessionThrottledRequestsThreshold : 1
 SessionAlarmEmail : me@example.com
```

Replace the `SessionAlarmEmail` value with the email where you want alarm notifications sent. The `options.config` file contains the values used for some of the variables defined in `dynamodb.config`. For example, `dynamodb.config` contains the following lines:

```
Subscription:
- Endpoint:
 Fn::GetOptionSetting:
 OptionName: SessionAlarmEmail
 DefaultValue: "nobody@amazon.com"
```

These lines that tell Elastic Beanstalk to get the value for the **Endpoint** property from the **SessionAlarmEmail** value in a config file (`options.config` in our sample application) that contains an `option_settings` section with an **aws:elasticbeanstalk:customoption** section that contains a name-value pair that contains the actual value to use. In the example above, this means **SessionAlarmEmail** would be assigned the value `nobody@amazon.com`.

For more information about the CloudFormation resources used in this example, see the following references:

- [AWS::DynamoDB::Table](#)
- [AWS::CloudWatch::Alarm](#)
- [AWS::SNS::Topic](#)

## Syntax

When defining the values for the properties for your resource, there are three different methods you can use to define the values for the properties for a resource:

- Pass the value
- Pass a list of values
- Pass the option name and the value

There are two different functions you can use to retrieve the values for the properties:

- Use `Fn::GetAtt` to return the value of an attribute from a resource. For more information, see [Fn::Join](#).
- Use `Ref` to return the value of a specified parameter or resource. For more information, see [Ref](#).

```
Resources:
 <name of resource>:
 Type: <resource type identifier>
```

```

Properties:
Example syntax of a property that takes in the actual value
<property name>: <literal string>

Example syntax of a property that takes a list of strings
<property name>: [<literal string>, "<literal string>"]

Example syntax of a property that takes the option name and the value
<property name>:
- Name: <option name>
 Value: <literal string>

Example syntax showing how to use Fn::GetAtt to return the value of
an attribute from a resource in the configuration file
<property name>:
- Name: <option name>
 Value : { "Fn::GetAtt" : ["<logicalNameOfResource>",
"<attributeName>"] }

Example syntax showing how to use Ref to return the value of a
specified parameter or resource. You can use Ref for single property values
and lists.
<property name>:
 Ref: <parameter reference>

```

## Options

This table shows the available keys and descriptions for the **Resources** key.

| Key                             | Description                                                                                                                                                                                                              |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>&lt;name of resource&gt;</i> | The name for what you want to create your resource. Each resource must have a logical name unique within the configuration file. This is the name you use elsewhere in the configuration file to reference the resource. |

This table shows the available keys and descriptions for each resource name you provide.

| Key        | Description                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type       | This is the resource type identifier. For a list of resource type identifiers, see <a href="#">AWS Resource Types Reference (p. 820)</a> .                                                                                                                                                                                                                                                                       |
| Properties | Optional. A <code>Properties</code> section is declared for each resource immediately after the resource <code>Type</code> declaration. Property values can be literal strings, lists of strings, parameter references, pseudo references, or the value returned by a function. If a resource does not require any properties to be declared, you can omit the <code>Properties</code> section of that resource. |

## Elastic Beanstalk Resource Names

Elastic Beanstalk provides fixed resource names for the AWS resources that it creates for you when you deploy your application. You will need to know these resource names when you reference them in your configuration file. You can use `Ref` and `Fn::GetAtt` to retrieve information about these resources in your configuration files. The value of `Ref` and the attributes available are determined by the type of the resource in CloudFormation.

| Resource Name                       | Description                                                                                                                                                                                                                                                                |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AWSEBAutoScalingGroup               | The Auto Scaling group attached to your environment.<br>Type: <a href="#">AWS::AutoScaling::AutoScalingGroup</a>                                                                                                                                                           |
| AWSEBAutoScalingLaunchConfiguration | The launch configuration attached to your environment's Auto Scaling group.<br>Type: <a href="#">AWS::AutoScaling::LaunchConfiguration</a>                                                                                                                                 |
| AWSEBEnvironmentName                | Your environment.<br>Type: <a href="#">AWS::ElasticBeanstalk::Environment</a>                                                                                                                                                                                              |
| AWSEBLoadBalancer                   | Your environment's load balancer (if applicable).<br>Type: <a href="#">AWS::ElasticLoadBalancing::LoadBalancer</a>                                                                                                                                                         |
| AWSEBLoadBalancerSecurityGroup      | In a custom VPC only, the name of the security group that Elastic Beanstalk creates for the load balancer. In a default VPC or EC2 classic, Elastic Load Balancing assigns a default security group to the load balancer.<br>Type: <a href="#">AWS::EC2::SecurityGroup</a> |
| AWSEBRDSDatabase                    | The Amazon RDS DB instance attached to your environment (if applicable).<br>Type: <a href="#">AWS::RDS::DBInstance</a>                                                                                                                                                     |
| AWSEBSecurityGroup                  | The security group attached to your Auto Scaling group.<br>Type: <a href="#">AWS::EC2::SecurityGroup</a>                                                                                                                                                                   |
| AWSEBWorkerQueue                    | In a worker environment, the Amazon SQS queue from which the daemon pulls requests that need to be processed.<br>Type: <a href="#">AWS::SQS::Queue</a>                                                                                                                     |
| AWSEBWorkerDeadLetterQueue          | In a worker environment, the Amazon SQS queue that stores messages that cannot be delivered or otherwise were not successfully processed by the daemon.<br>Type: <a href="#">AWS::SQS::Queue</a>                                                                           |
| AWSEBWorkerCronLeaderRegistry       | In a worker environment, the Amazon DynamoDB table that is the internal registry used by the daemon for periodic tasks.<br>Type: <a href="#">AWS::DynamoDB::Table</a>                                                                                                      |

## Example Snippets

The following is a list of example configuration files that you can use to customize your Elastic Beanstalk environments:

- [DynamoDB, CloudWatch, and SNS](#)
- [Elastic Load Balancing and CloudWatch](#)

- [ElastiCache](#)
- [RDS and CloudWatch](#)
- [SQS, SNS, and CloudWatch](#)

## Functions

You can use functions in your configuration files to populate values for resource properties with information from other resources or from Elastic Beanstalk configuration option settings. Elastic Beanstalk supports AWS CloudFormation functions (`Ref`, `Fn::GetAtt`, `Fn::Join`), and one Elastic Beanstalk-specific function, `Fn::GetOptionSetting`.

### Functions

- [Ref](#) (p. 214)
- [Fn::GetAtt](#) (p. 214)
- [Fn::Join](#) (p. 215)
- [Fn::GetOptionSetting](#) (p. 215)

## Ref

Use `Ref` to retrieve the default string representation of an AWS resource. The value returned by `Ref` depends on the resource type, and sometimes depends on other factors as well. For example, a security group ([AWS::EC2::SecurityGroup](#)) returns either the name or ID of the security group, depending on if the security group is in a default VPC, EC2 classic, or a custom VPC.

```
{ "Ref" : "resource name" }
```

### Note

For details on each resource type, including the return value(s) of `Ref`, see [AWS Resource Types Reference](#) in the *AWS CloudFormation User Guide*.

From the sample [Auto Scaling lifecycle hook](#) (p. 197):

```
Resources:
 lifecyclehook:
 Type: AWS::AutoScaling::LifecycleHook
 Properties:
 AutoScalingGroupName: { "Ref" : "AWSEBAutoScalingGroup" }
```

You can also use `Ref` to retrieve the value of a AWS CloudFormation parameter defined elsewhere in the same file or in a different configuration file.

## Fn::GetAtt

Use `Fn::GetAtt` to retrieve the value of an attribute on an AWS resource.

```
{ "Fn::GetAtt" : ["resource name", "attribute name"] }
```

From the sample [Auto Scaling lifecycle hook](#) (p. 197):

```
Resources:
 lifecyclehook:
```

```
Type: AWS::AutoScaling::LifecycleHook
Properties:
 RoleARN: { "Fn::GetAtt" : ["hookrole", "Arn"] }
```

See [Fn::GetAtt](#) for more information.

## Fn::Join

Use `Fn::Join` to combine strings with a delimiter. The strings can be hard-coded or use the output from `Fn::GetAtt` or `Ref`.

```
{ "Fn::Join" : ["delimiter", ["string1", "string2"]] }
```

See [Fn::Join](#) for more information.

## Fn::GetOptionSetting

Use `Fn::GetOptionSetting` to retrieve the value of a [configuration option \(p. 131\)](#) setting applied to the environment.

```
"Fn::GetOptionSetting":
 Namespace: "namespace"
 OptionName: "option name"
 DefaultValue: "default value"
```

From the [storing private keys \(p. 283\)](#) example:

```
Resources:
 AWSEBAutoScalingGroup:
 Metadata:
 AWS::CloudFormation::Authentication:
 S3Auth:
 type: "s3"
 buckets: ["elasticbeanstalk-us-west-2-123456789012"]
 roleName:
 "Fn::GetOptionSetting":
 Namespace: "aws:autoscaling:launchconfiguration"
 OptionName: "IamInstanceProfile"
 DefaultValue: "aws-elasticbeanstalk-ec2-role"
```

# Using Elastic Beanstalk Saved Configurations

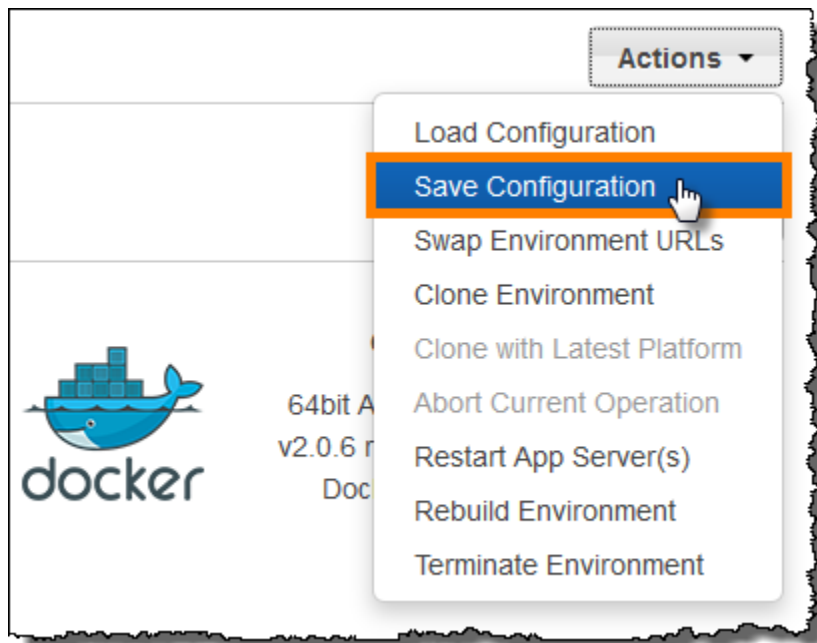
You can save your environment's configuration as an object in Amazon S3 that can be applied to other environments during environment creation, or applied to a running environment. *Saved configurations* are YAML formatted templates that define an environment's [platform configuration \(p. 24\)](#), [tier \(p. 14\)](#), [configuration option \(p. 131\)](#) settings, and tags.

Create a saved configuration from the current state of your environment in the Elastic Beanstalk Management Console:

### To save an environment's configuration

1. Open the [Elastic Beanstalk console](#).

2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Actions** and then choose **Save Configuration**.



4. Type a configuration name and description and then choose **Save**.

The saved configuration includes any settings that you have applied to the environment with the console or any other client that uses the Elastic Beanstalk API. You can then apply the saved configuration to your environment at a later date to restore it to its previous state, or apply it to a new environment during [environment creation](#) (p. 63).

#### To apply a saved configuration during environment creation (AWS Management Console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application.
3. Choose **Saved Configurations**.
4. Choose a saved configuration and then choose **Launch environment**.
5. Proceed through the wizard to create your environment.

Saved configurations do not include settings applied with [configuration files](#) (p. 178) in your application's source code. If the same setting is applied in both a configuration file and saved configuration, the setting in the saved configuration takes precedence. Likewise, options specified in the AWS Management Console override options in saved configurations. For more information, see [Precedence](#) (p. 175).

Saved configurations are stored in the Elastic Beanstalk S3 bucket in a folder named after your application. For example, configurations for an application named `my-app` in the `us-west-2` region for account number `0123456789012` can be found at `s3://elasticbeanstalk-us-west-2-0123456789012/resources/templates/my-app/`.

View the contents of a saved configuration by opening it in a text editor. The following example configuration shows the configuration of a web server environment launched with the Elastic Beanstalk Management Console:

```
EnvironmentConfigurationMetadata:
 Description: Saved configuration from a multicontainer Docker environment
 created with the Elastic Beanstalk Management Console
 DateCreated: '1452824453000'
 DateModified: '1452824453000'
SolutionStack: 64bit Amazon Linux 2015.09 v2.0.6 running Multi-container
Docker 1.7.1 (Generic)
OptionSettings:
 aws:elasticbeanstalk:command:
 BatchSize: '30'
 BatchSizeType: Percentage
 aws:elasticbeanstalk:sns:topics:
 Notification Endpoint: me@example.com
 aws:elb:policies:
 ConnectionDrainingEnabled: true
 ConnectionDrainingTimeout: '20'
 aws:elb:loadbalancer:
 CrossZone: true
 aws:elasticbeanstalk:environment:
 ServiceRole: aws-elasticbeanstalk-service-role
 aws:elasticbeanstalk:application:
 Application Healthcheck URL: /
 aws:elasticbeanstalk:healthreporting:system:
 SystemType: enhanced
 aws:autoscaling:launchconfiguration:
 IamInstanceProfile: aws-elasticbeanstalk-ec2-role
 InstanceType: t2.micro
 EC2KeyName: workstation-uswest2
 aws:autoscaling:updatepolicy:rollingupdate:
 RollingUpdateType: Health
 RollingUpdateEnabled: true
EnvironmentTier:
 Type: Standard
 Name: WebServer
AWSConfigurationTemplateVersion: 1.1.0.0
Tags:
 Cost Center: WebApp Dev
```

You can modify the contents of a saved configuration and save it in the same location in Amazon S3. Any properly formatted saved configuration stored in the right location can be applied to an environment with the Elastic Beanstalk Management Console.

The following keys are supported:

- **AWSConfigurationTemplateVersion** (required) – The configuration template version (1.1.0.0).

```
AWSConfigurationTemplateVersion: 1.1.0.0
```

- **SolutionStack** – The full name of the [solution stack](#) (p. 24) used to create the environment:

```
SolutionStack: 64bit Amazon Linux 2015.09 v2.0.6 running Multi-container
Docker 1.7.1 (Generic)
```

- **OptionSettings** – [Configuration option](#) (p. 131) settings to apply to the environment. For example, the following entry sets the instance type to t2.micro:

```
OptionSettings:
```

```
aws:autoscaling:launchconfiguration:
InstanceType: t2.micro
```

- **Tags** – Up to seven tags to apply to resources created within the environment.

```
Tags:
Cost Center: WebApp Dev
```

- **EnvironmentTier** – The type of environment to create. For a web server environment, you can exclude this section (web server is the default). For a worker environment, use the following:

```
EnvironmentTier:
Name: Worker
Type: SQS/HTTP
```

- **CName** – The CNAME for the environment. Include a + character at the end of the name to enable groups:

```
CName: front-A08G28LG+
```

- **EnvironmentName** – The name of the environment to create. Include a + character at the end of the name to enable groups:

```
EnvironmentName: front+
```

With groups enabled, you must specify a group name when you create the environments. Elastic Beanstalk appends the group name to the environment name with a hyphen. For example, with the environment name `front+` and the group name `dev`, Elastic Beanstalk will create the environment with the name `front-dev`.

- **EnvironmentLinks** – A map of variable names and environment names of dependencies. The following example makes the `worker+` environment a dependency and tells Elastic Beanstalk to save the link information to a variable named `WORKERQUEUE`.

```
EnvironmentLinks:
"WORKERQUEUE" : "worker+"
```

The value of the link variable varies depending on the type of the linked environment. For a web server environment, the link is the environment's CNAME. For a worker environment, the link is the name of the environment's Amazon SQS queue.

The **CName**, **EnvironmentName** and **EnvironmentLinks** keys can be used to create [environment groups \(p. 96\)](#) and [links to other environments \(p. 128\)](#). These features are currently supported when using the EB CLI, AWS CLI or an SDK. When using these features, you can include the saved configuration in your source code as an [environment manifest \(p. 219\)](#) instead of referencing a saved configuration stored in Amazon S3. See the corresponding topics for more information.

See the following topics for alternate methods of creating and applying saved configurations:

- [Setting Configuration Options Before Environment Creation \(p. 131\)](#)
- [Setting Configuration Options During Environment Creation \(p. 135\)](#)
- [Setting Configuration Options After Environment Creation \(p. 139\)](#)



## Environment Manifest (`env.yaml`)

You can include a YAML formatted environment manifest in the root of your application source bundle to configure the environment name, solution stack and [environment links \(p. 128\)](#) to use when creating your environment. An environment manifest uses the same format as [Saved Configurations \(p. 215\)](#).

This file format includes support for environment groups. To use groups, specify the environment name in the manifest with a + symbol at the end. When you create or update the environment, specify the group name with `--group-name` (AWS CLI) or `--env-group-suffix` (EB CLI). For more information on groups, see [Creating and Updating Groups of AWS Elastic Beanstalk Environments \(p. 96\)](#).

The following example manifest defines an web server environment with a link to a worker environment component that it is dependent upon. The manifest uses groups to allow creating multiple environments with the same source bundle:

`~/myapp/frontend/env.yaml`

```
AWSConfigurationTemplateVersion: 1.1.0.0
SolutionStack: 64bit Amazon Linux 2015.09 v2.0.6 running Multi-container
 Docker 1.7.1 (Generic)
OptionSettings:
 aws:elasticbeanstalk:command:
 BatchSize: '30'
 BatchSizeType: Percentage
 aws:elasticbeanstalk:sns:topics:
 Notification Endpoint: me@example.com
 aws:elb:policies:
 ConnectionDrainingEnabled: true
 ConnectionDrainingTimeout: '20'
 aws:elb:loadbalancer:
 CrossZone: true
 aws:elasticbeanstalk:environment:
 ServiceRole: aws-elasticbeanstalk-service-role
 aws:elasticbeanstalk:application:
 Application Healthcheck URL: /
 aws:elasticbeanstalk:healthreporting:system:
 SystemType: enhanced
 aws:autoscaling:launchconfiguration:
 IamInstanceProfile: aws-elasticbeanstalk-ec2-role
 InstanceType: t2.micro
 EC2KeyName: workstation-uswest2
 aws:autoscaling:updatepolicy:rollingupdate:
 RollingUpdateType: Health
 RollingUpdateEnabled: true
Tags:
 Cost Center: WebApp Dev
CName: front-A08G28LG+
EnvironmentName: front+
EnvironmentLinks:
 "WORKERQUEUE" : "worker+"
```

For more information on the saved configuration format and supported keys, see [Using Elastic Beanstalk Saved Configurations \(p. 215\)](#)

## Configuring Auto Scaling with Elastic Beanstalk

Auto Scaling is a web service designed to automatically launch or terminate Amazon EC2 instances in an autoscaling group based on parameters that you define. Elastic Beanstalk supports Auto Scaling for load-balancing, autoscaling environments. Automatically increasing or decreasing the number of Amazon EC2 instances helps you seamlessly deal with traffic changes to your application. The *triggers* that you define for an autoscaling group instruct Elastic Beanstalk to scale computing resources in response to metrics such as bandwidth usage or CPU utilization. You can also schedule scaling actions to occur at specific times. Auto Scaling works with Amazon CloudWatch to retrieve metrics for the server instances running your application.

Auto Scaling also monitors the health of each Amazon EC2 instance that it launches. If any instance terminates unexpectedly, Auto Scaling detects the termination and launches a replacement instance. This capability enables you to maintain a fixed, desired number of Amazon EC2 instances automatically.

### Note

Autoscaling settings can impact rolling updates. If you configured rolling updates, a rolling update cannot happen if the minimum number of instances in service for rolling updates is larger than the maximum size of the autoscaling group. You must change the value of either the **Minimum instances in service** setting for rolling updates or the **Maximum instance count** setting for the autoscaling group.

For more information about Auto Scaling, go to the [Auto Scaling documentation](#).

## AWS Management Console

You can configure how Auto Scaling works by editing **Scaling** on the environment's **Configuration** page in the [environment management console](#) (p. 52).

### Environment Type

The following settings configure the availability settings of your environment to help reduce the costs for development activities.

Environment type:  [Learn more](#)

Current status: 1 instance(s) in service, Min: 1, Max: 4

### Auto Scaling

Use the following settings to control auto scaling behavior. [Learn more.](#)

Minimum instance count:  Minimum number of instances to run.

Maximum instance count:  Maximum number of instances to run.

Availability Zones:  Number of Availability Zones to run in.

Custom Availability Zones:  Specific Availability Zones to launch instances in.

Scaling cooldown (seconds):  The amount of time after a scaling activity before any further trigger-related scaling activities can occur.

### Scaling Trigger

Trigger measurement:  The measure name associated with the metric the trigger uses.

Trigger statistic:  The statistic that the trigger uses when fetching metrics statistics to examine.

Unit of measurement:  The standard unit that the trigger uses when fetching metric statistics to examine.

Measurement period (minutes):  The period between metric evaluations.

Breach duration (minutes):  The amount of time used to determine the existence of a breach. The service looks at data between the current time and the number of minutes specified to see if a breach has occurred.

Upper threshold:  The upper limit for the metric. If the data points exceed the threshold for the period set as the breach duration, the trigger is activated.

Upper breach scale increment:  The incremental amount to use when performing scaling activities when the upper threshold has been breached. Must be an integer, optionally followed by a % sign.

Lower threshold:  The lower limit for the metric. If the data points are below this threshold for the period set as the breach duration, the trigger is activated.

Lower breach scale increment:  The incremental amount to use when performing scaling activities when the lower threshold has been breached. Must be an integer, optionally followed by a % sign.

### Time-based Scaling

Use the following settings to control time-based scaling actions. [Learn more](#)

Time zone:  UTC  Local

| Name                 | Limits | Next occurrence (UTC) | Actions |
|----------------------|--------|-----------------------|---------|
| No scheduled actions |        |                       |         |

The following section discusses how to configure Auto Scaling parameters for your application.

## Launch Configuration

You can edit the launch configuration in the **Auto Scaling** section of the page to control how your Elastic Beanstalk application provisions Auto Scaling resources.

The **Minimum instance count** and **Maximum instance count** boxes let you specify the minimum and maximum size of the Auto Scaling group that your Elastic Beanstalk application uses.

### Note

To maintain a fixed number of Amazon EC2 instances, set the **Minimum instance count** and **Maximum instance count** boxes to the same value.

The **Availability Zones** box lets you specify the number of Availability Zones in which you want Elastic Beanstalk to launch instances. We recommend that you choose multiple Availability Zones so that instances can be launched in another Availability Zone if one zone becomes unavailable. For example, if you have a minimum of 3 instances, then you should choose 3 Availability Zones.

The **Custom Availability Zones** box lets you specify which Availability Zones you want Elastic Beanstalk to launch instance(s) in across a region. If you do not select any custom Availability Zones, then Elastic Beanstalk will choose the Availability Zones for you. The number of Availability Zones must be less than or equal to the number of custom Availability Zones you select. For example, if you select **Any 2**, then you must select at least two custom Availability Zones.

### Note

Here are some things to keep in mind when working with Availability Zones:

- It is important to launch instances in more than one Availability Zone in order to build fault-tolerant applications. If one Availability Zone goes down, your instances will still be running in another Availability Zones.
- If you purchased Reserved Instances, you need to specify the same Availability Zone(s) that you specified when you purchased your Reserved Instances. Reserved Instances let you make a low, one-time, upfront payment for an instance, reserve it for a one- or three-year term, and pay a significantly lower hourly rate for that instance. For more information about Reserved Instances, see [Reserved Instances](#) in the *Amazon EC2 User Guide for Linux Instances*.

The **Scaling cooldown (seconds)** box specifies how long Auto Scaling will wait before resuming any scaling activities after it launches an instance so that the new instance has time to begin handling traffic. If, by the time the cooldown period elapses, your environment has the appropriate level of resources to keep the CloudWatch alarm from continuing to fire, then no new instances will be launched.

## Triggers

You can edit the **Scaling Trigger** section of the page to set metrics-based parameters for scaling actions for your Elastic Beanstalk application. A *trigger* is an Auto Scaling mechanism that you define to tell the system when to increase (*scale out*) the number of instances and when to decrease (*scale in*) the number of instances. You can configure triggers to *fire* on Amazon EC2 or Elastic Load Balancing metrics published to Amazon CloudWatch, such as an Amazon EC2 instance's CPU utilization, and determine whether the conditions you specified have been met. When the upper or lower thresholds of the conditions for the metric have been breached for the specified period of time, the trigger launches a long-running process called a *scaling activity*. For more information about Amazon EC2 metrics, see [Amazon Elastic Compute Cloud Dimensions and Metrics](#) in the *Amazon CloudWatch User Guide*. For more information about Elastic Load Balancing metrics, see [Monitor Your Load Balancer Using Amazon CloudWatch](#) in the *Elastic Load Balancing User Guide*.

Auto Scaling triggers work by watching a specific Amazon CloudWatch metric for an instance. Triggers include CPU utilization, network traffic, disk activity, and instance health. Use the **Trigger measurement** setting to specify a metric for your trigger.

The following list describes the trigger parameters you can configure using the AWS Management Console.

- Use **Trigger statistic** to specify which statistic the trigger should use—**Minimum**, **Maximum**, **Sum**, or **Average**.
- Use **Unit of measurement** to specify the unit for the trigger measurement.
- For **Measurement period**, specify how frequently Amazon CloudWatch measures the metrics for your trigger. **Breach duration** is the amount of time a metric can extend beyond its defined limit (as specified for **Upper threshold** and **Lower threshold**) before the trigger fires.
- **Upper breach scale increment** and **Lower breach scale increment** specify how many Amazon EC2 instances to add or remove when performing a scaling activity.

## Time-based Scaling

Time-based scaling enables you to plan scaling actions that launch or terminate Amazon EC2 instances in each autoscaling group. You can schedule scaling actions, as needed. To see the list of an environment's scheduled scaling actions, including expired ones, see the **Time-based Scaling** section of the **Scaling** page in the AWS Management Console. An environment can have up to 120 scheduled scaling actions, not including expired actions (actions that ended in the past).

If your Elastic Beanstalk application has predictable needs for scaling out or scaling in at specific times, you can schedule scaling actions on a recurring basis. You can also schedule a scaling action for a planned one-time future event. Instead of creating an entirely new scheduled action, you can reuse an expired scheduled action by changing the start time to a time and date in the future. (Elastic Beanstalk keeps a history of the most recent 150 expired scheduled actions.)

The table in the **Time-based Scaling** section displays the following information.

- The **Name** column shows the name that you assigned the scheduled action when you created it. You cannot change the name of a scaling action after you create it.
- The **Limits** column displays the minimum, maximum, and desired number of instances that you specified for the autoscaling group when you created or most recently changed the scheduled action.
- In the **Next occurrence** column, you can see the next time the scheduled action will take effect. For a recurrent scaling action, the next occurrence is based on the recurrence that you specified with a CRON expression.

In the **Time-based Scaling** section of the page, if you click **Add scheduled action**, the **New scheduled action** window displays the following options:

New scheduled action ✕

Name:   
Must be from 1 to 255 characters in length.

Instances: Min  Max   
Minimum and Maximum number of instances to run.

Desired capacity:  (Optional)  
Desired number of instances to run.

Occurrence:

Start time:   UTC  
The time the action is scheduled to begin.

Current UTC time: 2015-05-14T20:11:00Z

- Use **Name** to specify a name for the scheduled scaling action that differentiates it from other scaling actions and that you can use to find it later. You must use alphanumeric characters with no spaces. The name has a limit of 255 characters.
- For **Instances**, indicate the **Min** (minimum) and **Max** (maximum) number of instances for the autoscaling group.
- The **Desired capacity** box lets you specify the number of instances that you want running in the autoscaling group. The desired capacity must be less than or equal to the value you defined as the maximum number of instances and larger than or equal to the value you defined as the minimum.
- For **Occurrence**, choose whether the scaling action should occur only once or on a recurring basis.
  - If you choose **One-time**, configure the following settings:
    - **Start time** – Specify a date and time in the future to run the action.
  - If you choose **Recurrent**, configure the following settings:
    - **Recurrence** – Use a CRON expression to specify the frequency with which you want the scheduled action to occur. For example, if you want to schedule a recurrent action that take effect every Tuesday at 6:30 PM UTC, you can use the CRON expression “30 6 \* \* 2”. For more information about CRON syntax, see [Cron](#).
    - **Start time** (optional) – Specify a date and time in the future to activate the scheduled action. If you don't specify a start time, the scheduled action is active immediately. The console automatically selects the top of the next hour by default.
    - **End time** (optional) – Specify a date and time in the future when you want to stop the scheduled action. If you don't specify an end time, the scaling action recurs until you configure it with an end date and time.

Use ISO 8601 time format to specify start and end times in UTC. For example, 2015-04-28T04:07:02Z. For more information about ISO 8601 time format, go to [Date and Time Formats](#). The dates must be unique across all scheduled actions.

You can't suspend a scheduled action using the Elastic Beanstalk management console, but you can configure option settings with the EB CLI to do so. When you suspend a scheduled scaling action, Elastic Beanstalk ignores the scheduled action and does nothing. Suspending an action lets you stop the scheduled action without deleting it so that you can resume the action later, if necessary.

## Examples of Time-based Scaling Option Settings Files

This section provides examples of option settings files that will configure scheduled scaling actions. You include these files in the `.ebextensions` directory in your application source bundle. For more information about deploying configuration files with your application, see [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178).

The following JSON snippet instructs Elastic Beanstalk to scale out from five instances to 10 instances at 2015-12-12T00:00:00Z.

```
[
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleUpSpecificTime",
 "OptionName": "MinSize",
 "Value": "5"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleUpSpecificTime",
 "OptionName": "MaxSize",
 "Value": "10"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleUpSpecificTime",
 "OptionName": "DesiredCapacity",
 "Value": "5"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleUpSpecificTime",
 "OptionName": "StartTime",
 "Value": "2015-12-12T00:00:00Z"
 }
]
```

The following JSON snippet instructs Elastic Beanstalk to scale in at 2015-12-12T07:00:00Z.

```
[
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleDownSpecificTime",
 "OptionName": "MinSize",
 "Value": "1"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleDownSpecificTime",
 "OptionName": "MaxSize",
 "Value": "1"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleDownSpecificTime",
 "OptionName": "DesiredCapacity",
 "Value": "4"
 }
]
```

```

 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledScaleDownSpecificTime",
 "OptionName": "StartTime",
 "Value": "2015-12-12T07:00:00Z"
 }
]

```

The following JSON snippet instructs Elastic Beanstalk to scale out every day at 9AM. The action is scheduled to begin May 14, 2015 and end January 12, 2016.

```

[
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledPeriodicScaleup",
 "OptionName": "MinSize",
 "Value": "5"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledPeriodicScaleup",
 "OptionName": "MaxSize",
 "Value": "10"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledPeriodicScaleup",
 "OptionName": "DesiredCapacity",
 "Value": "5"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledPeriodicScaleup",
 "OptionName": "StartTime",
 "Value": "2015-05-14T07:00:00Z"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledPeriodicScaleup",
 "OptionName": "EndTime",
 "Value": "2016-01-12T07:00:00Z"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledPeriodicScaleup",
 "OptionName": "Recurrence",
 "Value": "0 9 * * *"
 }
]

```

The following JSON snippet instructs Elastic Beanstalk to scale in every Friday at 6PM. If you know that your application doesn't receive as much traffic over the weekend, you can create a similar scheduled action.

```

[
 {

```



```
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledWeekendScaleDown",
 "OptionName": "MinSize",
 "Value": "1"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledWeekendScaleDown",
 "OptionName": "MaxSize",
 "Value": "4"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledWeekendScaleDown",
 "OptionName": "DesiredCapacity",
 "Value": "1"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledWeekendScaleDown",
 "OptionName": "StartTime",
 "Value": "2015-12-12T07:00:00Z"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledWeekendScaleDown",
 "OptionName": "EndTime",
 "Value": "2016-01-12T07:00:00Z"
 },
 {
 "Namespace": "aws:autoscaling:scheduledaction",
 "ResourceName": "ScheduledWeekendScaleDown",
 "OptionName": "Recurrence",
 "Value": "0 18 * * 5"
 }
}
```

## Command Line Interface (CLI)

You can use the EB CLI to edit the environment settings for autoscaling.

### To edit an application's environment settings using EB CLI

1. Update an application's environment settings.

```
$ eb config my-env
```

2. Add the following to the option settings file that opens in your text editor.

```
AWSEBAutoScalingScaleDownPolicy.aws:autoscaling:trigger:
 LowerBreachScaleIncrement: '-1'
AWSEBAutoScalingScaleUpPolicy.aws:autoscaling:trigger:
 UpperBreachScaleIncrement: '1'
AWSEBCloudwatchAlarmHigh.aws:autoscaling:trigger:
 UpperThreshold: '6000000'
AWSEBCloudwatchAlarmLow.aws:autoscaling:trigger:
 BreachDuration: '5'
```

```
EvaluationPeriods: '1'
LowerThreshold: '2000000'
MeasureName: NetworkOut
Period: '5'
Statistic: Average
Unit: Bytes
aws:autoscaling:asg:
 Availability Zones: Any
 Cooldown: '360'
 Custom Availability Zones: null
 MaxSize: '4'
 MinSize: '1'
aws:autoscaling:launchconfiguration:
 BlockDeviceMappings: null
 EC2KeyName: null
 IamInstanceProfile: aws-elasticbeanstalk-ec2-role
 ImageId: ami-13de5b0e
 InstanceType: t1.micro
 MonitoringInterval: 5 minute
 RootVolumeIOPS: null
 RootVolumeSize: null
 RootVolumeType: null
 SSHSourceRestriction: tcp,22,22,0.0.0.0/0
 SecurityGroups: awseb-e-um3yfrzq22-stack-
AWSEBSecurityGroup-10MV688E4994W
```

You can also specify custom Availability Zones using EB CLI.

### To update an application's environment settings with custom Availability Zones using EB CLI

1. Update an application's environment settings with custom Availability Zones for autoscaling.

```
$ eb config
```

2. Add the following to the option settings file that opens in your text editor.

```
aws:autoscaling:asg:
 Availability Zones: Any
 Cooldown: '360'
 Custom Availability Zones: 'us-west-2a,us-west-2b'
 MaxSize: '4'
 MinSize: '1'
```

You can use EB CLI to create a scheduled action to scale out or scale in the number of instances in each autoscaling group in your environment.

### To create a new scheduled scaling action using EB CLI

1. Run `eb config`

```
$ eb config
```

2. Add the following to the option settings file that opens in your text editor to create a one-time scheduled scaling action.

**Note**

In the following examples, `ScheduledScaleUpSpecificTime` and `ScheduledScaleUpRecurring` are the names you want to give each respective scheduled action. Settings are grouped according to the scheduled scaling action name.

```
ScheduledScaleUpSpecificTime.aws:autoscaling:scheduledaction:
 DesiredCapacity: '5'
 EndTime: null
 MaxSize: '10'
 MinSize: '5'
 Recurrence: null
 StartTime: '2015-12-12T00:00:00Z'
 Suspend: 'false'
```

Add the following to the option settings file that opens in your text editor to create a recurring scheduled scaling action.

```
ScheduledScaleUpRecurring.aws:autoscaling:scheduledaction:
 DesiredCapacity: '5'
 EndTime: '2016-01-12T07:00:00Z'
 MaxSize: '10'
 MinSize: '5'
 Recurrence: '0 9 * * *'
 StartTime: '2015-12-12T00:00:00Z'
 Suspend: 'false'
```

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values \(p. 176\)](#) for details.

## Auto Scaling Health Check Setting

By default, the Auto Scaling created for your environment uses [Amazon EC2 status checks](#). If an instance in your environment fails an EC2 status check, it is taken down and replaced by Auto Scaling.

EC2 status checks only cover an instance's health, not the health of your application, server, or any Docker containers running on the instance. If your application crashes, but the instance that it runs on is still healthy, it may be kicked out of the load balancer, but it won't be replaced automatically by Auto Scaling.

**Note**

Configuring a [health check URL \(p. 241\)](#) in the Load Balancing configuration section of the Elastic Beanstalk console does not affect the health check behavior of an environment's Auto Scaling group.

You may want instances in your environment to stay up when the application crashes for troubleshooting and recovery purposes. If Auto Scaling replaced the instance as soon as the application crashed, you may not realize that anything went wrong, even if it crashed quickly after starting up.

If you would like Auto Scaling to restart instances whose application has stopped responding, you can configure the Auto Scaling group to use Elastic Load Balancing health checks with an `.ebextensions` configuration file.

**Note**

Enabling this option can cause your environment to continually terminate and replace instances if the Elastic Load Balancing health check fails soon after an instance starts. If

this happens, change the health check type back to EC2 in the Auto Scaling management console, or reverse the configuration change and redeploy your environment.

### To set the Auto Scaling health check to ELB during environment launch

1. Create a `.ebextensions` directory in your project folder.
2. Create a config file in the `.ebextensions` folder with the following content:

`.ebextensions/autoscaling.config`

```
Resources:
 AWSEBAutoScalingGroup:
 Type: "AWS::AutoScaling::AutoScalingGroup"
 Properties:
 HealthCheckType: ELB
 HealthCheckGracePeriod: 300
```

The grace period setting sets the number of seconds that an instance can fail the health check without being terminated and replaced. Instances may recover even after being kicked out of the load balancer, so give the instance an amount of time that is appropriate for your application.

3. Deploy or update your environment.

By default, the Elastic Load Balancing health check is configured to attempt a TCP connection to your instance over port 80. This confirms that the web server running on the instance is accepting connections, but you may want to customize the check to make sure that your application is in a good state, not just the web server.

You can tell Elastic Load Balancing to use a different port or to make an HTTP GET request to a path that your application uses by changing the Elastic Load Balancing configuration for your environment. See [Configuring the Load Balancer in your Elastic Beanstalk Environment \(p. 235\)](#) for details.

## Configuring the EC2 Instances in your Elastic Beanstalk Environment

The Auto Scaling Group in your environment manages the EC2 instances that run your application. Changes to the Auto Scaling Group's launch configuration require [replacement of all instances \(p. 106\)](#) and will trigger a [rolling update \(p. 106\)](#) or [immutable update \(p. 109\)](#), depending on which one is configured.

### Creating a Custom Amazon Machine Image (AMI)


When you create an AWS Elastic Beanstalk environment, you can specify an Amazon Machine Image (AMI) to use instead of the standard Elastic Beanstalk AMI included in your platform configuration's solution stack. A custom AMI can improve provisioning times when instances are launched in your environment if you need to install a lot of software that isn't included in the standard AMIs.

Using [configuration files \(p. 178\)](#) is great for configuring and customizing your environment quickly and consistently. Applying configurations, however, can start to take a long time during environment creation and updates. If you do a lot of server configuration in configuration files, you can reduce this time by making a custom AMI that already has the software and configuration that you need.

A custom AMI also allows you to make changes to low level components, such as the Linux kernel, that are difficult to implement or take a long time to apply in configuration files. To create a custom AMI,

launch an Elastic Beanstalk platform AMI in Amazon EC2, customize the software and configuration to your needs, and then stop the instance and save an AMI from it.

### To identify the base Elastic Beanstalk AMI

1. Open the [Elastic Beanstalk console](#).
2. Create an Elastic Beanstalk environment running your application. For more information on how to launch an Elastic Beanstalk application, go to the [Getting Started Using Elastic Beanstalk \(p. 3\)](#).
3. Navigate to the [management console \(p. 52\)](#) for your environment.
4. Choose **Configuration**
5. Next to **Instances**, choose .
6. Note the value in the **Custom AMI ID** box.
7. Terminate the environment.

The value in the **Custom AMI ID** field is the stock Elastic Beanstalk AMI for the platform version, EC2 instance architecture and region in which you created your environment. If you need to create AMIs for multiple platforms, architectures or regions, repeat this process to identify the correct base AMI for each combination.

#### Note

Do not create an AMI from an instance that has been launched in an Elastic Beanstalk environment. Elastic Beanstalk makes changes to instances during provisioning that can cause issues in the saved AMI. Saving an image from an instance in an Elastic Beanstalk environment will also bake in the version of your application that was deployed to the instance.

It is also possible to create a custom AMI from a community AMI that was not published by Elastic Beanstalk. You can use the latest [Amazon Linux](#) AMI as a starting point. When you launch an environment with a non-Beanstalk Linux AMI, Elastic Beanstalk attempts to install platform software (language, framework, proxy server, etc.) and additional components to support features such as [Enhanced Health Reporting \(p. 291\)](#).

#### Note

Non-Beanstalk AMIs are not supported for Elastic Beanstalk Windows Server platforms.

Although you can use a non-Beanstalk AMI with Elastic Beanstalk, the increase in provisioning time that results from Elastic Beanstalk installing missing components can reduce or eliminate the benefits of creating a custom AMI in the first place. Other Linux distributions may work with some troubleshooting but are not officially supported. If your application requires a specific Linux distribution, one alternative is to create a Docker image and run it on Elastic Beanstalk's [single container Docker platform \(p. 556\)](#) or [multicontainer Docker platform \(p. 562\)](#).

### To create a custom AMI

To use your custom AMI, specify your custom AMI ID in the **Custom AMI ID** field in **Instances** section of the **Configuration** page of the Elastic Beanstalk Environment Management Console. Existing instances will be replaced with new instances launched from the new custom AMI.

1. Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.
2. Choose **Launch Instance**.
3. Choose **Community AMIs**
4. Enter the AMI ID of the Elastic Beanstalk or Amazon Linux AMI that you will customize to create a custom AMI and press **Enter**.
5. Choose **Select** to select the AMI.
6. Select an instance type and choose **Next: Configure Instance Details**.

7. **(Linux platforms)** Expand the **Advanced Details** section and paste the following text in the **User Data** field:

```
#cloud-config
repo_releasever: repository version number
repo_upgrade: none
```

The *repository version number* is the year and month version in the AMI name. For example, AMIs based on the March 2015 release of Amazon Linux have a repository version number 2015.03. For Elastic Beanstalk image, this matches the date shown in the solution stack name for your [platform configuration](#) (p. 24).

#### Note

These settings configure the lock-on-launch feature, which causes the AMI to use a fixed, specific repository version when it launches, and disables the automatic installation of security updates. Both are required to use a custom AMI with Elastic Beanstalk.

8. Proceed through the wizard to [launch the EC2 instance](#). When prompted, select a key pair that you have access to so that you can connect to the instance for the next steps.
9. [Connect to the instance](#) with SSH or RDP.
10. Perform any desired customizations.
11. **(Windows platforms)** Run the EC2Config service Sysprep. For information about EC2Config, go to [Configuring a Windows Instance Using the EC2Config Service](#). Ensure that Sysprep is configured to generate a random password that can be retrieved from the AWS Management Console.
12. In the Amazon EC2 console, stop the EC2 instance and then choose **Create Image (EBS AMI)** from the **Instance Actions** menu.
13. To avoid incurring additional AWS charges, [terminate the EC2 instance](#).

When you create a new environment with the custom AMI, you should use the same platform configuration that you used as a base to create the AMI. If you later apply a [platform update](#) (p. 113) to an environment using a custom AMI, Elastic Beanstalk attempts to apply the library and configuration updates during the bootstrapping process.

#### Sections

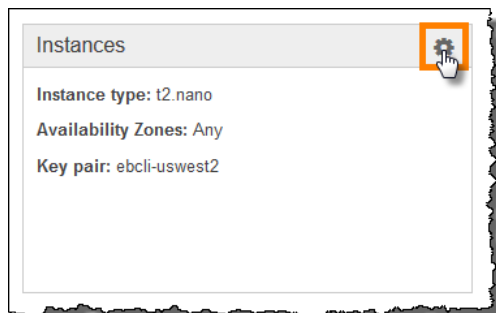
- [Configuring Your Environment's EC2 Instances in the AWS Management Console](#) (p. 232)
- [Configuration Files](#) (p. 235)

## Configuring Your Environment's EC2 Instances in the AWS Management Console

You can modify your Elastic Beanstalk environment's Auto Scaling Group configuration in the Elastic Beanstalk console.

#### To configure EC2 Instances (console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. Choose **Instances**.



The following settings are available:

#### Options

- [Instance Type](#) (p. 233)
- [Security Groups](#) (p. 233)
- [EC2 Key Pair](#) (p. 234)
- [Monitoring Interval](#) (p. 234)
- [Custom AMI ID](#) (p. 234)
- [Instance Profile](#) (p. 234)
- [Root Volume \(Boot Device\)](#) (p. 234)

## Instance Type

The **Instance type** setting determines the type of EC2 instance launched to run your application. Choose an instance that is powerful enough to run your application under load, but not so powerful that it is idle most of the time. For development purposes, the t2 family of instances provides a moderate amount of power with the ability to burst for short periods of time.

For large scale, high availability applications, use a pool of instances to ensure that capacity is not greatly affected if any single instance goes down. Start with an instance type that allows you to run five instances under moderate load during normal hours. If any instance fails, the rest of the instances can absorb the rest of the traffic. The capacity buffer also allows time for the environment to scale up as traffic begins to rise during peak hours.

For more information about EC2 instance families and types, see [Instance Types](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Security Groups

The security groups attached to your instances determine which traffic is allowed to reach the instances (ingress), and which traffic is allowed to leave the instances (egress). Elastic Beanstalk creates a security group that allows traffic from the load balancer on the standard ports for HTTP (80) and HTTPS (443).

You can specify additional security groups that you have created to allow traffic on other ports or from other sources. For example, you can create a security group for SSH access that allows ingress on port 22 from a restricted IP address range or, for additional security, from a bastion host to which only you have access.

For more information on Amazon EC2 security groups, see [Amazon EC2 Security Groups](#) in the *Amazon Elastic Compute Cloud User Guide*.

## EC2 Key Pair

You can securely log in to the Amazon EC2 instances provisioned for your Elastic Beanstalk application with an Amazon EC2 key pair. For instructions on creating a key pair for Amazon EC2, see the [Amazon Elastic Compute Cloud Getting Started Guide](#).

Choose an **EC2 key pair** from the drop down menu to assign it to your environment's instances. When you assign a key pair, the public key is stored on the instance to authenticate the private key, which you store locally. The private key is never stored in AWS.

For more information on connecting to Amazon EC2 instances, see [Connect to Your Instance](#) and [Connecting to Linux/UNIX Instances from Windows using PuTTY](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Monitoring Interval

By default, the instances in your environment publish [basic health metrics \(p. 288\)](#) to CloudWatch at 5 minute intervals at no additional cost.

For more detailed reporting, you can set the **Monitoring interval** to **1 minute** to increase the frequency with which the resources in your environment publish [basic health metrics \(p. 289\)](#) to CloudWatch. Amazon CloudWatch service charges apply for one-minute interval metrics. See [Amazon CloudWatch](#) for more information.

## Custom AMI ID

The Amazon Machine Image (AMI) is the Amazon Linux or Windows Server machine image that AWS Elastic Beanstalk uses to launch EC2 instances in your environment. Elastic Beanstalk provides machine images that contain the tools and resources required to run your application.

Elastic Beanstalk selects a default AMI for your environment based on the region, platform, and instance type that you choose. If you have created a [custom AMI \(p. 230\)](#), replace the default AMI ID with yours.

## Instance Profile

An [instance profile \(p. 18\)](#) is an IAM role that is applied to instances launched in your Elastic Beanstalk environment. EC2 instances assume the instance profile role to sign requests to AWS and access APIs, for example, to upload logs to Amazon S3.

The first time you create an environment in the AWS Management Console, Elastic Beanstalk prompts you to create an instance profile with a default set of permissions. You can add permissions to this profile to provide your instances access to other AWS services. For details, see [Managing Elastic Beanstalk Instance Profiles \(p. 333\)](#)

## Root Volume (Boot Device)

Each instance in your environment is configured with a root volume. The root volume is the Amazon EBS block device attached to the instance to store the operating system, libraries, scripts, and your application source code. By default, all platforms use general purpose SSD block devices for storage.

You can modify **Root volume type** to use magnetic storage or provisioned IOPS SSD volume types, and increase the volume size if needed. For provisioned IOPS volumes, you must also select the number of IOPS to provision. Select the volume type that meets your performance and price requirements.

For more information, see [Amazon EBS Volume Types](#) and [Amazon EBS Product Details](#).



## Configuration Files

You can use the [configuration options \(p. 131\)](#) in the `aws:autoscaling:launchconfiguration` ([p. 147](#)) namespace to configure your Auto Scaling Group, including additional options that are not available in the console.

The following [configuration file \(p. 178\)](#) configures the basic options shown above and an additional option, `BlockDeviceMappings`, which isn't available in the console.

```
option_settings:
 aws:autoscaling:launchconfiguration:
 InstanceType: m1.small
 SecurityGroups: my-securitygroup
 EC2KeyName: my-keypair
 MonitoringInterval: "1 minute"
 ImageId: "ami-cbab67a2"
 IamInstanceProfile: "ElasticBeanstalkProfile"
 BlockDeviceMappings: "/dev/sdj=:100,/dev/sdh=snap-51eef269,/dev/
sdb=ephemeral0"
```

`BlockDeviceMappings` lets you configure additional block devices for your instances. For more information about block device mappings, see [Block Device Mapping](#) in the *Amazon Elastic Cloud Computer User Guide*.

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values \(p. 176\)](#) for details.

## Configuring the Load Balancer in your Elastic Beanstalk Environment

If you've [enabled load balancing \(p. 121\)](#), your environment is equipped with an Elastic Load Balancing load balancer to distribute traffic among the instances in your environment.

By default, your load balancer is configured to [listen](#) for HTTP traffic on port 80 and forward it to instances on the same port. To support secure connections, you can configure your load balancer with a listener on port 443 and a TLS certificate.

Elastic Load Balancing uses a [health check](#) to determine whether the EC2 instances running your application are healthy. The health check determines an instance's health status by making a request to a specified URL at a set interval; if the URL returns an error message, or fails to return within a specified timeout period, the health check fails.

If your application performs better by serving multiple requests from the same client on a single server, you can configure your load balancer to use [sticky sessions](#). With sticky sessions, the load balancer adds a cookie to HTTP responses that identifies the EC2 instance that served the request. When a subsequent request is received from the same client, the load balancer uses the cookie to send the request to the same instance.

When an instance is removed from the load balancer because it has become unhealthy or the environment is scaling down, [connection draining](#) gives the instance time to complete requests prior to closing the connection between the instance and the load balancer. You can change the amount of time given to instances to send a response, or disable connection draining completely.

**Note**

Connection draining is enabled by default when you create an environment with the console or EB CLI. For other clients, you must enable it with [configuration options \(p. 242\)](#).

Advanced load balancer settings are available through [configuration options \(p. 242\)](#) that you can set with configuration files in your source code or directly on an environment by using the Elastic Beanstalk API. You can use these options to configure listeners on arbitrary ports, modify additional sticky session settings, and configure the load balancer to connect to EC2 instances securely. You can also configure a load balancer to [upload access logs \(p. 242\)](#) to Amazon S3.

## Configuring an Application Load Balancer

When you launch a load-balanced environment, you can choose to use an application load balancer instead of a classic load balancer. An application load balancer inspects traffic to identify the request's path so that it can direct requests for different paths to different destinations.

By default, an application load balancer performs the same function as a classic load balancer. The default listener accepts HTTP requests on port 80 and distributes them to the instances in your environment. You can add a secure listener on port 443 with a certificate to decrypt HTTPS traffic, configure health check behavior, and push access logs from the load balancer to an Amazon Simple Storage Service (Amazon S3) bucket.

**Note**

Unlike a classic load balancer, an application load balancer cannot have non-HTTP TCP or SSL/TLS listeners, and cannot use backend authentication to authenticate HTTPS connections between the load balancer and backend instances.

In an AWS Elastic Beanstalk environment, you can use an application load balancer to direct traffic for certain paths to a different port on your web server instances. With a classic load balancer, all traffic to a listener is routed to a single port on the backend instances. With an application load balancer, you can configure multiple *rules* on the listener to route requests to certain paths to different backend ports.

For example, you could run a login process separate from your main application. While your main application accepts the majority of requests and listens on port 80, your login process listens on port 5000 and accepts requests to the `/login` path. With an application load balancer, you can configure a single listener with two rules to route traffic to either port 80 or port 5000, depending on the path in the request. One rule routes traffic to `/login` to port 5000, while the default rule routes all other traffic to port 80.

An application load balancer rule maps a request to a *target group*. In Elastic Beanstalk, a target group is represented by a *process*, which you can configure with a protocol, port, and health check settings. The process represents the process running on the instances in your environment. The default process is a listener on port 80 of the reverse proxy (nginx or Apache) that runs in front of your application.

**Note**

Outside of Elastic Beanstalk, a target group maps to a group of instances, and a listener can use rules and target groups to route traffic to different instances based on the path. Within Elastic Beanstalk, all of your instances in your environment are identical, so the distinction is made between processes listening on different ports.

Instead of a single health check path for the entire environment, each process has a separate health check path that is monitored by the load balancer and Elastic Beanstalk enhanced health monitoring.

To use an application load balancer, your environment must be in a default or custom VPC, and must have a service role with the standard set of permissions. If you have an older service role, you may need to [update the permissions \(p. 336\)](#) on it to include `elasticloadbalancing:DescribeTargetHealth` and `elasticloadbalancing:DescribeLoadBalancers`. For more information about application load balancers, see [What Is an Application Load Balancer?](#) in the *Application Load Balancer Guide*.

## Getting Started

Use the [EB CLI \(p. 416\)](#) to create an environment with an application load balancer.

### Note

You can only set the load balancer type during environment creation.

The EB CLI prompts you to choose a load balancer type when you run `eb create`:

```
$ eb create
Enter Environment Name
(default is my-app): test-env
Enter DNS CNAME prefix
(default is my-app): test-env-DLW24ED23SF

Select a load balancer type
1) classic
2) application
(default is 1): 2
```

You can also specify a load balancer type with the `--elb-type` option:

```
$ eb create test-env --elb-type application
```

## Application Load Balancer Namespaces

Settings related to application load balancers are spread across the following namespaces:

- [aws:elasticbeanstalk:environment \(p. 157\)](#) – Choose between an application load balancer and classic load balancer.
- [aws:elbv2:loadbalancer \(p. 166\)](#) – Configure access logs and other settings that apply to the application load balancer as a whole.
- [aws:elbv2:listener \(p. 165\)](#) – Configure listeners on the application load balancer. These settings map to the settings in `aws:elb:listener` for classic load balancers.
- [aws:elbv2:listenerrule \(p. 166\)](#) – Configure rules that route traffic to different processes, depending on the request path. Rules are unique to application load balancers.
- [aws:elasticbeanstalk:environment:process \(p. 157\)](#) – Configure health checks and specify the port and protocol for the processes that run on your environment's instances. The port and protocol settings map to the instance port and instance protocol settings in `aws:elb:listener` for a listener on a classic load balancer. Health check settings map to the settings in `aws:elb:healthcheck` and `aws:elasticbeanstalk:application` namespaces.

### Example `.ebextensions/application-load-balancer.config`

To get started with an application load balancer, use a [configuration file \(p. 178\)](#) to set the load balancer type to application:

```
option_settings:
 aws:elasticbeanstalk:environment:
 LoadBalancerType: application
```

### Note

You can only set the load balancer type during environment creation.

### Example `.ebextensions/alb-access-logs.config`

The following configuration file enables access log uploads for an environment with an application load balancer:

```
option_settings:
 aws:elbv2:loadbalancer:
 AccessLogsS3Bucket: my-bucket
 AccessLogsS3Enabled: 'true'
 AccessLogsS3Prefix: beanstalk-alb
```

### Example `.ebextensions/alb-default-process.config`

The following configuration file modifies health check and stickiness settings on the default process:

```
option_settings:
 aws:elasticbeanstalk:environment:process:default:
 DeregistrationDelay: '20'
 HealthCheckInterval: '15'
 HealthCheckPath: /
 HealthCheckTimeout: '5'
 HealthyThresholdCount: '3'
 UnhealthyThresholdCount: '5'
 MatcherHTTPCode: null
 Port: '80'
 Protocol: HTTP
 StickinessEnabled: 'true'
 StickinessLBCookieDuration: '43200'
```

### Example `.ebextensions/alb-secure-listener.config`

The following configuration file adds a secure listener and matching process on port 443:

```
option_settings:
 aws:elbv2:listener:443:
 DefaultProcess: https
 ListenerEnabled: 'true'
 Protocol: HTTPS
 SSLCertificateArns: arn:aws:acm:us-
east-1:0123456789012:certificate/21324896-0fa4-412b-bf6f-f362d6eb6dd7
 aws:elasticbeanstalk:environment:process:https:
 Port: '443'
 Protocol: HTTPS
```

### Example `.ebextensions/alb-admin-rule.config`

The following configuration file adds a secure listener with a rule that routes traffic with a request path of `/admin` to a process named `admin` that listens on port 4443:

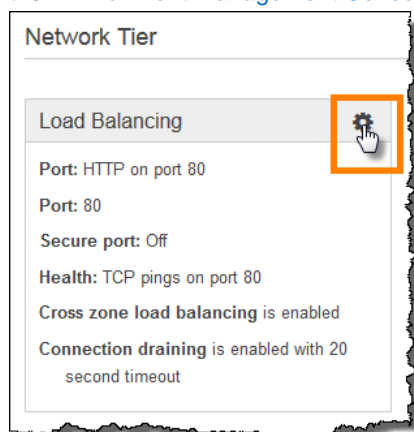
```
option_settings:
 aws:elbv2:listener:443:
 DefaultProcess: https
 ListenerEnabled: 'true'
 Protocol: HTTPS
 Rules: admin
 SSLCertificateArns: arn:aws:acm:us-east-1:0123456789012:certificate/21324896-0fa4-412b-bf6f-f362d6eb6dd7
 aws:elasticbeanstalk:environment:process:admin:
 HealthCheckPath: /admin
 Port: '4443'
 Protocol: HTTPS
 aws:elbv2:listenerrule:admin:
 PathPatterns: /admin/*
 Priority: 1
 Process: admin
```

#### Topics

- [Configuring Your Environment's Load Balancer in the AWS Management Console \(p. 239\)](#)
- [Load Balancer Configuration Namespaces \(p. 242\)](#)
- [Configuring Access Logs \(p. 242\)](#)

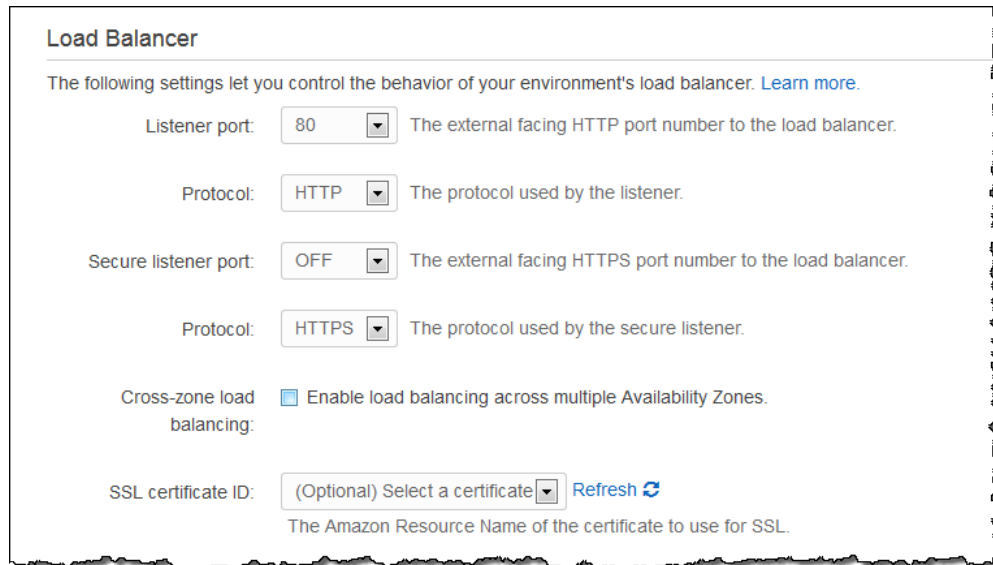
## Configuring Your Environment's Load Balancer in the AWS Management Console

Load balancer settings are available in the **Network Tier** section of the [Configuration \(p. 141\)](#) page in the [Environment Management Console \(p. 52\)](#):



### Ports and Cross-Zone Load Balancing

The basic settings for your load balancer let you configure the standard listener on port 80, a secure listener on port 443 or port 8443, cross-zone load balancing.



**Load Balancer**

The following settings let you control the behavior of your environment's load balancer. [Learn more.](#)


Listener port:  The external facing HTTP port number to the load balancer.

Protocol:  The protocol used by the listener.

Secure listener port:  The external facing HTTPS port number to the load balancer.

Protocol:  The protocol used by the secure listener.

Cross-zone load balancing:  Enable load balancing across multiple Availability Zones.

SSL certificate ID:  Refresh 

The Amazon Resource Name of the certificate to use for SSL.

You can change the **listener protocol** from **HTTP** to **TCP** if you want the load balancer to forward requests as-is. This prevents the load balancer from rewriting headers (including `X-Forwarded-For`) and does not work with sticky sessions.

For HTTPS, you can add a secure listener with the **secure listener port** and **protocol** options. You must also select a certificate to use to decrypt the connections. You can also disable the standard listener if you only want to accept secure connections.

### To turn on the secure listener port

1. Create and upload a certificate and key to AWS Identity and Access Management (IAM).

For more information about creating and uploading certificates, see the [Managing Server Certificates](#) section of *Using AWS Identity and Access Management*.

2. Open the [Elastic Beanstalk console](#).
3. Navigate to the [management console \(p. 52\)](#) for your environment.
4. Choose **Configuration**.
5. Specify the secure listener port by selecting a port from the **Secure Listener Port** list.
6. For **SSL Certificate ID**, choose the ARN of your SSL certificate. For example, `arn:aws:iam::123456789012:server-certificate/abc/certs/build`.
7. (Optional) Set **Listener port** to **OFF** to disable the standard listener.
8. Choose **Apply**.

For more detail on configuring HTTPS and working with certificates, see [Configuring HTTPS for your Elastic Beanstalk Environment \(p. 250\)](#).

## Connection Draining

Use these settings to turn connection draining on or off and set the **Draining timeout** to anything up to 3600 seconds.

**Connection Draining**

The following settings let you control how your load balancer drains connections.

Connection draining:  Enable connection draining.

Draining timeout (seconds):  Maximum time that the load balancer maintains connections to an Amazon EC2 instance before forcibly closing connections.

## Sessions

Use these settings to enable session sticking and configure the length of a session up to a maximum of 1000000 seconds.

**Sessions**

The following settings let you control whether the load balancer routes requests for the same session to the Amazon EC2 instance with the smallest load or consistently to the same instance.

Session stickiness:  Enable session stickiness.

Cookie expiration period (seconds):  Maximum amount of time that a session cookie between an Amazon EC2 instance and the load balancer is valid.

## Health Check

Specify an **Application health check URL** to configure the load balancer to make an HTTP GET request to a specific route. For example, type `/` to send requests to the application root, or `/health` to send requests to a resource at `/health`. If you don't configure a health check URL, the load balancer attempts to establish a TCP connection with the instance.

### Note

Configuring a health check URL does not affect the health check behavior of an environment's Auto Scaling group. Instances that fail an Elastic Load Balancing health check will not automatically be replaced by Auto Scaling unless you configure Auto Scaling to do so manually. See [Auto Scaling Health Check Setting \(p. 229\)](#) for details.

**EC2 Instance Health Check**

The following settings let you configure how Elastic Beanstalk determines whether an EC2 instance is healthy.

Application health check URL:  The address ELB checks to see if your application is responding.

Health check interval (seconds):  The approximate interval between health checks of an individual instance. The interval must be greater than the timeout value.

Health check timeout (seconds):  Amount of time during which no response means a failed health check. The timeout must be less than the interval value.

Healthy check count threshold:  The number of consecutive health check successes required before designating the instance as healthy.

Unhealthy check count threshold:  The number of consecutive health check failures that result in designating the instance as unhealthy.

The remaining options let you customize the number of seconds between each health check (**Health check interval**), the number of seconds to wait for the health check to return (**Health check timeout**), and the number of health checks that must pass (**Healthy check count threshold**) or fail (**Unhealthy check count threshold**) before Elastic Load Balancing marks an instance as healthy or unhealthy.

For more information on health checks and how they influence your environment's overall health, see [Basic Health Reporting \(p. 288\)](#).

## Load Balancer Configuration Namespaces

Elastic Beanstalk provides additional [configuration options](#) (p. 131) in the following namespaces that allow you to further customize the load balancer in your environment:

- [aws:elb:healthcheck](#) (p. 161) – Configure the thresholds, check interval and timeout for ELB health checks.
- [aws:elasticbeanstalk:application](#) (p. 155) – Configure the health check URL.
- [aws:elb:loadbalancer](#) (p. 161) – Enable cross-zone load balancing. Assign security groups to the load balancer and override the default security group that Elastic Beanstalk creates. This namespace also includes deprecated options for configuring the standard and secure listeners that have been replaced by options in the `aws:elb:listener` namespace.
- [aws:elb:listener](#) (p. 162) – Configure the default listener on port 80, a secure listener on 443, or additional listeners for any protocol on any port.
- [aws:elb:policies](#) (p. 163) – Configure additional settings for your load balancer. You can use options in this namespace to configure listeners on arbitrary ports, modify additional sticky session settings, and configure the load balancer to connect to EC2 instances securely.

### `aws:elb:listener`

You can use `aws:elb:listener` namespaces to configure additional listeners on your load balancer. If you specify `aws:elb:listener` as the namespace, settings apply to the default listener on port 80. If you specify a port (for example, `aws:elb:listener:443`), a listener is configured on that port.

The following example configuration file creates an HTTPS listener on port 443, assigns a certificate that the load balancer uses to terminate the secure connection, and disables the default listener on port 80. The load balancer forwards the decrypted requests to the EC2 instances in your environment on HTTP:80.

### Example `.ebextensions/loadbalancer-terminatehttps.config`

```
option_settings:
 aws:elb:listener:443:
 ListenerProtocol: HTTPS
 SSLCertificateId: arn:aws:iam::123456789012:server-certificate/elastic-
beanstalk-x509
 InstancePort: 80
 InstanceProtocol: HTTP
 aws:elb:listener:80:
 ListenerEnabled: false
```

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values](#) (p. 176) for details.

## Configuring Access Logs

You can use [configuration files](#) (p. 178) to configure your environment's load balancer to upload access logs to an Amazon S3 bucket. See the following example configuration files on GitHub for instructions:

- [loadbalancer-accesslogs-existingbucket.config](#) – Configure the load balancer to upload access logs to an existing Amazon S3 bucket.
- [loadbalancer-accesslogs-newbucket.config](#) – Configure the load balancer to upload access logs to a new bucket.



## Configuring Databases with Elastic Beanstalk

Elastic Beanstalk provides integration with Amazon RDS to help you add a database instance to your Elastic Beanstalk environment. You can use Elastic Beanstalk to add a MySQL, PostgreSQL, Oracle, or SQL Server database to your environment during or after environment creation. When you add a database instance to your environment, Elastic Beanstalk provides connection information to your application by setting environment properties for the database hostname, port, username, password, and database name.

A database instance that is part of your environment is tied to the lifecycle of your environment. If you terminate the environment, the database instance is terminated as well. An integrated database instance also cannot be removed from your environment once added.

For a production environment, you may want to [launch a database instance outside of your environment \(p. 380\)](#) and configure your application to connect to it outside of the functionality provided by Elastic Beanstalk. Using a database instance external to your environment requires additional security group and connection string configuration, but it also lets you connect to the database from multiple environments, use database types not supported with integrated databases, perform blue/green deployments, and tear down your environment without affecting the database instance.

### Configuring an Integrated RDS DB Instance

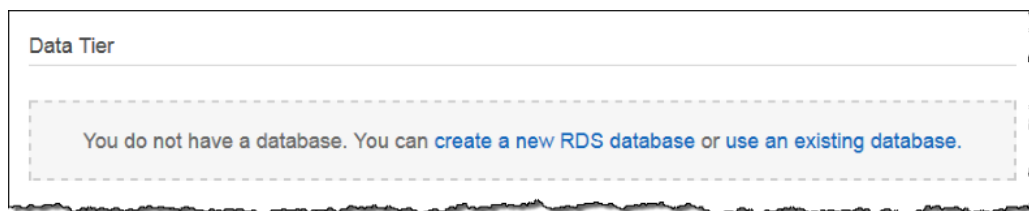
If you have a database associated with your environment, you can view the configuration settings by viewing the settings in the **Data Tier** section on the environment's **Configuration** page in the [environment management console \(p. 52\)](#).

The screenshot displays the 'RDS Database' configuration page in the AWS Elastic Beanstalk console. It is divided into two main sections: 'Connectivity Information' and 'Configuration Information'.  
**Connectivity Information:**  
- DB endpoint: aa1uzkl9441x0bm.ctouv6vtku5 sa-east-1.rds.amazonaws.com ( View in RDS Console )  
- Port: 3306  
- Master username: brussard  
- Password: [masked with asterisks]  
**Configuration Information:**  
- DB engine: mysql  
- Engine version: 5.5  
- Allocated storage: 9 GB (The allocated database storage size, specified in gigabytes.)  
- Instance class: db.t1.micro (Refresh button)  
- Deletion policy: Delete (Decides whether to delete or snapshot the DB instance on environment termination.)  
- Multi Availability Zone: true (Specifies whether a database instance Multi-AZ deployment needs to be created. Learn more.)

If you don't have an Amazon RDS database associated with your environment, you can associate one by clicking **create a new RDS database** on the **Configuration** page in the [environment management console \(p. 52\)](#).

## To create an Amazon RDS database and associate it with your existing environment

1. On the **Configuration** page, under **Data Tier**, click **create a new RDS database**.



2. Configure the following settings for your database:
  - (Optional) For **Snapshot**, select whether to create an Amazon RDS DB from an existing snapshot.
  - (Optional) For **DB engine**, select a database engine.
  - (Optional) For **Instance Class**, select a database instance class. For information about the DB instance classes, go to <http://aws.amazon.com/rds/>.
  - For **Allocated Storage**, type the space needed for your database. You can allocate between 5 GB and 1024 GB. You cannot update the allocated storage for a database to a lower amount after you set it. In some cases, allocating a larger amount of storage for your DB instance than the size of your database can improve IO performance. For information about storage allocation, go to [Features](#).
  - For **Master Username**, type a name using alphanumeric characters that you will use to log in to your DB instance with all database privileges.
  - For **Master Password**, type a password containing 8 to 16 printable ASCII characters (excluding /, \, and @).
  - For **Deletion Policy**, select **Create snapshot** to create a snapshot that you can use later to create another Amazon RDS database. Select **Delete** to delete the DB instance when you terminate the environment. If you select **Delete**, you lose your DB instance and all the data in it when you terminate the Elastic Beanstalk instance associated with it. By default, Elastic Beanstalk creates and saves a snapshot. You can use a snapshot to restore data to use in a new environment, but cannot otherwise recover lost data.

### Note

You may incur charges for storing database snapshots. For more information, see the "Backup Storage" section of [Amazon RDS Pricing](#).

- For **Availability**, select one of the following:
  - To configure your database in one Availability Zone, select **Single Availability Zone**. A database instance launched in one Availability Zone does not have protection from the failure of a single location.
  - To configure your database across multiple availability zones, select **Multiple Availability Zones**. Running your database instance in multiple Availability Zones helps safeguard your data in the unlikely event of a database instance component failure or service health disruption in one Availability Zone.
3. Click **Save**.

Elastic Beanstalk updates the environment and creates the Amazon RDS database. After the update is complete, you can view the databases by going to the **Configuration** page.


Use the connectivity information to connect to your DB from inside your application through environment variables. For more information about using Amazon RDS with your applications, see the following topics.

- Java — [Adding an Amazon RDS Database to Your Elastic Beanstalk Environment \(p. 614\)](#)

- Node.js — [Using a New Amazon RDS DB Instance with Node.js \(p. 727\)](#)
- .NET — [Using a New Amazon RDS DB Instance with .NET \(p. 667\)](#)
- PHP — [Using a New Amazon RDS DB Instance with PHP \(p. 760\)](#)
- Python — [Using a New Amazon RDS DB Instance with Python \(p. 784\)](#)
- Ruby — [Using a New Amazon RDS DB Instance with Ruby \(p. 804\)](#)

You can use the Elastic Beanstalk Management Console to edit some settings for the Amazon RDS database associated with your environment.

### To edit the Amazon RDS database instance associated with your environment

1. On the **Configuration** page, under **Data Tier**, click  for the **RDS** settings.
2. Update the configuration for any of the following Amazon RDS database settings:
  - For **Master Password**, type a password containing 8 to 16 printable ASCII characters (excluding /, \, and @).
  - For **Allocated Storage**, type the space needed for your database. You can allocate between 5 GB and 1024 GB. You cannot update the allocated storage for a database to a lower amount after you set it. In some cases, allocating a larger amount of storage for your DB instance than the size of your database can improve IO performance. For information about storage allocation, go to [Features](#).
  - (Optional) For **Instance Class**, select a database instance class. For information about the DB instance classes, go to <http://aws.amazon.com/rds/>.
  - For **Deletion Policy**, select **Create snapshot** to create a snapshot that you can use later to create another Amazon RDS database. Select **Delete** to delete the DB instance when you terminate the environment. If you select **Delete**, you lose your DB instance and all the data in it when you terminate the Elastic Beanstalk instance associated with it. By default, Elastic Beanstalk creates and saves a snapshot. You can use a snapshot to restore data to use in a new environment, but cannot otherwise recover lost data.

#### Note

You may incur charges for storing database snapshots. For more information, see the "Backup Storage" section of [Amazon RDS Pricing](#).

- For **Availability**, select one of the following:
  - To configure your database in one Availability Zone, select **Single Availability Zone**. A database instance launched in one Availability Zone does not have protection from the failure of a single location.
  - To configure your database across multiple availability zones, select **Multiple Availability Zones**. Running your database instance in multiple Availability Zones helps safeguard your data in the unlikely event of a database instance component failure or service health disruption in one Availability Zone.
- 3. Click **Save**.

Elastic Beanstalk updates the environment, replacing the Amazon RDS database if you changed the database instance class.

## Configuring VPC with Elastic Beanstalk

Amazon Virtual Private Cloud (Amazon VPC) enables you to define a virtual network in your own isolated section within the Amazon Web Services (AWS) cloud, known as a *virtual private cloud (VPC)*. Using VPC, you can deploy a new class of web applications on Elastic Beanstalk, including internal web applications (such as your recruiting application), web applications that connect to an on-premise

database (using a VPN connection), as well as private web service back ends. Elastic Beanstalk launches your AWS resources, such as instances, into your VPC. Your VPC closely resembles a traditional network, with the benefits of using AWS's scalable infrastructure. You have complete control over your VPC; you can select the IP address range, create subnets, and configure routes and network gateways. To protect the resources in each subnet, you can use multiple layers of security, including security groups and network access control lists. For more information about Amazon VPC, go to the [Amazon VPC User Guide](#).

You can view your environment's VPC configuration by viewing the **VPC** settings on the environment's **Configuration** page. If you do not see the **VPC** settings on the **Configuration** page, your current environment is not inside a VPC either because you are using a legacy container or you created the Elastic Beanstalk environment outside a VPC. To learn how to migrate to a nonlegacy container to use Amazon VPC with Elastic Beanstalk, see [Migrating Your Application from a Legacy Container Type](#) (p. 117). To learn how to create your VPC and launch your Elastic Beanstalk environment inside your VPC, see [Using Elastic Beanstalk with Amazon VPC](#) (p. 390).

## Configuring Amazon SNS Notifications with Elastic Beanstalk

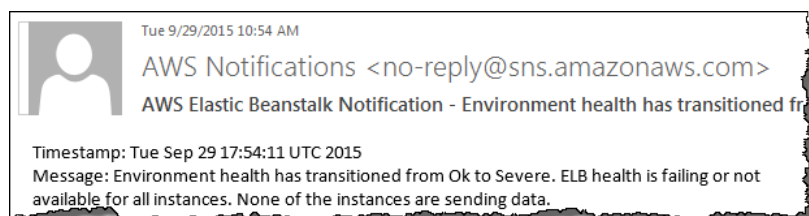
You can configure your AWS Elastic Beanstalk environment to use Amazon Simple Notification Service (Amazon SNS) to notify you of important events affecting your application. Specify an email address during or after environment creation to receive emails from AWS when an error occurs or your environment's health changes.

### Note

Elastic Beanstalk uses Amazon Simple Notification Service for notifications. For details on Amazon SNS pricing, see <http://aws.amazon.com/sns/pricing/>.

When you configure notifications for your environment, Elastic Beanstalk creates an Amazon SNS topic for your environment. When a notable [event](#) (p. 809) occurs, Elastic Beanstalk sends a message to the topic. Amazon SNS relays messages it receives to the topic's subscribers.

Notable events include environment creation errors and all changes in [environment and instance health](#) (p. 291). Events for Auto Scaling operations (adding and removing instances from the environment) and other informational events do not trigger notifications.



The Elastic Beanstalk console lets you enter an email address during or after environment creation to create an Amazon SNS topic and subscribe to it. Elastic Beanstalk manages the lifecycle of the topic, and deletes it when your environment is terminated or you remove your email address in the [environment management console](#) (p. 52).

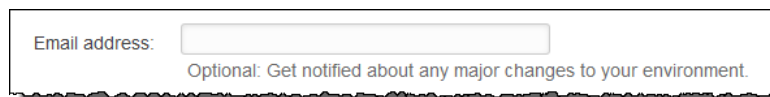
The `aws:elasticbeanstalk:sns:topics` configuration option namespace provides options for configuring an Amazon SNS topic in configuration files, or by using a CLI or SDK. These methods let you configure the type of subscriber as well as the endpoint, so that the subscriber can be an SQS queue or HTTP URL.

Amazon SNS notifications can only be turned on or off. Depending on the size and composition of your environment, the frequency of notifications sent to the topic can be high. For notifications that are only sent under specific circumstances, you can [configure your environment to publish custom metrics \(p. 300\)](#) and [set Amazon CloudWatch alarms \(p. 315\)](#) to notify you when those metrics reach an unhealthy threshold.

## Configuring an Amazon SNS topic in the Elastic Beanstalk console

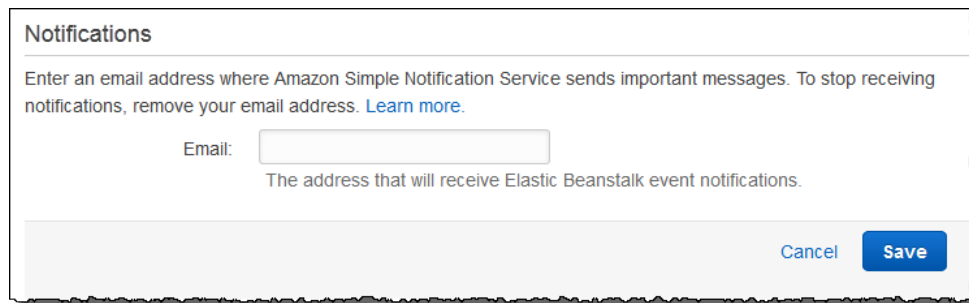
The Elastic Beanstalk console lets you enter an email address during or after environment creation to create an SNS topic for your environment.

During [environment creation \(p. 61\)](#), enter an **Email address** on the **Configuration Details** page:



Email address:   
Optional: Get notified about any major changes to your environment.

On a running environment, enter an **Email** on the environment configuration menu under **Notifications**:



Notifications

Enter an email address where Amazon Simple Notification Service sends important messages. To stop receiving notifications, remove your email address. [Learn more.](#)

Email:   
The address that will receive Elastic Beanstalk event notifications.

Cancel

When you enter an email address in either of these locations, Elastic Beanstalk creates an SNS topic for your environment and adds a subscription. SNS sends an email to the subscribed address to confirm the subscription. You must click on the link in the confirmation email to activate the subscription and receive notifications.

## The `aws:elasticbeanstalk:sns:topics` Namespace

Use the options in the [aws:elasticbeanstalk:sns:topics namespace \(p. 159\)](#) to configure SNS notifications for your environment. These options can be set by using configuration files, a CLI or an SDK.

**Notification Endpoint** – Email address, SQS queue, or URL to send notifications to. Setting this option creates an SQS queue and a subscription for the specified endpoint. If the endpoint is not an email address, you must set the **Notification Protocol** option as well. SNS validates the value of **Notification Endpoint** based on the value of **Notification Protocol**. Setting this option multiple times creates additional subscriptions to the topic. Removing this option deletes the topic.

**Notification Protocol** – The protocol used to send notifications to the **Notification Endpoint**. This option defaults to `email`. Set this option to `email-json` to send JSON formatted emails, `http` or `https` to post JSON formatted notifications to an HTTP endpoint, or `sqs` to send notifications to an SQS queue.

### Note

Lambda notifications are not currently supported.

**Notification Topic ARN** – After setting a notification endpoint for your environment, read this setting to get the ARN of the SNS topic. You can also set this option to use an existing SNS topic for notifications. A topic that you attach to your environment with this option is not deleted when this option is changed or the environment is terminated.

**Notification Topic Name** – Set this option to customize the name of the SNS topic used for environment notifications. If a topic with the same name already exists, Elastic Beanstalk attaches that topic to the environment.

### Warning

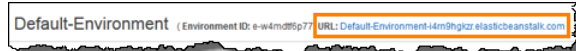
If you attach an existing SNS topic to an environment with **Notification Topic Name**, Elastic Beanstalk will delete the topic if you terminate the environment or change this setting.

Changing this option also changes the **Notification Topic ARN**. If a topic is already attached to the environment, Elastic Beanstalk deletes the old topic, and then creates a new topic and subscription.

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values \(p. 176\)](#) for details.

## Your Elastic Beanstalk Environment's Domain Name

Your environment is available to users at a subdomain of `elasticbeanstalk.com`. When you [create an environment \(p. 61\)](#), you can choose a unique subdomain that represents your application. To route users to your environment Elastic Beanstalk registers a CNAME record that points to your environment's load balancer. You can see the current value of the CNAME in the [Environment Dashboard \(p. 53\)](#):



You can change the CNAME on your environment by swapping it with the CNAME of another environment. For instructions, see [Blue/Green Deployments with AWS Elastic Beanstalk \(p. 103\)](#).

If you own a domain name, you can use Amazon Route 53 to resolve it to your environment. You can purchase a domain name with Amazon Route 53, or use one that you purchase from another provider. To purchase a domain name with Amazon Route 53, see [Registering a New Domain](#) in the *Amazon Route 53 Developer Guide*.

To use a custom domain name, first create a hosted zone for your domain. A hosted zone contains the name server and start of authority (SOA) records that specify the DNS hosts that will resolve requests for your domain name.

### To create a hosted zone in Amazon Route 53

1. Open the [Amazon Route 53 management console](#).
2. Choose **Hosted Zones**.
3. Choose **Create Hosted Zone**.
4. For **Domain Name**, type the domain name that you own. For example: `example.com`.

5. Choose **Create**.

Next, add a record to the hosted zone that resolves your domain name to your environment. When an Amazon Route 53 DNS server receives a name request for your custom domain name, it resolves to the elasticbeanstalk.com subdomain, which resolves to the public DNS name of your Elastic Load Balancing load balancer, which relays requests to the instances in your environment.

**Note**

In a single-instance environment, the elasticbeanstalk.com subdomain resolves to an Elastic IP address attached to the instance running your application.

If your environment has a regionalized subdomain, you can use an Amazon Route 53 [alias resource record set](#) to save money on name resolution. The domain name for an environment with a regionalized subdomain includes the region; for example, `my-environment.us-west-2.elasticbeanstalk.com`.

### To add an alias resource record set in Amazon Route 53

1. Open the [Amazon Route 53 management console](#).
2. Choose **Hosted Zones**.
3. Choose your hosted zone's name.
4. Choose **Create Record Set**.
5. For **Name**, type the subdomain that will redirect to your Elastic Beanstalk application. For example: `www`.
6. For **Type**, choose **A - IPv4 address**.
7. For **Alias**, choose **yes**.
8. For **Alias Target**, choose the domain name of your Elastic Beanstalk environment.
9. Choose **Save Record Set**.

If your environment does not have a regionalized subdomain, create a CNAME record instead.

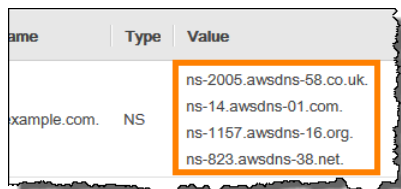
### To add a CNAME record in Amazon Route 53

1. Open the [Amazon Route 53 management console](#).
2. Choose **Hosted Zones**.
3. Choose your hosted zone's name.
4. Choose **Create Record Set**.
5. For **Name**, type the subdomain that will redirect to your Elastic Beanstalk application. For example: `www`.
6. For **Type**, choose **CNAME - Canonical Name**.
7. For **Value**, type the domain name of your Elastic Beanstalk environment. For example: `example.elasticbeanstalk.com`.
8. Choose **Save Record Set**.

DNS records take up to 24 hours to propagate worldwide.

If you registered a domain name with another provider, register the name servers in your Amazon Route 53 hosted zone in the domain configuration. When your provider receives DNS requests for your domain name, it will forward them to Amazon Route 53's name servers to resolve the domain name to an IP address. Look for a setting called *Nameservers* or check your provider's documentation.

The Amazon Route 53 console displays the list of name servers for your hosted zone in an NS record on the **Hosted Zones** page:



The image shows a screenshot of a DNS record table. The table has three columns: 'Name', 'Type', and 'Value'. The 'Name' column contains 'example.com.'. The 'Type' column contains 'NS'. The 'Value' column contains four entries: 'ns-2005.awsdns-58.co.uk.', 'ns-14.awsdns-01.com.', 'ns-1167.awsdns-16.org.', and 'ns-823.awsdns-38.net.'. The entire row is highlighted with an orange border.

| Name         | Type | Value                                                                                               |
|--------------|------|-----------------------------------------------------------------------------------------------------|
| example.com. | NS   | ns-2005.awsdns-58.co.uk.<br>ns-14.awsdns-01.com.<br>ns-1167.awsdns-16.org.<br>ns-823.awsdns-38.net. |

If you have multiple environments running your application, you can use the Elastic Beanstalk console to swap two environments' domain names. This allows you to deploy a new version of your application to a standby environment, test it, and then swap domains with the production environment.

When you perform a CNAME swap, users are directed to the new version of your application with zero downtime. This is known as a *blue/green deployment*.

### To swap environment CNAMEs

1. Open the [Elastic Beanstalk console](#).
2. Choose either environment to open the **Environment Dashboard**.
3. Choose **Actions**, and then choose **Swap Environment URLs**.
4. Select the other environment.
5. Choose **Swap**.

## Configuring HTTPS for your Elastic Beanstalk Environment

If you've purchased and configured a [custom domain name \(p. 248\)](#) for your Elastic Beanstalk environment, you can use HTTPS to allow users to connect to your web site securely. If you don't own a domain name, you can still use HTTPS with a self-signed certificate for development and testing purposes. HTTPS is a must for any application that transmits user data or login information.

The simplest way to use HTTPS with an Elastic Beanstalk environment is to [assign a server certificate to your environment's load balancer \(p. 254\)](#). When you configure your load balancer to terminate HTTPS, the connection between the client and the load balancer is secure. Backend connections between the load balancer and EC2 instances use HTTP, so no additional configuration of the instances is required.

#### Note

With [AWS Certificate Manager \(ACM\)](#), you can create a trusted certificate for your domain names for free. ACM certificates can only be used with AWS load balancers and CloudFront distributions.

To use an ACM certificate with Elastic Beanstalk, see [Configuring Your Elastic Beanstalk Environment's Load Balancer to Terminate HTTPS \(p. 254\)](#)

If you run your application in a single instance environment, or need to secure the connection all the way to the EC2 instances behind the load balancer, you can [configure the proxy server that runs on the instance to terminate HTTPS \(p. 255\)](#). Configuring your instances to terminate HTTPS connections requires the use of [configuration files \(p. 178\)](#) to modify the software running on the instances, and to modify security groups to allow secure connections.

For end-to-end HTTPS in a load balanced environment, you can [combine instance and load balancer termination \(p. 280\)](#) to encrypt both connections. By default, if you configure the load balancer to forward traffic using HTTPS, it will trust any certificate presented to it by the backend instances. For



maximum security, you can attach policies to the load balancer that prevent it from connecting to instances that don't present a public certificate that it trusts.

**Note**

You can also configure the load balancer to [relay HTTPS traffic without decrypting it \(p. 282\)](#). The down side to this method is that the load balancer cannot see the requests and thus cannot optimize routing or report response metrics.

If ACM is not available in your region, you can purchase a trusted certificate from a third party. A third party certificate can be used to decrypt HTTPS traffic at your load balancer, on the backend instances, or both.

For development and testing, you can [create and sign a certificate \(p. 251\)](#) yourself with open source tools. Self-signed certificates are free and easy to create, but cannot be used for front-end decryption on public sites. If you attempt to use a self-signed certificate for an HTTPS connection with a client, the user's browser will show an error indicating that your web site is unsafe. You can, however, use a self signed certificate to secure backend connections without issue.

You can [upload a third party or self signed certificate and private key \(p. 253\)](#) to AWS Identity and Access Management (IAM) by using the AWS CLI. Certificates stored in IAM can be used with load balancers and CloudFront distributions.

**Note**

The [Does it have Snakes?](#) sample application on GitHub includes configuration files and instructions for each method of configuring HTTPS with a Tomcat web application. See the [readme file](#) and [HTTPS instructions](#) for details.

Topics

- [Create and Sign an X509 Certificate \(p. 251\)](#)
- [Upload a Certificate to IAM \(p. 253\)](#)
- [Configuring Your Elastic Beanstalk Environment's Load Balancer to Terminate HTTPS \(p. 254\)](#)
- [Configuring Your Application to Terminate HTTPS Connections at the Instance \(p. 255\)](#)
- [Configuring End-to-End Encryption in a Load Balanced Elastic Beanstalk Environment \(p. 280\)](#)
- [Configuring Your Environment's Load Balancer for TCP Passthrough \(p. 282\)](#)
- [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#)

## Create and Sign an X509 Certificate

You can create an X509 certificate for your application with OpenSSL. OpenSSL is a standard, open source library that supports a wide range of cryptographic functions, including the creation and signing of x509 certificates. For more information about OpenSSL, visit [www.openssl.org](http://www.openssl.org).

**Note**

You only need to create a certificate locally if you want to [use HTTPS in a single instance environment \(p. 255\)](#) or [re-encrypt on the backend \(p. 280\)](#) with a self-signed certificate. If you own a domain name, you can create a certificate in AWS and use it with a load balanced environment for free by using AWS Certificate Manager (ACM). See [Request a Certificate](#) in the *AWS Certificate Manager User Guide* for instructions.

Run `openssl version` at the command line to see if you already have OpenSSL installed. If you don't, you can build and install the source code using the instructions at the [public GitHub repository](#), or use your favorite package manager. OpenSSL is also installed on Elastic Beanstalk's Linux images, so a quick alternative is to connect to an EC2 instance in a running environment by using the [EB CLI \(p. 416\)](#)'s `eb ssh` command:

```
~/eb$ eb ssh
```

```
[ec2-user@ip-255-55-55-255 ~]$ openssl version
OpenSSL 1.0.1k-fips 8 Jan 2015
```

You need to create an RSA private key to create your certificate signing request (CSR). To create your private key, use the **openssl genrsa** command:

```
[ec2-user@ip-255-55-55-255 ~]$ openssl genrsa 2048 > privatekey.pem
Generating RSA private key, 2048 bit long modulus
.....
+++
.....+++
e is 65537 (0x10001)
```

*privatekey.pem*

The name of the file where you want to save the private key. Normally, the **openssl genrsa** command prints the private key contents to the screen, but this command pipes the output to a file. Choose any file name, and store the file in a secure place so that you can retrieve it later. If you lose your private key, you won't be able to use your certificate.

A CSR is a file you send to a certificate authority (CA) to apply for a digital server certificate. To create a CSR, use the **openssl req** command:

```
$ openssl req -new -key privatekey.pem -out csr.pem
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
```

Enter the information requested and press **Enter**. The following table describes and shows examples for each field:

| Name                | Description                                                                                                                                                              | Example             |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Country Name        | The two-letter ISO abbreviation for your country.                                                                                                                        | US = United States  |
| State or Province   | The name of the state or province where your organization is located. You cannot abbreviate this name.                                                                   | Washington          |
| Locality Name       | The name of the city where your organization is located.                                                                                                                 | Seattle             |
| Organization Name   | The full legal name of your organization. Do not abbreviate your organization name.                                                                                      | Example Corporation |
| Organizational Unit | Optional, for additional organization information.                                                                                                                       | Marketing           |
| Common Name         | The fully qualified domain name for your web site. This must match the domain name that users see when they visit your site, otherwise certificate errors will be shown. | www.example.com     |
| Email address       | The site administrator's email address.                                                                                                                                  | someone@example.com |

You can submit the signing request to a third party for signing, or sign it yourself for development and testing. Self-signed certificates can also be used for backend HTTPS between a load balancer and EC2 instances.

To sign the certificate, use the **openssl x509** command. The following example uses the private key from the previous step (*privatekey.pem*) and the signing request (*csr.pem*) to create a public certificate named *server.crt* that is valid for 365 days :

```
$ openssl x509 -req -days 365 -in csr.pem -signkey privatekey.pem -
out server.crt
Signature ok
subject=/C=us/ST=washington/L=seattle/O=example corporation/OU=marketing/
CN=www.example.com/emailAddress=someone@example.com
Getting Private key
```

Keep the private key and public certificate for later use. You can discard the signing request. Always [store the private key in a secure location \(p. 283\)](#) and avoid adding it to your source code.

To use the certificate with the Windows Server platform, you must convert it to a PFX format. Use the following command to create a PFX certificate from the private key and public certificate files:

```
$ openssl pkcs12 -export -out example.com.pfx -inkey private.key -
in public.crt
Enter Export Password: password
Verifying - Enter Export Password: password
```

Now that you have a certificate, you can [upload it to IAM \(p. 253\)](#) for use with a load balancer, or [configure the instances in your environment to terminate HTTPS \(p. 255\)](#).

## Upload a Certificate to IAM

To use your certificate with your Elastic Beanstalk environment's load balancer, upload the certificate and private key to AWS Identity and Access Management (IAM). You can use a certificate stored in IAM with Elastic Load Balancing load balancers and CloudFront distributions.

You can use the [AWS Command Line Interface \(p. 415\)](#) (AWS CLI) to upload your certificate. The following command uploads a self-signed certificate named *https-cert.crt* with a private key named *private-key.pem*:

```
$ aws iam upload-server-certificate --server-certificate-name elastic-
beanstalk-x509 --certificate-body file://https-cert.crt --private-key
file://private-key.pem
{
 "ServerCertificateMetadata": {
 "ServerCertificateId": "AS5YBEIONO2Q7CAIHKNGC",
 "ServerCertificateName": "elastic-beanstalk-x509",
 "Expiration": "2017-01-31T23:06:22Z",
 "Path": "/",
 "Arn": "arn:aws:iam::123456789012:server-certificate/elastic-
beanstalk-x509",
 "UploadDate": "2016-02-01T23:10:34.167Z"
 }
}
```

The `file://` prefix tells the AWS CLI to load the contents of a file in the current directory. *elastic-beanstalk-x509* specifies the name to call the certificate in IAM.

If you purchased a certificate from a certificate authority and received a certificate chain file, upload that as well by including the `--certificate-chain` option:

```
$ aws iam upload-server-certificate --server-certificate-name elastic-
beanstalk-x509 --certificate-chain file://certificate-chain.pem --
certificate-body file://https-cert.crt --private-key file://private-key.pem
```

Make note of the Amazon Resource Name (ARN) for your certificate. You will use it when you update your load balancer configuration settings to use HTTPS.

To see sample certificates that are valid with IAM, go to [Sample Certificates](#) in the *AWS Identity and Access Management Using IAM User Guide*.

## Configuring Your Elastic Beanstalk Environment's Load Balancer to Terminate HTTPS

To update your Elastic Beanstalk environment to use HTTPS, you need to configure an HTTPS listener for the load balancer in your environment.

You can use the Elastic Beanstalk Management Console to configure a secure listener and assign the certificate.

### To assign a certificate to your environment's load balancer (AWS Management Console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. In the **Network Tier** section, choose the gear icon next to **Load Balancing**.

#### Note

If the **Network Tier** section is not shown, your environment does not have a [load balancer](#) (p. 121).

5. In the **Load Balancer** section, choose your certificate from the **SSL certificate ID** drop down menu.

## Configuring a Secure Listener with a Configuration File

You can configure a secure listener on your load balancer with a [configuration file](#) (p. 178) like the following:

### Example `.ebextensions/securelistener.config`

```
option_settings:
 aws:elb:listener:443:
 SSLCertificateId: arn:aws:acm:us-east-1:1234567890123:certificate/

 ListenerProtocol: HTTPS
 InstancePort: 80
```

Replace the highlighted text with the ARN of your certificate. The certificate can be one that you created in ACM or one that you uploaded to IAM with the AWS CLI.

The above example uses options in the `aws:elb:listener` namespace to configure an HTTPS listener on port 443 with the specified certificate, and forward the decrypted traffic to the instances in your environment on port 80.

For more information on load balancer configuration options, see [Load Balancer Configuration Namespaces](#) (p. 242).

## Security Group Configuration

If you configure your load balancer to forward traffic to an instance port other than port 80, you must add a rule to your security group that allows inbound traffic over the instance port from your load balancer. If you create your environment in a custom VPC, Elastic Beanstalk adds this rule for you.

You add this rule by adding a `Resources` key to a [configuration file](#) (p. 178) in the `.ebextensions` directory for your application.

The following example configuration file adds an ingress rule to the `AWSEBSecurityGroup` security group allows traffic on port 1000 from the load balancer's security group.

### Example `.ebextensions/sg-ingressfromlb.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 1000
 FromPort: 1000
 SourceSecurityGroupName: {"Fn::GetAtt" : ["AWSEBLoadBalancer" ,
"SourceSecurityGroup.GroupName"]}
```

## Configuring Your Application to Terminate HTTPS Connections at the Instance

You can use [configuration files](#) (p. 178) to configure the proxy server that passes traffic to your application to terminate HTTPS connections. This is useful if you want to use HTTPS with a single instance environment, or if you configure your load balancer to pass traffic through without decrypting it.

To enable HTTPS, you must allow incoming traffic on port 443 to the EC2 instance that your Elastic Beanstalk application is running on. You do this by using the `Resources` key in the configuration file to add a rule for port 443 to the ingress rules for the `AWSEBSecurityGroup` security group.

The following snippet adds an ingress rule to the `AWSEBSecurityGroup` security group that opens port 443 to all traffic for a single instance environment:

### `.ebextensions/https-instance-securitygroup.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

In a load balanced environment in a default VPC, you can modify this policy to only accept traffic from the load balancer. See [Configuring End-to-End Encryption in a Load Balanced Elastic Beanstalk Environment \(p. 280\)](#) for an example.

#### Platforms

- [Terminating HTTPS on EC2 Instances Running Docker \(p. 256\)](#)
- [Terminating HTTPS on EC2 Instances Running Go \(p. 258\)](#)
- [Terminating HTTPS on EC2 Instances Running Java SE \(p. 260\)](#)
- [Terminating HTTPS on EC2 Instances Running Node.js \(p. 262\)](#)
- [Terminating HTTPS on EC2 Instances Running PHP \(p. 264\)](#)
- [Terminating HTTPS on EC2 Instances Running Python \(p. 267\)](#)
- [Terminating HTTPS on EC2 Instances Running Ruby \(p. 270\)](#)
- [Terminating HTTPS on EC2 Instances Running Tomcat \(p. 275\)](#)
- [Terminating HTTPS on EC2 Instances Running .NET \(p. 277\)](#)

## Terminating HTTPS on EC2 Instances Running Docker

For Docker containers, you use a [configuration file \(p. 178\)](#) to enable HTTPS.

Add the following snippet to your configuration file, replacing the certificate and private key material as instructed, and save it in your source bundle's `.ebextensions` directory. The configuration file performs the following tasks:

- The `files` key creates the following files on the instance:

```
/etc/nginx/conf.d/https.conf
```

Configures the nginx server. This file is loaded when the nginx service starts.

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

#### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

### Example `.ebextensions/https-instance.config`

```
files:
 /etc/nginx/conf.d/https.conf:
 mode: "000644"
 owner: root
 group: root
 content: |
 # HTTPS Server

 server {
 listen 443;
 server_name localhost;

 ssl on;
 ssl_certificate /etc/pki/tls/certs/server.crt;
 ssl_certificate_key /etc/pki/tls/certs/server.key;

 ssl_session_timeout 5m;

 ssl_protocols TLSv1 TLSv1.1 TLSv1.2;
 ssl_ciphers "EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH";
 ssl_prefer_server_ciphers on;

 location / {
 proxy_pass http://docker;
 proxy_http_version 1.1;

 proxy_set_header Connection "";
 proxy_set_header Host $host;
 proxy_set_header X-Real-IP $remote_addr;
 proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
 }
 }

 /etc/pki/tls/certs/server.crt:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----
```

#### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function](#) (p. 214) and adds a rule to it:

### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched](#) (p. 282), or [decrypt and re-encrypt](#) (p. 280) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running Go

For Go container types, you enable HTTPS with a [configuration file](#) (p. 178) and an nginx configuration file that configures the nginx server to use HTTPS.

Add the following snippet to your configuration file, replacing the certificate and private key placeholders as instructed, and save it in your source bundle's `.ebextensions` directory. The configuration file performs the following tasks:

- The `Resources` key enables port 443 on the security group used by your environment's instance.
- The `files` key creates the following files on the instance:

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

#### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

- The `container_commands` key restarts the nginx server after everything is configured so that the server loads the nginx configuration file.



### Example .ebextensions/https-instance.config

```
files:
 /etc/pki/tls/certs/server.crt:
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----

container_commands:
 01restart_nginx:
 command: "service nginx restart"
```

#### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

Place the following in a file with the .conf extension in the .ebextensions/nginx/conf.d/ directory of your source bundle (e.g., .ebextensions/nginx/conf.d/https.conf). Replace *app\_port* with the port number that your application listens on. This example configures the nginx server to listen on port 443 using SSL. For more information about these configuration files on the Go platform, see [Configuring the Reverse Proxy \(p. 592\)](#).

### Example .ebextensions/nginx/conf.d/https.conf

```
HTTPS server

server {
 listen 443;
 server_name localhost;

 ssl on;
 ssl_certificate /etc/pki/tls/certs/server.crt;
 ssl_certificate_key /etc/pki/tls/certs/server.key;

 ssl_session_timeout 5m;

 ssl_protocols TLSv1 TLSv1.1 TLSv1.2;
 ssl_ciphers "EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH";
 ssl_prefer_server_ciphers on;

 location / {
 proxy_pass http://localhost:app_port;
 proxy_set_header Connection "";
 proxy_http_version 1.1;
 proxy_set_header Host $host;
 proxy_set_header X-Real-IP $remote_addr;
 proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
 }
}
```

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function \(p. 214\)](#) and adds a rule to it:

### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched \(p. 282\)](#), or [decrypt and re-encrypt \(p. 280\)](#) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running Java SE

For Java SE container types, you enable HTTPS with an `.ebextensions` [configuration file \(p. 178\)](#), and an nginx configuration file that configures the nginx server to use HTTPS.

Add the following snippet to your configuration file, replacing the certificate and private key placeholders as instructed, and save it in the `.ebextensions` directory. The configuration file performs the following tasks:

- The `files` key creates the following files on the instance:

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

- The `container_commands` key restarts the nginx server after everything is configured so that the server loads the nginx configuration file.

### Example .ebextensions/https-instance.config

```
files:
 /etc/pki/tls/certs/server.crt:
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----

container_commands:
 01restart_nginx:
 command: "service nginx restart"
```

#### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

Place the following in a file with the .conf extension in the .ebextensions/nginx/conf.d/ directory of your source bundle (e.g., .ebextensions/nginx/conf.d/https.conf). Replace *app\_port* with the port number that your application listens on. This example configures the nginx server to listen on port 443 using SSL. For more information about these configuration files on the Java SE platform, see [Configuring the Reverse Proxy \(p. 612\)](#).

### Example ebextensions/nginx/conf.d/https.conf

```
HTTPS server

server {
 listen 443;
 server_name localhost;

 ssl on;
 ssl_certificate /etc/pki/tls/certs/server.crt;
 ssl_certificate_key /etc/pki/tls/certs/server.key;

 ssl_session_timeout 5m;

 ssl_protocols TLSv1 TLSv1.1 TLSv1.2;
 ssl_ciphers "EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH";
 ssl_prefer_server_ciphers on;

 location / {
 proxy_pass http://localhost:app_port;
 proxy_set_header Connection "";
 proxy_http_version 1.1;
 proxy_set_header Host $host;
 proxy_set_header X-Real-IP $remote_addr;
 proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
 }
}
```

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function](#) (p. 214) and adds a rule to it:

#### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: { "Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"] }
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched](#) (p. 282), or [decrypt and re-encrypt](#) (p. 280) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running Node.js

The following example configuration file [extends the default nginx configuration](#) (p. 702) to listen on port 443 and terminate SSL/TLS connections with a public certificate and private key.

### Example `.ebextensions/https-instance.config`

```
files:
 /etc/nginx/conf.d/https.conf:
 mode: "000644"
 owner: root
 group: root
 content: |
 # HTTPS server

 server {
 listen 443;
 server_name localhost;

 ssl on;
 ssl_certificate /etc/pki/tls/certs/server.crt;
 ssl_certificate_key /etc/pki/tls/certs/server.key;

 ssl_session_timeout 5m;

 ssl_protocols TLSv1 TLSv1.1 TLSv1.2;
 ssl_ciphers "EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH";
 ssl_prefer_server_ciphers on;

 location / {
 proxy_pass http://nodejs;
 proxy_set_header Connection "";
 proxy_http_version 1.1;
 proxy_set_header Host $host;
 proxy_set_header X-Real-IP $remote_addr;
 proxy_set_header X-Forwarded-For
$proxy_add_x_forwarded_for;
 }
 }

 /etc/pki/tls/certs/server.crt:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----
```

The files key creates the following files on the instance:

`/etc/nginx/conf.d/https.conf`

Configures the nginx server. This file is loaded when the nginx service starts.

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

**Note**

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

**Note**

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function \(p. 214\)](#) and adds a rule to it:

**Example `.ebextensions/https-instance-single.config`**

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched \(p. 282\)](#), or [decrypt and re-encrypt \(p. 280\)](#) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running PHP

For PHP container types, you use a [configuration file \(p. 178\)](#) to enable the Apache HTTP Server to use HTTPS.

Add the following snippet to your configuration file, replacing the certificate and private key material as instructed, and save it in your source bundle's `.ebextensions` directory.

The configuration file performs the following tasks:

- The `packages` key uses `yum` to install `mod24_ssl`.
- The `files` key creates the following files on the instance:

`/etc/httpd/conf.d/ssl.conf`

Configures the Apache server. This file loads when the Apache service starts.

`/etc/pki/tls/certs/server.crt`

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

**Note**

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

`/etc/pki/tls/certs/server.key`

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

### Example .ebextensions/https-instance.config

```
packages:
 yum:
 mod24_ssl : []

files:
 /etc/httpd/conf.d/ssl.conf:
 mode: "000644"
 owner: root
 group: root
 content: |
 LoadModule ssl_module modules/mod_ssl.so
 Listen 443
 <VirtualHost *:443>
 <Proxy *>
 Order deny,allow
 Allow from all
 </Proxy>

 SSLEngine on
 SSLCertificateFile "/etc/pki/tls/certs/server.crt"
 SSLCertificateKeyFile "/etc/pki/tls/certs/server.key"
 SSLCipherSuite EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH
 SSLProtocol All -SSLv2 -SSLv3
 SSLHonorCipherOrder On
 SSLSessionTickets Off

 Header always set Strict-Transport-Security "max-age=63072000;
includeSubdomains; preload"
 Header always set X-Frame-Options DENY
 Header always set X-Content-Type-Options nosniff

 ProxyPass / http://localhost:80/ retry=0
 ProxyPassReverse / http://localhost:80/
 ProxyPreserveHost on
 RequestHeader set X-Forwarded-Proto "https" early

 </VirtualHost>

 /etc/pki/tls/certs/server.crt:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----
```



### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function \(p. 214\)](#) and adds a rule to it:

### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched \(p. 282\)](#), or [decrypt and re-encrypt \(p. 280\)](#) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running Python

For Python container types using Apache HTTP Server with the Web Server Gateway Interface (WSGI), you use a [configuration file \(p. 178\)](#) to enable the Apache HTTP Server to use HTTPS.

Add the following snippet to your [configuration file \(p. 178\)](#), replacing the certificate and private key material as instructed, and save it in your source bundle's `.ebextensions` directory. The configuration file performs the following tasks:

- The `packages` key uses `yum` to install `mod24_ssl`.
- The `files` key creates the following files on the instance:

```
/etc/httpd/conf.d/ssl.conf
```

Configures the Apache server. Replace *python site-packages directories* with the Python site-packages directories in your environment, separating each directory with a colon (:). The Python site-packages directories vary depending on your environment.

Python 2.7

- `/opt/python/run/venv/lib/python2.7/site-packages`
- `/opt/python/run/venv/lib64/python2.7/site-packages`

Python 3.4

- `/opt/python/run/venv/lib/python3.4/site-packages`
- `/opt/python/run/venv/lib64/python3.4/site-packages`

Depending on your application requirements, you may also need to add other directories to the `python-path` parameter.

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

- The `container_commands` key stops the `httpd` service after everything has been configured so that the service uses the new `https.conf` file and certificate.
- If your application is not named `application.py`, replace the highlighted text in the value for `WSGIScriptAlias` with the local path to your application. For example, a django application's may be at `django/wsgi.py`. The location should match the value of the `WSGIPath` option that you set for your environment.

```
packages:
```

```
 yum:
```

```
 mod24_ssl : []
```

```
files:
```

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Terminate HTTPS at the Instance

```
/etc/httpd/conf.d/ssl.conf:
```

```
 mode: "000644"
```

```
 owner: root
```

```
 group: root
```

```
 content: |
```

```
 LoadModule wsgi_module modules/mod_wsgi.so
```

```
 WSGIPythonHome /opt/python/run/baselinenv
```

```
 WSGISocketPrefix run/wsgi
```

```
 WSGIRestrictEmbedded On
```

```
 Listen 443
```

```
 <VirtualHost *:443>
```

```
 SSLEngine on
```

```
 SSLCertificateFile "/etc/pki/tls/certs/server.crt"
```

```
 SSLCertificateKeyFile "/etc/pki/tls/certs/server.key"
```

```
 Alias /static/ /opt/python/current/app/static/
```

```
 <Directory /opt/python/current/app/static>
```

```
 Order allow,deny
```

```
 Allow from all
```

```
 </Directory>
```

```
 WSGIScriptAlias / /opt/python/current/app/application.py
```

```
 <Directory /opt/python/current/app>
```

```
 Require all granted
```

```
 </Directory>
```

```
 WSGIDaemonProcess wsgi-ssl processes=1 threads=15 display-name=
```

```
%{GROUP} \
```

```
 python-path=/opt/python/current/app:<python site-packages
```

```
directories> \
```

```
 home=/opt/python/current/app \
```

```
 user=wsgi \
```

```
 group=wsgi
```

```
 WSGIProcessGroup wsgi-ssl
```

```
 </VirtualHost>
```

```
/etc/pki/tls/certs/server.crt:
```

```
 mode: "000400"
```

```
 owner: root
```

```
 group: root
```

```
 content: |
```

```
 -----BEGIN CERTIFICATE-----
```

```
 certificate file contents
```

```
 -----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key:
```

```
 mode: "000400"
```

```
 owner: root
```

```
 group: root
```

```
 content: |
```

```
 -----BEGIN RSA PRIVATE KEY-----
```

```
 private key contents # See note below.
```

```
 -----END RSA PRIVATE KEY-----
```

```
container_commands:
```

```
 01killhttpd:
```

```
 command: "killall httpd"
```

```
 02waitforhttpdeath:
```

```
 command: "sleep 3"
```

### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function \(p. 214\)](#) and adds a rule to it:

### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched \(p. 282\)](#), or [decrypt and re-encrypt \(p. 280\)](#) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running Ruby

For Ruby container types, the way you enable HTTPS depends on the type of application server used.

### Topics

- [Configure HTTPS for Ruby with Puma \(p. 270\)](#)
- [Configure HTTPS for Ruby with Passenger \(p. 273\)](#)

## Configure HTTPS for Ruby with Puma

For Ruby container types that use Puma as the application server, you use a [configuration file \(p. 178\)](#) to enable HTTPS.

Add the following snippet to your configuration file, replacing the certificate and private key material as instructed, and save it in your source bundle's `.ebextensions` directory. The configuration file performs the following tasks:

- The `files` key creates the following files on the instance:

```
/etc/nginx/conf.d/https.conf
```

Configures the nginx server. This file is loaded when the nginx service starts.

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

- The `container_commands` key restarts the nginx server after everything is configured so that the server uses the new `https.conf` file.

**Example .ebextensions/https-instance.config**

```
files:
 /etc/nginx/conf.d/https.conf:
 content: |
 # HTTPS server

 server {
 listen 443;
 server_name localhost;

 ssl on;
 ssl_certificate /etc/pki/tls/certs/server.crt;
 ssl_certificate_key /etc/pki/tls/certs/server.key;

 ssl_session_timeout 5m;

 ssl_protocols TLSv1 TLSv1.1 TLSv1.2;
 ssl_ciphers "EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH";
 ssl_prefer_server_ciphers on;

 location / {
 proxy_pass http://my_app;
 proxy_set_header Host $host;
 proxy_set_header X-Forwarded-For
$proxy_add_x_forwarded_for;
 }

 location /assets {
 alias /var/app/current/public/assets;
 gzip_static on;
 gzip on;
 expires max;
 add_header Cache-Control public;
 }

 location /public {
 alias /var/app/current/public;
 gzip_static on;
 gzip on;
 expires max;
 add_header Cache-Control public;
 }
 }

 /etc/pki/tls/certs/server.crt:
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----

container_commands:
 01restart_nginx:
 command: "service nginx restart"
```

### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function \(p. 214\)](#) and adds a rule to it:

### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched \(p. 282\)](#), or [decrypt and re-encrypt \(p. 280\)](#) for end-to-end encryption.

## Configure HTTPS for Ruby with Passenger

For Ruby container types that use Passenger as the application server, you use both a configuration file and a JSON file to enable HTTPS.

### To configure HTTPS for Ruby with Passenger

1. Add the following snippet to your configuration file, replacing the certificate and private key material as instructed, and save it in your source bundle's `.ebextensions` directory. The configuration file performs the following tasks:

- The `files` key creates the following files on the instance:

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

If you have intermediate certificates, include them in `server.crt` after your site certificate:

```
-----BEGIN CERTIFICATE-----
certificate file contents
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
first intermediate certificate
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
second intermediate certificate
-----END CERTIFICATE-----
```

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

### Example .ebextensions Snippet for Configuring HTTPS for Ruby with Passenger

```
files:
 /etc/pki/tls/certs/server.crt:
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----
```

#### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

2. Create a text file and add the following JSON to the file. Save it in your source bundle's root directory with the name `passenger-standalone.json`. This JSON file configures Passenger to use HTTPS.

#### Important

This JSON file must not contain a byte order mark (BOM). If it does, the Passenger JSON library will not read the file correctly and the Passenger service will not start.

### Example passenger-standalone.json

```
{
 "ssl" : true,
 "ssl_port" : 443,
 "ssl_certificate" : "/etc/pki/tls/certs/server.crt",
 "ssl_certificate_key" : "/etc/pki/tls/certs/server.key"
}
```

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function \(p. 214\)](#) and adds a rule to it:



### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched \(p. 282\)](#), or [decrypt and re-encrypt \(p. 280\)](#) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running Tomcat

For Tomcat container types, you use a [configuration file \(p. 178\)](#) to enable the Apache HTTP Server to use HTTPS when acting as the reverse proxy for Tomcat.

Add the following snippet to your configuration file, replacing the certificate and private key material as instructed, and save it in your source bundle's `.ebextensions` directory. The configuration file performs the following tasks:

- The `packages` key uses yum to install `mod_ssl`.
- The `files` key creates the following files on the instance:

```
/etc/httpd/conf.d/ssl.conf
```

Configures the Apache server. It is loaded when the Apache service starts.

```
/etc/pki/tls/certs/server.crt
```

Creates the certificate file on the instance. Replace *certificate file contents* with the contents of your certificate.

#### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

```
/etc/pki/tls/certs/server.key
```

Creates the private key file on the instance. Replace *private key contents* with the contents of the private key used to create the certificate request or self-signed certificate.

- The `container_commands` key stops the `httpd` service after everything has been configured so that the service uses the new `https.conf` file and certificate.

**Example ebextensions/https-instance.config**

```

packages:
yum:
 mod_ssl : []

files:
 /etc/httpd/conf.d/ssl.conf:
 mode: "000644"
 owner: root
 group: root
 content: |
 LoadModule ssl_module modules/mod_ssl.so
 Listen 443
 <VirtualHost *:443>
 <Proxy *>
 Order deny,allow
 Allow from all
 </Proxy>

 SSLEngine on
 SSLCertificateFile "/etc/pki/tls/certs/server.crt"
 SSLCertificateKeyFile "/etc/pki/tls/certs/server.key"
 SSLCipherSuite EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH
 SSLProtocol All -SSLv2 -SSLv3
 SSLHonorCipherOrder On

 Header always set Strict-Transport-Security "max-age=63072000;
includeSubdomains; preload"
 Header always set X-Frame-Options DENY
 Header always set X-Content-Type-Options nosniff

 ProxyPass / http://localhost:8080/ retry=0
 ProxyPassReverse / http://localhost:8080/
 ProxyPreserveHost on

 </VirtualHost>

 /etc/pki/tls/certs/server.crt:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN CERTIFICATE-----
 certificate file contents
 -----END CERTIFICATE-----

 /etc/pki/tls/certs/server.key:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN RSA PRIVATE KEY-----
 private key contents # See note below.
 -----END RSA PRIVATE KEY-----

container_commands:
 killhttpd:
 command: "killall httpd"
 waitforhttpddeath:
 command: "sleep 3"

```

Your certificate vendor may include intermediate certificates that you can install for better compatibility with mobile clients. Configure Apache with an intermediate certificate authority (CA) bundle by adding the following to your SSL configuration file:

- In the `ssl.conf` file contents, specify the chain file:

```
SSLCertificateKeyFile "/etc/pki/tls/certs/server.key"
SSLCertificateChainFile "/etc/pki/tls/certs/gd_bundle.crt"
SSLCipherSuite EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH
```

- Add a new entry to the `files` key with the contents of the intermediate certificates:

```
files:
 /etc/pki/tls/certs/gd_bundle.crt:
 mode: "000400"
 owner: root
 group: root
 content: |
 -----BEGIN CERTIFICATE-----
 First intermediate certificate
 -----END CERTIFICATE-----
 -----BEGIN CERTIFICATE-----
 Second intermediate certificate
 -----END CERTIFICATE-----
```

#### Note

Avoid committing a configuration file that contains your private key to source control. After you have tested the configuration and confirmed that it works, store your private key in Amazon S3 and modify the configuration to download it during deployment. For instructions, see [Storing Private Keys Securely in Amazon S3 \(p. 283\)](#).

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function \(p. 214\)](#) and adds a rule to it:

#### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched \(p. 282\)](#), or [decrypt and re-encrypt \(p. 280\)](#) for end-to-end encryption.

## Terminating HTTPS on EC2 Instances Running .NET

The following [configuration file \(p. 178\)](#) creates and runs a Windows PowerShell script that performs the following tasks:

- Checks for an existing HTTPS certificate binding to port 443

- Gets the [PEM certificate \(p. 251\)](#) and password from an Amazon S3 bucket
- Installs the certificate
- Binds the certificate to port 443

### Example .ebextensions/https-instance-dotnet.config

```
files:
 "C:\\certs\\install-cert.ps1":
 content: |
 import-module webadministration
 ## Settings - replace the following values with your own
 $bucket = "my-bucket" ## S3 bucket name
 $certkey = "example.com.pfx" ## S3 object key for your PFX certificate
 $pwdkey = "password.txt" ## S3 object key for a text file
 containing the certificate's password
 ##

 # Set variables
 $certfile = "C:\\cert.pfx"
 $pwdfile = "C:\\certs\\pwdcontent"
 Read-S3Object -BucketName $bucket -Key $pwdkey -File $pwdfile
 $pwd = Get-Content $pwdfile -Raw

 # Cleanup existing binding
 if (Get-WebBinding "Default Web Site" -Port 443) {
 Echo "Removing WebBinding"
 Remove-WebBinding -Name "Default Web Site" -BindingInformation *:443:
 }
 if (Get-Item -path IIS:\\SslBindings\\0.0.0.0!443) {
 Echo "Deregistering WebBinding from IIS"
 Remove-Item -path IIS:\\SslBindings\\0.0.0.0!443
 }

 # Download certificate from S3
 Read-S3Object -BucketName $bucket -Key $certkey -File $certfile

 # Install certificate
 Echo "Installing cert..."
 $securepwd = ConvertTo-SecureString -String $pwd -Force -AsPlainText
 $cert = Import-PfxCertificate -FilePath $certfile cert:\\localMachine\\my
 -Password $securepwd

 # Create site binding
 Echo "Creating and registering WebBinding"
 New-WebBinding -Name "Default Web Site" -IP "*" -Port 443 -Protocol
 https
 New-Item -path IIS:\\SslBindings\\0.0.0.0!443 -value $cert -Force

 ## (optional) Remove the HTTP binding - uncomment the following line to
 unbind port 80
 # Remove-WebBinding -Name "Default Web Site" -BindingInformation *:80:
 ##

 # Update firewall
 netsh advfirewall firewall add rule name="Open port 443" protocol=TCP
 localport=443 action=allow dir=OUT

commands:
 00_install_ssl:
 command: powershell -NoProfile -ExecutionPolicy Bypass -file C:\\certs\\
 \\install-cert.ps1
```

In a single instance environment, you must also modify the instance's security group to allow traffic on port 443. The following configuration file retrieves the security group's ID using an AWS CloudFormation [function](#) (p. 214) and adds a rule to it:

### Example `.ebextensions/https-instance-single.config`

```
Resources:
 sslSecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 CidrIp: 0.0.0.0/0
```

For a load balanced environment, you configure the load balancer to either [pass secure traffic through untouched](#) (p. 282), or [decrypt and re-encrypt](#) (p. 280) for end-to-end encryption.

## Configuring End-to-End Encryption in a Load Balanced Elastic Beanstalk Environment

Terminating secure connections at the load balancer and using HTTP on the backend may be sufficient for your application. Network traffic between AWS resources cannot be listened to by instances that are not part of the connection, even if they are running under the same account.

However, if you are developing an application that needs to comply with strict external regulations, you may be required to secure all network connections. You can use [configuration files](#) (p. 178) to make your Elastic Beanstalk environment's load balancer connect to backend instances securely to meet these requirements.

First [add a secure listener to your load balancer](#) (p. 254), if you haven't already:

### `.ebextensions/https-lbterminate.config`

```
option_settings:
 aws:elb:listener:443:
 SSLCertificateId: arn:aws:acm:us-east-1:#####:certificate/#####
 ListenerProtocol: HTTPS
```

You must also configure the instances in your environment to listen on the secure port and terminate HTTPS connections. The configuration varies per platform. See [Configuring Your Application to Terminate HTTPS Connections at the Instance](#) (p. 255) for instructions. You can use a [self-signed certificate](#) (p. 251) for the EC2 instances without issue.

Next, configure the listener to forward traffic using HTTPS on the secure port used by your application. You can also change the default health check to use this port and protocol to ensure that the load balancer is able to connect securely. The following configuration file does both:

### `.ebextensions/https-reencrypt.config`

```
option_settings:
 aws:elb:listener:443:
 InstancePort: 443
```

```
InstanceProtocol: HTTPS
aws:elasticbeanstalk:application:
 Application Healthcheck URL: HTTPS:443/
```

### Note

The EB CLI and Elastic Beanstalk console apply recommended values for the preceding options. These settings must be removed if you want to use configuration files to configure the same. See [Recommended Values \(p. 176\)](#) for details.

The next part is a bit more complex. You need to modify the load balancer's security group to allow traffic, but depending on whether you launch your environment in the default VPC or a custom VPC, the load balancer's security group will vary. In a default VPC, Elastic Load Balancing provides a default security group that can be used by all load balancers. In a VPC that you create, Elastic Beanstalk creates a security group for the load balancer to use.

To support both scenarios, you can create a security group and tell Elastic Beanstalk to use that. The following configuration file creates a security group and attaches it to the load balancer:

#### **.ebextensions/https-lbsecuritygroup.config**

```
option_settings:
 # Use the custom security group for the load balancer
 aws:elb:loadbalancer:
 SecurityGroups: ``{ "Ref" : "loadbalancersg" }``
 ManagedSecurityGroup: ``{ "Ref" : "loadbalancersg" }``

Resources:
 loadbalancersg:
 Type: AWS::EC2::SecurityGroup
 Properties:
 GroupDescription: load balancer security group
 VpcId: vpc-#####
 SecurityGroupIngress:
 - IpProtocol: tcp
 FromPort: 443
 ToPort: 443
 CidrIp: 0.0.0.0/0
 - IpProtocol: tcp
 FromPort: 80
 ToPort: 80
 CidrIp: 0.0.0.0/0
 SecurityGroupEgress:
 - IpProtocol: tcp
 FromPort: 80
 ToPort: 80
 CidrIp: 0.0.0.0/0
```

Replace the highlighted text with your default or custom VPC ID. The above example includes ingress and egress over port 80 to allow HTTP connections. You can remove those properties if you only want to allow secure connections.

Finally, add ingress and egress rules that allow communication over 443 between the load balancer's security group and the instances' security group:

#### **.ebextensions/https-backendsecurity.config**

```
Resources:
```

```
Add 443-inbound to instance security group (AWSEBSecurityGroup)
httpsFromLoadBalancerSG:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 SourceSecurityGroupId: {"Fn::GetAtt" : ["loadbalancersg", "GroupId"]}
Add 443-outbound to load balancer security group (loadbalancersg)
httpsToBackendInstances:
 Type: AWS::EC2::SecurityGroupEgress
 Properties:
 GroupId: {"Fn::GetAtt" : ["loadbalancersg", "GroupId"]}
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 DestinationSecurityGroupId: {"Fn::GetAtt" : ["AWSEBSecurityGroup",
"GroupId"]}
```

Doing this separately from security group creation allows you to restrict the source and destination security groups without creating a circular dependency.

With all of the above pieces in place, the load balancer connects to your backend instances securely Using HTTPS. The load balancer doesn't care if your instance's certificate is self-signed or issued by a trusted certificate authority, and will accept any certificate presented to it.

You can change this by adding policies to the load balancer that tell it only to trust a specific certificate. The following configuration file creates two policies. One policy specifies a public certificate, and the other tells the load balancer to only trust that certificate for connections to instance port 443:

**.ebextensions/https-backendauth.config**

```
option_settings:
 # Backend Encryption Policy
 aws:elb:policies:backendencryption:
 PublicKeyPolicyNames: backendkey
 InstancePorts: 443
 # Public Key Policy
 aws:elb:policies:backendkey:
 PublicKey: |
 -----BEGIN CERTIFICATE-----
 #####
 #####
 #####
 #####
 #####
 -----END CERTIFICATE-----
```

Replace the highlighted text with the contents of your EC2 instance's public certificate.

## Configuring Your Environment's Load Balancer for TCP Passthrough

If you don't want the load balancer in your AWS Elastic Beanstalk environment to decrypt HTTPS traffic, you can configure the secure listener to relay requests to backend instances as-is.



First [configure your environment's EC2 instances to terminate HTTPS \(p. 255\)](#). Test the configuration on a single instance environment to make sure everything works before adding a load balancer to the mix.

Add a [configuration file \(p. 178\)](#) to your project to configure a listener on port 443 that passes TCP packets as-is to port 443 on backend instances:

**.ebextensions/https-lb-passthrough.config**

```
option_settings:
 aws:elb:listener:443:
 ListenerProtocol: TCP
 InstancePort: 443
 InstanceProtocol: TCP
```

In a default VPC, you also need to add a rule to the instances' security group to allow inbound traffic on 443 from the load balancer:

**.ebextensions/https-instance-securitygroup.config**

```
Resources:
 443inboundfromloadbalancer:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: { "Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"] }
 IpProtocol: tcp
 ToPort: 443
 FromPort: 443
 SourceSecurityGroupName: { "Fn::GetAtt": ["AWSEBLoadBalancer",
 "SourceSecurityGroup.GroupName"] }
```

In a custom VPC, Elastic Beanstalk updates the security group configuration for you.

## Storing Private Keys Securely in Amazon S3

The private key that you use to sign your public certificate is private and should not be committed to source code. You can avoid storing private keys in configuration files by uploading them to Amazon S3, and configuring Elastic Beanstalk to download the file from Amazon S3 during application deployment.

The following example shows the [Resources \(p. 197\)](#) and [files \(p. 186\)](#) sections of a [configuration file \(p. 178\)](#) downloads a private key file from an Amazon S3 bucket.

### Example `.ebextensions/privatekey.config`

```
Resources:
 AWSEBAutoScalingGroup:
 Metadata:
 AWS::CloudFormation::Authentication:
 S3Auth:
 type: "s3"
 buckets: ["elasticbeanstalk-us-west-2-123456789012"]
 roleName:
 "Fn::GetOptionSetting":
 Namespace: "aws:autoscaling:launchconfiguration"
 OptionName: "IamInstanceProfile"
 DefaultValue: "aws-elasticbeanstalk-ec2-role"
files:
 # Private key
 /etc/pki/tls/certs/server.key:
 mode: "000400"
 owner: root
 group: root
 authentication: "S3Auth"
 source: https://s3-us-west-2.amazonaws.com/elasticbeanstalk-us-west-2-123456789012/server.key
```

Replace the bucket name and URL in the example with your own. The first entry in this file adds an authentication method named `S3Auth` to the environment's Auto Scaling group's metadata. If you have configured a custom [instance profile \(p. 18\)](#) for your environment, that will be used, otherwise the default value of `aws-elasticbeanstalk-ec2-role` is applied. The default instance profile has permission to read from the Elastic Beanstalk storage bucket. If you use a different bucket, [add permissions to the instance profile \(p. 336\)](#).

The second entry uses the `S3Auth` authentication method to download the private key from the specified URL and save it to `/etc/pki/tls/certs/server.key`. The proxy server can then read the private key from this location to [terminate HTTPS connections at the instance \(p. 255\)](#).

The instance profile assigned to your environment's EC2 instances must have permission to read the key object from the specified bucket. [Verify that the instance profile has permission \(p. 335\)](#) to read the object in IAM, and that the permissions on the bucket and object do not prohibit the instance profile.

#### To view a bucket's permissions

1. Open the [Amazon S3 Management Console](#).
2. Choose a bucket.
3. Choose **Properties** and then choose **Permissions**.
4. Verify that your account is a grantee on the bucket with read permission.
5. If a bucket policy is attached, the **Edit bucket policy**. Choose **Edit bucket policy** to view the permissions assigned to the bucket.

# Monitoring an Environment

---

When you are running a production website, it is important to know that your application is available and responding to requests. To assist with monitoring your application's responsiveness, Elastic Beanstalk provides features that monitor statistics about your application and create alerts that trigger when thresholds are exceeded.

## Topics

- [Monitoring Environment Health in the AWS Management Console \(p. 285\)](#)
- [Basic Health Reporting \(p. 288\)](#)
- [Enhanced Health Reporting and Monitoring \(p. 291\)](#)
- [Manage Alarms \(p. 315\)](#)
- [Viewing an Elastic Beanstalk Environment's Event Stream \(p. 317\)](#)
- [Listing and Connecting to Server Instances \(p. 318\)](#)
- [Instance Logs \(p. 320\)](#)

## Monitoring Environment Health in the AWS Management Console

You can access operational information about your application from the AWS Management Console at <http://console.aws.amazon.com/elasticbeanstalk>.

The AWS Management Console displays your environment's status and application health at a glance. In the Elastic Beanstalk console applications page, each environment is color-coded to indicate an environment's status.

### To monitor an environment in the AWS Management Console

1. Navigate to the [Environment Management Console \(p. 52\)](#) for your environment
2. In the left navigation, click **Monitoring**.

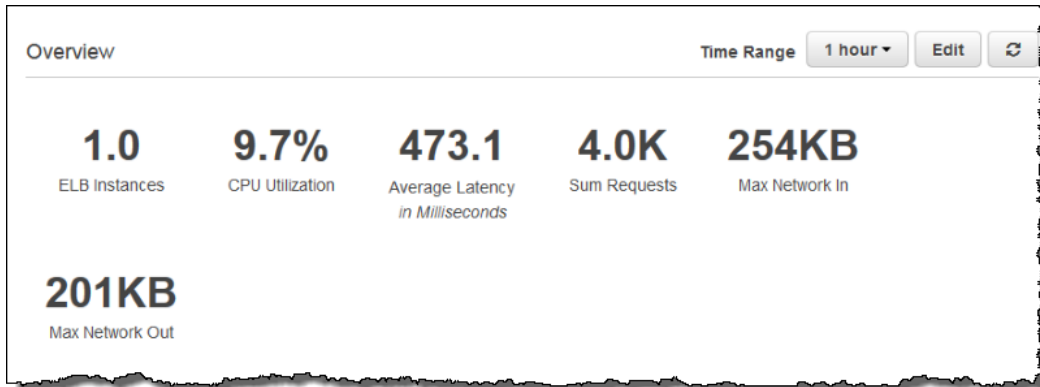
The Monitoring page shows you overall statistics about your environment, such as CPU utilization and average latency. In addition to the overall statistics, you can view monitoring graphs that show resource usage over time. You can click any of the graphs to view more detailed information.

**Note**

By default, only basic CloudWatch metrics are enabled, which return data in five-minute periods. You can enable more granular one-minute CloudWatch metrics by editing your environment's configuration settings.

## Overview

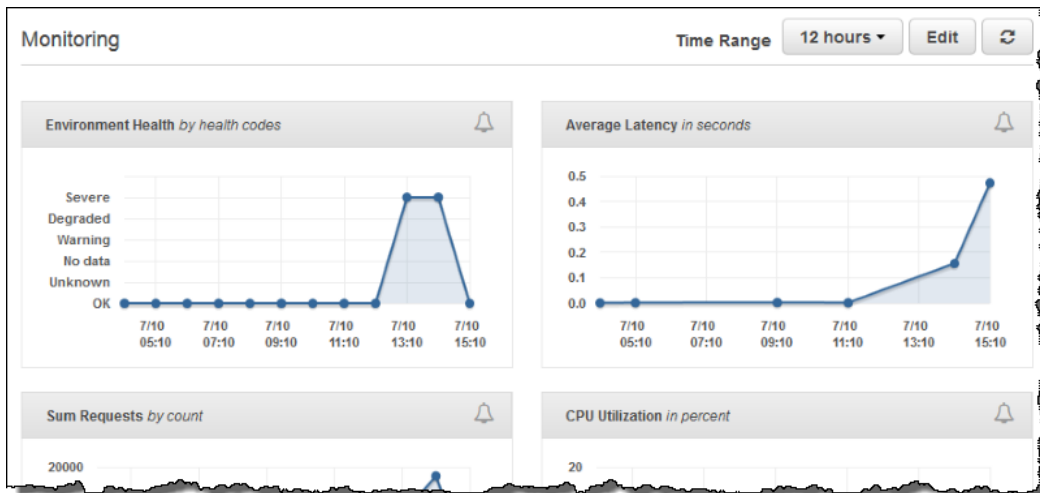
An overview of the environment's health is shown near the top of the screen.



The overview panel shows a customizable summary of the activity in your environment over the last hour. Click the **Time Range** drop-down and select a different length of time to view information for a time period of five minutes to one day.

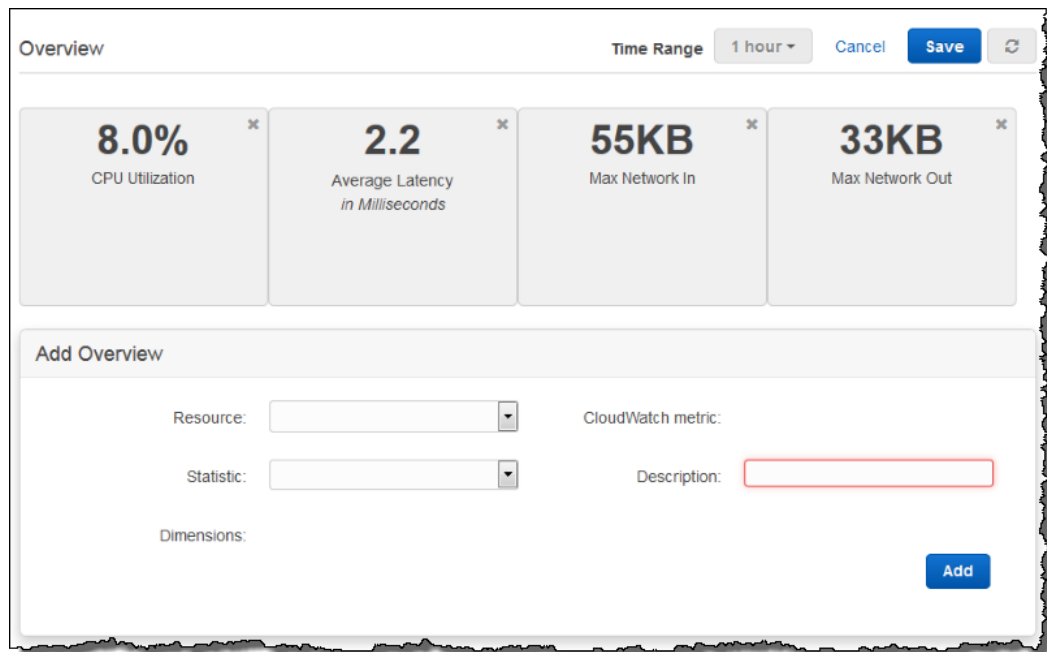
## Monitoring Graphs

Below the overview are graphs that show data about overall environment health over the last twelve hours. Click the **Time Range** drop-down and select a different length of time to view information for a time period of three hours and two weeks.



## Customizing the Monitoring Console

Click **Edit** next to either monitoring section to customize the information shown.



To remove any of the existing items, click the **x** in the top right corner.

### To add an overview or graph

1. Click **Edit** in the **Overview** or **Monitoring** section.
2. Select a **Resource**. The supported resources are your environment's Auto Scaling group, Elastic Load Balancing load balancer, and the environment itself.
3. Select a **CloudWatch metric** for the resource. See [Publishing Amazon CloudWatch Custom Metrics for an Environment \(p. 300\)](#) for a full list of supported metrics.
4. Select a **Statistic**. The default statistic is the average value of the selected cloudwatch metric during the time range (overview) or between plot points (graph).
5. Enter a **Description**. The description is the label for the item shown in the monitoring console.
6. Click **Add**.
7. Repeat the previous steps to add more items or click **Save** to finish modifying the panel.

For more information about metrics and dimensions for each resource, see [Amazon CloudWatch Metrics, Namespaces, and Dimensions Reference](#) in the *Amazon CloudWatch User Guide*.

[Elastic Load Balancing](#) and [Amazon EC2](#) metrics are enabled for all environments.

With [enhanced health \(p. 291\)](#), the EnvironmentHealth metric is enabled and a graph is added to the monitoring console automatically. Additional metrics become available for use in the monitoring console when you enabled them in the environment configuration. Enhanced health also adds the [Health page \(p. 295\)](#) to the management console.

#### Note

When you enable additional CloudWatch metrics for your environment, it takes a few minutes for them to start being reported and appear in the list of metrics that you use to add graphs and overview stats.

See [Publishing Amazon CloudWatch Custom Metrics for an Environment \(p. 300\)](#) for a list of available enhanced health metrics.

## Basic Health Reporting

AWS Elastic Beanstalk uses information from multiple sources to determine if your environment is available and processing requests from the Internet. An environment's health is represented by one of four colors, which is displayed in the [environment dashboard \(p. 52\)](#), and is also available from the [DescribeEnvironments API](#) and by calling `eb status` with the [EB CLI \(p. 416\)](#).

Prior to version 2 Linux platform configurations, the only health reporting system was basic health. The basic health reporting system provides information about the health of instances in an Elastic Beanstalk environment based on health checks performed by Elastic Load Balancing for load balanced environments or Amazon Elastic Compute Cloud for single instance environments.

In addition to checking the health of your EC2 instances, Elastic Beanstalk also monitors the other resources in your environment and reports missing or incorrectly configured resources that can cause your environment to become unavailable to users.

Metrics gathered by the resources in your environment is published to Amazon CloudWatch in five minute intervals. This includes operating system metrics from EC2, request metrics from Elastic Load Balancing. You can view graphs based on these CloudWatch metrics on the [Monitoring page \(p. 285\)](#) of the environment console. For basic health, these metrics are not used to determine an environment's health.

### Topics

- [Health Colors \(p. 288\)](#)
- [Elastic Load Balancing Health Check \(p. 289\)](#)
- [Single Instance Environment Health Check \(p. 289\)](#)
- [Additional Checks \(p. 289\)](#)
- [Amazon CloudWatch Metrics \(p. 289\)](#)
- [Troubleshooting Health Issues \(p. 290\)](#)

## Health Colors

Elastic Beanstalk reports the health of a web server environment depending on how the application running in it responds to the health check. Elastic Beanstalk uses one of four colors to describe status, as shown in the following table:

| Color  | Description                                                                                                                                    |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Grey   | Your environment is being updated.                                                                                                             |
| Green  | Your environment has passed the most recent health check. At least one instance in your environment is available and taking requests.          |
| Yellow | Your environment has failed one or more health checks. Some requests to your environment are failing.                                          |
| Red    | Your environment has failed three or more health checks, or an environment resource has become unavailable. Requests are consistently failing. |

These descriptions only apply to environments using basic health reporting. See [Health Colors and Statuses \(p. 298\)](#) for details related to enhanced health.

## Elastic Load Balancing Health Check

In a load balanced environment, Elastic Load Balancing sends a request to each instance in an environment every 30 seconds to confirm that instances are healthy. By default, the load balancer is configured to open a TCP connection on port 80. If the instance acknowledges the connection, it is considered healthy.

You can choose to override this setting by specifying an existing resource in your application. If you specify a path, such as `/health`, the health check URL is set to `http:80/health`. The health check URL should be set to a path that is always served by your application. If it is set to a static page that is served or cached by the web server in front of your application, health checks will not reveal issues with the application server or web container. For instructions on modifying your health check URL, see [Health Check \(p. 241\)](#).

If a health check URL is configured, Elastic Load Balancing expects a GET request that it sends to return a response of `200 OK`. The application fails the health check if it fails to respond within 5 seconds or if it responds with any other HTTP status code. After 5 consecutive health check failures, Elastic Load Balancing takes the instance out of service.

For more information about Elastic Load Balancing health checks, see [Health Check](#) in the *Elastic Load Balancing User Guide*.

### Note

Configuring a health check URL does not change the health check behavior of an environment's Auto Scaling group. An unhealthy instance is removed from the load balancer, but is not automatically replaced by Auto Scaling unless you configure Auto Scaling to use the Elastic Load Balancing health check as a basis for replacing instances. To configure Auto Scaling to replace instances that fail an Elastic Load Balancing health check, see [Auto Scaling Health Check Setting \(p. 229\)](#).

## Single Instance Environment Health Check

In a single instance environment, Elastic Beanstalk determines the instance's health by monitoring its Amazon EC2 instance status. Elastic Load Balancing health settings, including HTTP health check URLs, cannot be used in a single instance environment.

For more information on Amazon EC2 instance status checks, see [Monitoring Instances with Status Checks](#) in the *Amazon EC2 User Guide for Linux Instances*.

## Additional Checks

In addition to Elastic Load Balancing health checks, Elastic Beanstalk monitors resources in your environment and changes health status to red if they fail to deploy, are not configured correctly, or become unavailable. These checks confirm that:

- The environment's Auto Scaling group is available and has a minimum of at least one instance.
- The environment's security group is available and is configured to allow incoming traffic on port 80.
- The environment CNAME exists and is pointing to the right load balancer.
- In a worker environment, the Amazon Simple Queue Service (Amazon SQS) queue is being polled at least once every three minutes.

## Amazon CloudWatch Metrics

With basic health reporting, the Elastic Beanstalk service does not publish any metrics to Amazon CloudWatch. The CloudWatch metrics used to produce graphs on the [Monitoring page \(p. 285\)](#) of the environment console are published by the resources in your environment.

For example, EC2 publishes the following metrics for the instances in your environment's Auto Scaling group:

`CPUUtilization`

Percentage of compute units currently in use.

`DiskReadBytes`, `DiskReadOps`, `DiskWriteBytes`, `DiskWriteOps`

Number of bytes read and written, and number of read and write operations.

`NetworkIn`, `NetworkOut`

Number of bytes sent and received.

Elastic Load Balancing publishes the following metrics for your environment's load balancer:

`BackendConnectionErrors`

Number of connection failures between the load balancer and environment instances.

`HTTPCode_Backend_2XX`, `HTTPCode_Backend_4XX`

Number of successful (2XX) and client error (4XX) response codes generated by instances in your environment.

`Latency`

Number of seconds between when the load balancer relays a request to an instance and when the response is received.

`RequestCount`

Number of completed requests.

These lists are not comprehensive. For a full list of metrics that can be reported for these resources, see the following topics in the Amazon CloudWatch Developer Guide:

### Metrics

| Namespace                                            | Topic                                                              |
|------------------------------------------------------|--------------------------------------------------------------------|
| <code>AWS::ElasticLoadBalancing::LoadBalancer</code> | <a href="#">Elastic Load Balancing Metrics and Resources</a>       |
| <code>AWS::AutoScaling::AutoScalingGroup</code>      | <a href="#">Amazon Elastic Compute Cloud Metrics and Resources</a> |
| <code>AWS::SQS::Queue</code>                         | <a href="#">Amazon SQS Metrics and Resources</a>                   |
| <code>AWS::RDS::DBInstance</code>                    | <a href="#">Amazon RDS Dimensions and Metrics</a>                  |

## Worker Environment Health Metric

For worker environments only, the SQS daemon publishes a custom metric for environment health to CloudWatch, where a value of 1 is Green. You can review the CloudWatch health metric data in your account using the `ElasticBeanstalk/SQSD` namespace. The metric dimension is `EnvironmentName`, and the metric name is `Health`. All instances publish their metrics to the same namespace.

To enable the daemon to publish metrics, the environment's instance profile must have permission to call `cloudwatch:PutMetricData`. This permission is included in the default instance profile. For more information, see [Managing Elastic Beanstalk Instance Profiles \(p. 333\)](#).

## Troubleshooting Health Issues

If the health of your environment changes to red, try the following:

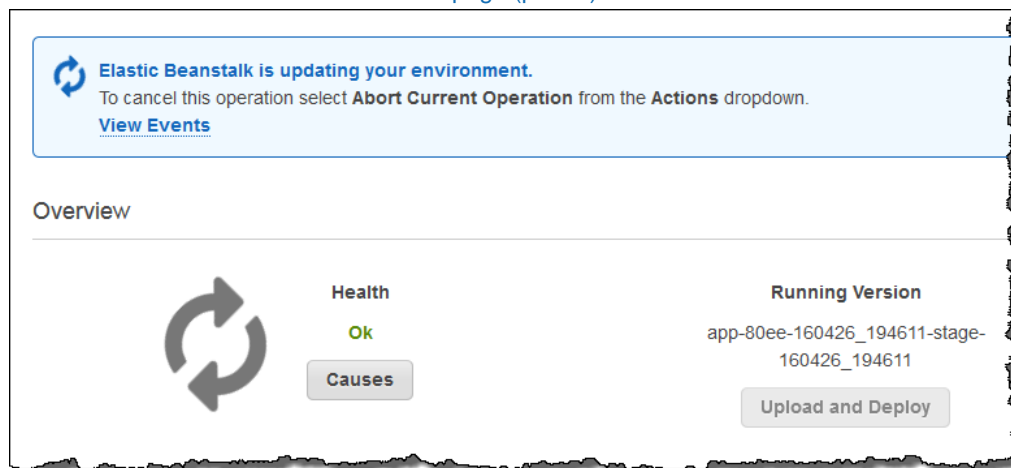


- Review recent environment [events](#) (p. 809). Messages from Elastic Beanstalk about deployment, load, and configuration issues often appear here.
- [Pull logs](#) (p. 320) to view recent log file entries. Web server logs contain information about incoming requests and errors.
- [Connect to an instance](#) (p. 318) and check system resources.
- [Roll back](#) (p. 98) to a previous, working version of the application.
- Undo recent configuration changes or restore a [saved configuration](#) (p. 132).
- Deploy a new environment. If it appears healthy, perform a [CNAME swap](#) (p. 103) to route traffic to the new environment and continue to debug the old one.

## Enhanced Health Reporting and Monitoring

Enhanced health reporting is a feature that you can enable on your environment to allow AWS Elastic Beanstalk to gather additional information about resources in your environment. Elastic Beanstalk analyzes the information gathered to provide a better picture of overall environment health and aid in the identification of issues that can cause your application to become unavailable.

In addition to changes in how health color works, enhanced health adds a *status* descriptor that provides an indicator of the severity of issues observed when an environment is yellow or red. When more information is available about the current status, you can choose the **Causes** button to view detailed health information on the [health page](#) (p. 295).



To provide detailed health information about the EC2 instances running in your environment, Elastic Beanstalk includes a [health agent](#) (p. 311) in the Amazon Machine Image (AMI) for each platform configuration that supports enhanced health. The health agent monitors web server logs and system metrics and relays them to the Elastic Beanstalk service. Elastic Beanstalk analyzes these metrics along with data from Elastic Load Balancing and Auto Scaling to provide an overall picture of an environment's health.

In addition to collecting and presenting information about your environment's resources, Elastic Beanstalk monitors the resources in your environment for several error conditions and provides notifications to help you avoid failures and resolve configuration issues. [Factors that influence your environment's health](#) (p. 312) include the results of each request served by your application, metrics from your instances' operating system, and the status of the most recent deployment.

You can view health status in real time by using the [environment dashboard](#) (p. 295) in the AWS Management Console or the [eb health](#) (p. 439) command in the [Elastic Beanstalk command line](#)

[interface \(p. 416\)](#) (EB CLI). To record and track environment and instance health over time, you can configure your environment to publish the information gathered by Elastic Beanstalk for enhanced health reporting to Amazon CloudWatch as custom metrics. CloudWatch [charges](#) for custom metrics apply to all metrics other than `EnvironmentHealth`, which is free of charge.

Enhanced health reporting requires a version 2 or newer [platform configuration \(p. 24\)](#) and is supported by all platforms except Windows Server with IIS. In order to monitor resources and publish metrics, your environment must have both an [instance profile and service \(p. 291\)](#) role. The Multicontainer Docker configuration does not include a web server by default but can be used with enhanced health reporting if you configure your web server to [provide logs in the proper format \(p. 307\)](#).

The first time you create an environment with a version 2 platform configuration in the AWS Management Console, Elastic Beanstalk prompts you to create the required roles and enables enhanced health reporting by default. Continue reading for details on how enhanced health reporting works, or go to [Enabling AWS Elastic Beanstalk Enhanced Health Reporting \(p. 292\)](#) to get started using it right away.

## Enabling AWS Elastic Beanstalk Enhanced Health Reporting

New environments created with the latest [platform versions \(p. 24\)](#) include the AWS Elastic Beanstalk [health agent \(p. 311\)](#), which supports enhanced health reporting. If you create your environment in the AWS Management Console or with the EB CLI, enhanced health is enabled by default. You can also set your health reporting preference in your application's source code using [configuration files \(p. 178\)](#).


Enhanced health reporting requires an [instance profile \(p. 18\)](#) and [service role \(p. 17\)](#) with the standard set of permissions. When you create an environment in the Elastic Beanstalk Management Console, Elastic Beanstalk creates the required roles automatically. See [Getting Started Using Elastic Beanstalk \(p. 3\)](#) for instructions on creating your first environment.

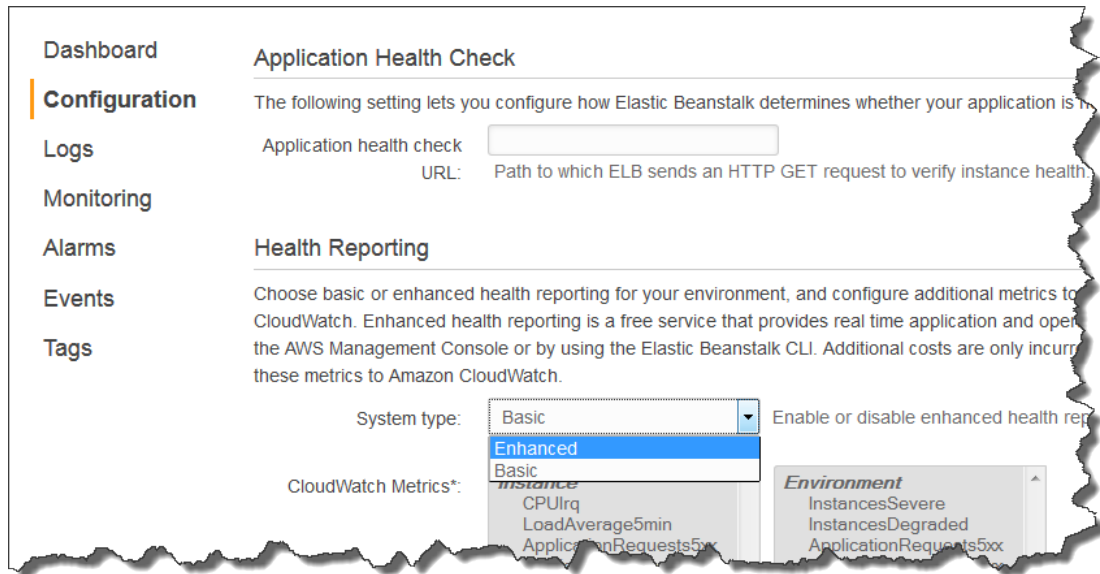
### Topics

- [Enabling Enhanced Health Reporting with the AWS Management Console \(p. 292\)](#)
- [Enabling Enhanced Health Reporting with the EB CLI \(p. 293\)](#)
- [Enabling Enhanced Health Reporting with a Configuration File \(p. 294\)](#)

## Enabling Enhanced Health Reporting with the AWS Management Console

### To enable enhanced health reporting in a running environment with the AWS Management Console

1. Navigate to the [management console \(p. 52\)](#) for your environment.
2. Choose **Configuration**.
3. On the **Health** panel under **Web Tier**, choose  (edit).
4. Under **Health Reporting**, for **System type**, choose **Enhanced**.



**Note**

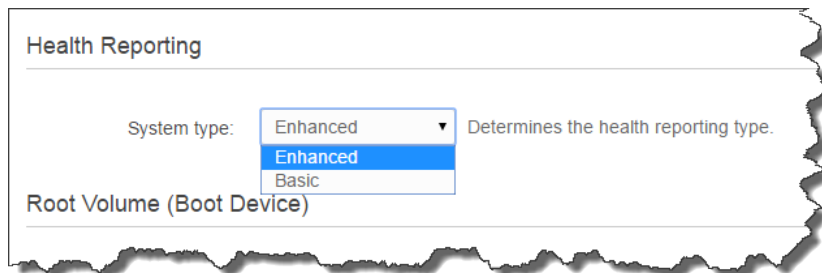
The options for enhanced health reporting do not appear if you are using an [unsupported platform or version \(p. 291\)](#).

5. Choose **Apply**.

The Elastic Beanstalk console defaults to enhanced health reporting when you create a new environment with a version 2 platform configuration. You can disable enhanced health reporting by changing the health reporting option during environment creation.

**To disable enhanced health reporting when creating an environment using the AWS Management Console**

1. Open the [Elastic Beanstalk console](#).
2. [Create an application \(p. 36\)](#) or select an existing one.
3. [Create an environment \(p. 61\)](#). On the **Configuration Details** page, choose **Basic** for the health reporting type under **Health Reporting**.



## Enabling Enhanced Health Reporting with the EB CLI

When you create a new environment with the `eb create` command, the EB CLI enables enhanced health reporting by default and applies the default instance profile and service role.

You can specify a different service role by name with the `--service-role` option.

If you have an environment running with basic health reporting on a version 2 platform configuration and want to switch to enhanced health, follow these steps:

### To enable enhanced health on a running environment using the EB CLI (p. 416)

1. Use the `eb config` command to open the configuration file in the default text editor:

```
~/project$ eb config
```

2. Locate the `aws:elasticbeanstalk:environment` namespace in the settings section. Ensure that the value of `ServiceRole` is not null and that it matches the name of your [service role \(p. 17\)](#).

```
aws:elasticbeanstalk:environment:
 EnvironmentType: LoadBalanced
 ServiceRole: aws-elasticbeanstalk-service-role
```

3. Under the `aws:elasticbeanstalk:healthreporting:system:` namespace, change the value of `SystemType` to **enhanced**.

```
aws:elasticbeanstalk:healthreporting:system:
 SystemType: enhanced
```

4. Save the configuration file and close the text editor.
5. The EB CLI starts an environment update to apply your configuration changes. Wait for the operation to complete or press **Ctrl+C** to exit safely.

```
~/project$ eb config
Printing Status:
INFO: Environment update is starting.
INFO: Health reporting type changed to ENHANCED.
INFO: Updating environment no-role-test's configuration settings.
```

## Enabling Enhanced Health Reporting with a Configuration File

You can enable enhanced health reporting by including a [configuration file \(p. 178\)](#) in your source bundle. The following example shows a configuration file that enables enhanced health reporting and assigns the default service and instance profile to the environment:

### Example `.ebextensions/enhanced-health.config`

```
option_settings:
 aws:elasticbeanstalk:healthreporting:system:
 SystemType: enhanced
 aws:autoscaling:launchconfiguration:
 IamInstanceProfile: aws-elasticbeanstalk-ec2-role
 aws:elasticbeanstalk:environment:
 ServiceRole: aws-elasticbeanstalk-service-role
```

If you created your own instance profile or service role, replace the highlighted text with the names of those roles.

## Enhanced Health Monitoring with the Environment Management Console

When you have enabled enhanced health reporting in AWS Elastic Beanstalk, you can monitor environment health in the [environment management console](#) (p. 52).

### Topics

- [Environment Dashboard](#) (p. 295)
- [Environment Health Page](#) (p. 295)
- [Monitoring Page](#) (p. 297)

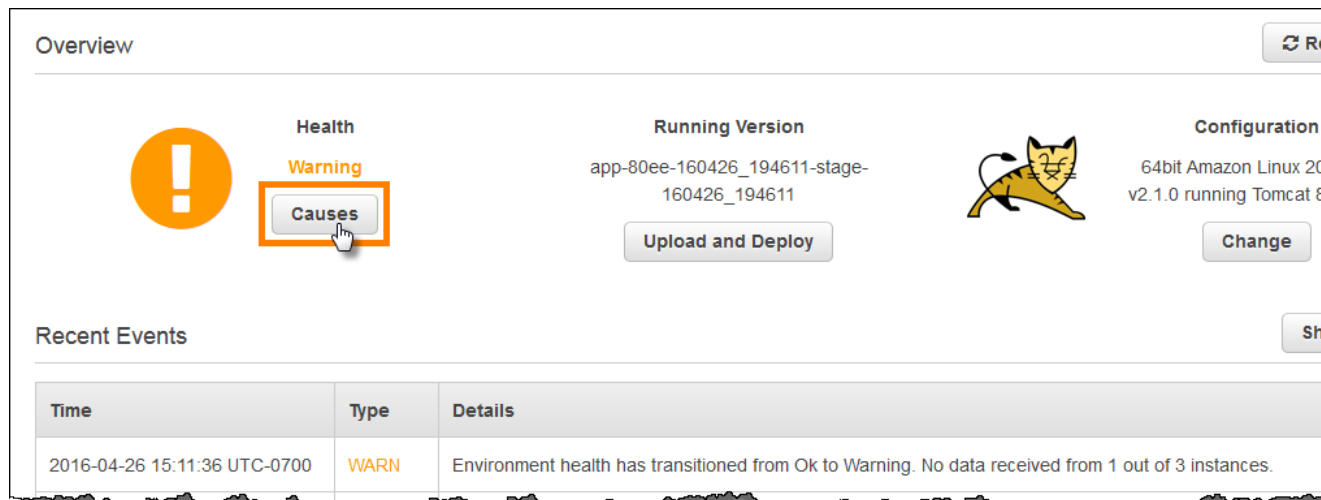
## Environment Dashboard

The [environment dashboard](#) (p. 53) displays the [health status](#) (p. 298) of the environment and lists events that provide information about recent changes in health status.

### To view the environment dashboard

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.

For detailed information about the current environment's health, open the Health page by choosing **Causes**.



The screenshot shows the 'Overview' section of the AWS Elastic Beanstalk Environment Dashboard. It features a 'Health' status indicator with a yellow warning icon and the text 'Warning'. Below this, a 'Causes' button is highlighted with a red box and a mouse cursor. To the right, the 'Running Version' is displayed as 'app-80ee-160426\_194611-stage-160426\_194611' with an 'Upload and Deploy' button. Further right, the 'Configuration' section shows '64bit Amazon Linux 2018.03 v2.1.0 running Tomcat 8.5.0' with a 'Change' button. Below the overview, the 'Recent Events' section contains a table with one event:

| Time                         | Type | Details                                                                                             |
|------------------------------|------|-----------------------------------------------------------------------------------------------------|
| 2016-04-26 15:11:36 UTC-0700 | WARN | Environment health has transitioned from Ok to Warning. No data received from 1 out of 3 instances. |

## Environment Health Page

The Health page displays health status, metrics and causes for the environment and for each EC2 instance in the environment.

### Note

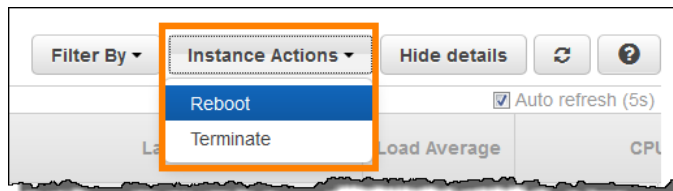
Elastic Beanstalk displays the Health page only if you have [enabled enhanced health monitoring](#) (p. 292) for the environment.

Enhanced Health Overview Filter By ▾ Instance Action

|     | Server      |        |            |         | Requests |      |      |      |      | Latency |       |       |       |       | Load Av |
|-----|-------------|--------|------------|---------|----------|------|------|------|------|---------|-------|-------|-------|-------|---------|
|     | Instance ID | Status | Running ▲  | Dep. ID | R/sec    | 2xx  | 3xx  | 4xx  | 5xx  | P99     | P90   | P75   | P50   | P10   | Load1   |
| ▶   | Overall     | Ok     | N/A        | N/A     | 405.2    | 100% | 0.0% | 0.0% | 0.0% | 0.004   | 0.002 | 0.001 | 0.001 | 0.000 | N/A     |
| ☐ ▶ | i-1f871182  | Ok     | 19 minutes | 21      | 115.1    | 1151 | 0    | 0    | 0    | 0.005   | 0.002 | 0.002 | 0.001 | 0.000 | 0.38    |
| ☐ ▶ | i-1e871183  | Ok     | 19 minutes | 21      | 141.8    | 1418 | 0    | 0    | 0    | 0.004   | 0.002 | 0.001 | 0.001 | 0.000 | 0.44    |
| ☐ ▶ | i-b4dbd02f  | Ok     | 25 minutes | 21      | 148.3    | 1483 | 0    | 0    | 0    | 0.003   | 0.002 | 0.001 | 0.001 | 0.000 | 0.35    |

To display only instances that have a particular status, choose **Filter By**, and then choose a [status \(p. 298\)](#).

To reboot or terminate an unhealthy instance, choose **Instance Actions**, and then choose **Reboot** or **Terminate**.



To hide detailed information about the environment and instances' health, choose **Hide Details**. To show or hide the details for a single instance, use the arrow at the beginning of the row:

|                                                                                                                                                                               | Server      |          |            |         |       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|------------|---------|-------|------|
|                                                                                                                                                                               | Instance ID | Status   | Running ▲  | Dep. ID | R/sec | 2xx  |
| ▶                                                                                                                                                                             | Overall     | Ok       | N/A        | N/A     | 430.6 | 100% |
| ☐ ▼                                                                                                                                                                           | i-14e6ed8f  | Degraded | 2 minutes  | 21      | -     | -    |
| <ul style="list-style-type: none"> <li>• Application deployment completed 13 seconds ago and took 28 seconds.</li> <li>• 100 % of CPU is in use. 81 % in I/O wait.</li> </ul> |             |          |            |         |       |      |
| ☐ ▶                                                                                                                                                                           | i-1f871182  | Ok       | 23 minutes | 21      | 143.5 | 1435 |

Elastic Beanstalk updates the Health page every ten seconds. It reports information about environment health for five categories.

The first category, **Server**, displays information about each of the EC2 instances in the environment, including the instance's ID and [status \(p. 298\)](#), the amount of time since the instance was launched, and the ID of the most recent deployment executed on the instance.

For more information about an instance, including its Availability Zone and instance type, pause on its **Instance ID**:

| Server |             |                               |            |         |
|--------|-------------|-------------------------------|------------|---------|
|        | Instance ID | Status                        | Running ▲  | Dep. ID |
| ▶      | Overall     | Ok                            | N/A        | N/A     |
| ☐ ▶    | i-14e6ed8f  | Pending                       | 1 minute   | -       |
| ☐ ▶    | i-14e6ed8f  | Instance type: t2.micro       | minutes    | 21      |
| ☐ ▶    | i-14e6ed8f  | Availability zone: us-east-1c | minutes    | 21      |
| ☐ ▶    | i-b4dbd02f  | Ok                            | 28 minutes | 21      |

For information about the last [deployment \(p. 98\)](#) to the instance, pause on the **Deployment ID**:

| Server |             |        |            |         | Requests |      |      |      |      |
|--------|-------------|--------|------------|---------|----------|------|------|------|------|
|        | Instance ID | Status | Running ▲  | Dep. ID | R/sec    | 2xx  | 3xx  | 4xx  | 5xx  |
| ▶      | Overall     | Ok     | N/A        | N/A     | 415.0    | 100% | 0.0% | 0.0% | 0.0% |
| ☐ ▶    | i-1f871182  | Ok     | 21 minutes | 21      | 138.5    | 1385 | 0    | 0    | 0    |
| ☐ ▶    | i-1e871183  | Ok     | 21 minutes | 21      |          |      |      |      | 0    |
| ☐ ▶    | i-b4dbd02f  | Ok     | 27 minutes | 21      |          |      |      |      | 0    |

Deployment information includes the following:

- **Deployment ID**—The unique identifier for the [deployment \(p. 98\)](#). Deployment IDs starts at 1 and increase by one each time you deploy a new application version or change configuration settings that affect the software or operating system running on the instances in your environment.
- **Version**—The version label of the application source code used in the deployment.
- **Status**—The status of the deployment, which can be *In Progress*, *Deployed*, or *Failed*.
- **Time**— For in-progress deployments, the time that the deployment started. For completed deployments, the time that the deployment ended.

The other categories provide detailed information about the results and latency of requests served by each instance, and load and CPU utilization information for each instance. For details on these metrics, see [Instance Metrics \(p. 299\)](#).

## Monitoring Page

The Monitoring page displays summary statistics and graphs for the custom Amazon CloudWatch metrics generated by the enhanced health reporting system. See [Monitoring Environment Health in the AWS Management Console \(p. 285\)](#) for instructions on adding graphs and statistics to this page.

## Health Colors and Statuses

Enhanced health reporting represents instance and overall environment health with four colors, similar to [basic health reporting](#) (p. 288). Enhanced health reporting also provides seven health statuses, single word descriptors that provide a better indication of the state of your environment.

### Instance Status and Environment Status

Every time Elastic Beanstalk runs a health check on your environment, enhanced health reporting checks the health of each instance in your environment by analyzing all of [the data](#) (p. 312) available. If any of the lower-level checks fails, Elastic Beanstalk downgrades the health of the instance.

Elastic Beanstalk displays the health information for the overall environment (color, status, and cause) in the [environment management console](#) (p. 52). This information is also available in the EB CLI. Health status and cause messages for individual instances are updated every ten seconds and are available from the [EB CLI](#) (p. 416) when you view health status with `eb health` (p. 439).

Elastic Beanstalk uses changes in instance health to evaluate environment health, but does not immediately change environment health status. When an instance fails health checks at least three times in any one-minute period, Elastic Beanstalk may downgrade the health of the environment. Depending on the number of instances in the environment and the issue identified, one unhealthy instance may cause Elastic Beanstalk to display an informational message or to change the environment's health status from green (OK) to yellow (Warning) or red (Degraded or Severe).

### OK (Green)

An **instance** is passing health checks and the health agent is not reporting any problems.

Most instances in the **environment** are passing health checks and the health agent is not reporting major issues.

An **instance** is passing health checks and is completing requests normally.

Example: Your environment was recently deployed and is taking requests normally. Five percent of requests are returning 400 series errors. Deployment completed normally on each **instance**.

Message (Instance): Application deployment completed 23 seconds ago and took 26 seconds.

### Warning (Yellow)

The health agent is reporting a moderate number of request failures or other issues for an **instance** or **environment**.

An operation in progress on an **instance** and is taking a very long time.

Example: One instance in the **environment** has a status of Severe.

Message (Environment): Impaired services on 1 out of 5 instances

### Degraded (Red)

The health agent is reporting a high number of request failures or other issues for an **instance** or **environment**.

Example: **Environment** is in the process of scaling up to 5 instances.

Message (Environment): 4 active instances is below Auto Scaling group minimum size 5



## Severe (Red)

The health agent is reporting a very high number of request failures or other issues for an **instance** or **environment**.

Example: Elastic Beanstalk is unable to contact the load balancer to get instance health.

Message (Environment): *ELB health is failing or not available for all instances. None of the instances are sending data. Unable to assume role "arn:aws:iam::0123456789012:role/aws-elasticbeanstalk-service-role". Verify that the role exists and is configured correctly.*

Message (Instances): Instance ELB health has not been available for 37 minutes. No data. Last seen 37 minutes ago.

## Info (Green)

An operation is in progress on an **instance**.

An operation is in progress on several instances in an **environment**.

Example: A new application version is being deployed to running instances.

Message (Environment): Command is executing on 3 out of 5 instances

Message (Instance): Performing application deployment (running for 3 seconds)

## Pending (Grey)

An operation is in progress on an **instance** within the [command timeout \(p. 313\)](#).

Example: You have recently created the environment and **instances** are being bootstrapped.

Message: Performing initialization (running for 12 seconds)

## Unknown (Grey)

Elastic Beanstalk and the health agent are reporting an insufficient amount of data on an **instance**.

Example: No data is being received.

## Instance Metrics

Instance metrics provide information about the health of instances in your environment. The AWS Elastic Beanstalk [Elastic Beanstalk health agent \(p. 311\)](#) gathers and relays metrics about instances to Elastic Beanstalk, which analyzes the metrics to determine the health of the instances in your environments.

The Elastic Beanstalk health agent gathers metrics about instances from web server logs and the operating system. Web server logs provide information about incoming HTTP requests: how many requests came in, how many resulted in errors, and how long they took to resolve. The operating system provides snapshot information about the state of the instances' resources: the CPU load and distribution of time spent on each process type. These metrics are a subset of the information that you would see if you ran `top` on a Linux server.

The health agent gathers web server and operating system metrics and relays them to Elastic Beanstalk every ten seconds. Elastic Beanstalk analyzes the data and uses the results to update the health status for each instance and the environment.

## Web Server Metrics

The Elastic Beanstalk health agent reads web server metrics from logs generated by the web container or server that processes requests on each instance in your environment. Elastic Beanstalk platforms are configured to generate two logs: one in human readable format and one in machine readable format. The health agent relays machine-readable logs to Elastic Beanstalk every ten seconds.

For more information on the log format used by Elastic Beanstalk, see [Enhanced Health Log Format](#) (p. 307).

### Web Server Metrics

#### RequestCount

Number of requests handled by the web server per second over the last 10 seconds. Shown as an average  $r/sec$  (requests per second) in the EB CLI and [Environment Health Page](#) (p. 295)

#### Status2xx, Status3xx, Status4xx, Status5xx

Number of requests that resulted in each type of status code over the last 10 seconds. For example, successful requests return a 200 OK, redirects are a 301, and a 404 is returned if the URL entered does not match any resources in the application.

The EB CLI and [Environment Health Page](#) (p. 295) show these metrics both as a raw number of requests for instances, and as a percentage of overall requests for environments.

#### p99.9, p99, p95, p90, p85, p75, p50, p10

Average latency for the slowest  $x$  percent of requests over the last 10 seconds, where  $x$  is the difference between the number and 100. For example, p99 indicates the latency for the slowest 1% of requests over the last 10 seconds.

## Operating System Metrics

The Elastic Beanstalk health agent reports the following operating system metrics. Elastic Beanstalk uses these metrics to identify instances that are under sustained heavy load:

### Operating System Metrics

#### Running

The amount of time that has passed since the instance was launched.

#### Load 1, Load 5

Load average in the last 1-minute and 5-minute periods. Shown as a decimal value indicating the average number of processes running during that time. If the number shown is higher than the number of vCPUs (threads) available, then the remainder is the average number of processes that were waiting.

For example, if your instance type has 4 vCPUs, and the load is 4.5, there was an average of .5 processes in wait during that time period, equivalent to one process was waiting 50 percent of the time.

#### User %, Nice %, System %, Idle %, I/O Wait %

Percentage of time that the CPU has spent in each state over the last 10 seconds.

## Publishing Amazon CloudWatch Custom Metrics for an Environment

You can publish the data gathered by AWS Elastic Beanstalk enhanced health reporting to Amazon CloudWatch as custom metrics. Publishing metrics to CloudWatch lets you monitor changes in application performance over time and identify potential issues by tracking how resource usage and request latency scale with load.

By publishing metrics to CloudWatch you also make them available for use with [monitoring graphs](#) (p. 286) and [alarms](#) (p. 315). One free metric, *EnvironmentHealth* is enabled automatically when you use enhanced health reporting. Custom metrics other than *EnvironmentHealth* incur standard [CloudWatch charges](#).

To publish CloudWatch custom metrics for an environment, you must first enable enhanced health reporting on the environment. See [Enabling AWS Elastic Beanstalk Enhanced Health Reporting](#) (p. 292) for instructions.

#### Topics

- [Enhanced Health Reporting Metrics](#) (p. 301)
- [Configuring CloudWatch Metrics in the AWS Management Console](#) (p. 302)
- [Configuring CloudWatch Custom Metrics with the EB CLI](#) (p. 302)
- [Providing Custom Metric Config Documents](#) (p. 303)

## Enhanced Health Reporting Metrics

When you enabled enhanced health reporting in your environment, the enhanced health reporting system automatically publishes one [CloudWatch custom metric](#), *EnvironmentHealth*. To publish additional metrics to CloudWatch, configure your environment with the metrics that you want to publish using the [AWS Management Console](#) (p. 302), the [EB CLI](#) (p. 302), or [.ebextensions](#) (p. 131).

#### `EnvironmentHealth`

Environment only. This is the only CloudWatch metric that is published by the enhanced health system unless you configure additional metrics. Environment health is represented by one of seven [statuses](#) (p. 298). In the CloudWatch console, these statuses map to the following values:

- 0 – OK
- 1 – Info
- 5 – Unknown
- 10 – No data
- 15 – Warning
- 20 – Degraded
- 25 – Severe

`InstancesSevere`, `InstancesDegraded`, `InstancesWarning`, `InstancesInfo`, `InstancesOk`, `InstancesPending`, `InstancesUnknown`, `InstancesNoData`

Environment only. These metrics indicate the number of instances in the environment with each health status. `InstancesNoData` indicates the number of instances for which no data is being received for (if any).

`ApplicationRequestsTotal`, `ApplicationRequests5xx`, `ApplicationRequests4xx`, `ApplicationRequests3xx`, `ApplicationRequests2xx`

Instance and environment. Indicates the total number of requests completed by the instance or environment, and the number of requests that completed with each status code category.

`ApplicationLatencyP10`, `ApplicationLatencyP50`, `ApplicationLatencyP75`, `ApplicationLatencyP85`, `ApplicationLatencyP90`, `ApplicationLatencyP95`, `ApplicationLatencyP99`, `ApplicationLatencyP99.9`

Instance and environment. Indicates the average amount of time it takes to complete the fastest x percent of requests.

#### `LoadAverage1min`

Instance only. The average CPU load of the instance over the last minute.

#### `InstanceHealth`

Instance only. Indicates the current health status of the instance.

#### `RootFilesystemUtil`

Instance only. Indicates the percentage of disk space in use.


CPUiirq, CPUUser, CPUIdle, CPUSystem, CPUSoftirq, CPUiowait, CPUNice

Instance only. Indicates the percentage of time that the CPU has spent in each state over the last minute.

## Configuring CloudWatch Metrics in the AWS Management Console

Use the AWS Management Console to configure your environment to publish enhanced health reporting metrics to CloudWatch and make them available for use with monitoring graphs and alarms.

### To configure CloudWatch custom metrics in the AWS Management Console

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. On the **Health** panel, under **Web Tier**, choose  (edit).
5. Under **Health Reporting**, select the instance and environment metrics that you want to publish to CloudWatch. To select multiple metrics, hold the **Ctrl** key while choosing.

Enabling CloudWatch custom metrics adds them to the list of metrics available in the [Monitoring Console](#) (p. 285).

## Configuring CloudWatch Custom Metrics with the EB CLI

You can use the EB CLI to configure custom metrics by saving your environment's configuration locally, adding an entry that defines the metrics to publish, and then uploading the configuration to Elastic Beanstalk. The saved configuration can be applied to an environment during or after creation.

### To configure CloudWatch custom metrics with the EB CLI and saved configurations

1. Initialize your project folder with `eb init` (p. 425).
2. Create an environment by running the `eb create` (p. 429) command.
3. Save a configuration template locally by running the `eb config save` command. The following example uses the `--cfg` option to specify the name of the configuration.

```
$ eb config save --cfg 01-base-state
Configuration saved at: ~/project/.elasticbeanstalk/saved_configs/01-base-state.cfg.yml
```

4. Open the saved configuration file in a text editor.
5. Under `OptionSettings > aws:elasticbeanstalk:healthreporting:system:`, add a `ConfigDocument` key to enable each of the CloudWatch metrics that you want to enable. For example, the following `ConfigDocument` publishes `ApplicationRequests5xx` and `ApplicationRequests4xx` metrics at the environment level, and `ApplicationRequestsTotal` metrics at the instance level:

```
OptionSettings:
 ...
 aws:elasticbeanstalk:healthreporting:system:
 ConfigDocument:
 CloudWatchMetrics:
 Environment
 ApplicationRequests5xx: 60
```

```

 ApplicationRequests4xx: 60
 Instance:
 ApplicationRequestsTotal: 60
 Version: 1
 SystemType: enhanced
 ...

```

### Note

In the example, 60 indicates the number of seconds between measurements. This is the only currently supported value.

- Save the configuration file and close the text editor. In this example, the updated configuration file is saved with a different name (`02-cloudwatch-enabled.cfg.yml`) than the downloaded configuration file. This will create a separate saved configuration when the file is uploaded. You can use the same name as the downloaded file to overwrite the existing configuration without creating a new one.
- Upload the updated configuration file to Elastic Beanstalk with the `eb config put` command:

```
$ eb config put 02-cloudwatch-enabled
```

When using the `eb config get` and `put` commands with saved configurations, do not include the file extension..

- Apply the saved configuration to your running environment:

```
$ eb config --cfg 02-cloudwatch-enabled
```

The `--cfg` option specifies a named configuration file that is applied to the environment. The configuration can be saved locally or in Elastic Beanstalk. If a configuration file with the specified name exists in both locations, the EB CLI uses the local file.

## Providing Custom Metric Config Documents

The config document for Amazon CloudWatch custom metrics is a JSON document that lists the metrics to publish at an environment and instance level. The following example shows a config document that enables all available custom metrics:

```

{
 "CloudWatchMetrics": {
 "Environment": {
 "ApplicationLatencyP99.9": 60,
 "InstancesSevere": 60,
 "ApplicationLatencyP90": 60,
 "ApplicationLatencyP99": 60,
 "ApplicationLatencyP95": 60,
 "InstancesUnknown": 60,
 "ApplicationLatencyP85": 60,
 "InstancesInfo": 60,
 "ApplicationRequests2xx": 60,
 "InstancesDegraded": 60,
 "InstancesWarning": 60,
 "ApplicationLatencyP50": 60,
 "ApplicationRequestsTotal": 60,
 "InstancesNoData": 60,
 "InstancesPending": 60,
 }
 }
}

```

```

 "ApplicationLatencyP10": 60,
 "ApplicationRequests5xx": 60,
 "ApplicationLatencyP75": 60,
 "InstancesOk": 60,
 "ApplicationRequests3xx": 60,
 "ApplicationRequests4xx": 60
 },
 "Instance": {
 "ApplicationLatencyP99.9": 60,
 "ApplicationLatencyP90": 60,
 "ApplicationLatencyP99": 60,
 "ApplicationLatencyP95": 60,
 "ApplicationLatencyP85": 60,
 "CPUUser": 60,
 "ApplicationRequests2xx": 60,
 "CPUIdle": 60,
 "ApplicationLatencyP50": 60,
 "ApplicationRequestsTotal": 60,
 "RootFilesystemUtil": 60,
 "LoadAverageImin": 60,
 "CPUIrq": 60,
 "CPUNice": 60,
 "CPUiowait": 60,
 "ApplicationLatencyP10": 60,
 "LoadAverage5min": 60,
 "ApplicationRequests5xx": 60,
 "ApplicationLatencyP75": 60,
 "CPUSystem": 60,
 "ApplicationRequests3xx": 60,
 "ApplicationRequests4xx": 60,
 "InstanceHealth": 60,
 "CPUsoftirq": 60
 }
},
"Version": 1
}

```

For the AWS CLI, you pass the document as a value for the Value key in an option settings argument, which itself is a JSON object. In this case, quotes in the embedded document must be escaped:

```

$ aws elasticbeanstalk validate-configuration-settings --application-name my-app --environment-name my-env --option-settings '[
 {
 "Namespace": "aws:elasticbeanstalk:healthreporting:system",
 "OptionName": "ConfigDocument",
 "Value": "{\\"CloudWatchMetrics\\": {\\"Environment\\":
 {\\"ApplicationLatencyP99.9\\": 60,\\"InstancesSevere\\": 60,
 \\"ApplicationLatencyP90\\": 60,\\"ApplicationLatencyP99\\":
 60,\\"ApplicationLatencyP95\\": 60,\\"InstancesUnknown\\": 60,
 \\"ApplicationLatencyP85\\": 60,\\"InstancesInfo\\": 60,\\"ApplicationRequests2xx
 \": 60,\\"InstancesDegraded\\": 60,\\"InstancesWarning\\": 60,
 \\"ApplicationLatencyP50\\": 60,\\"ApplicationRequestsTotal\\": 60,
 \\"InstancesNoData\\": 60,\\"InstancesPending\\": 60,\\"ApplicationLatencyP10\\":
 60,\\"ApplicationRequests5xx\\": 60,\\"ApplicationLatencyP75\\":
 60,\\"InstancesOk\\": 60,\\"ApplicationRequests3xx\\": 60,
 \\"ApplicationRequests4xx\\": 60},\\"Instance\\": {\\"ApplicationLatencyP99.9\\":
 60,\\"ApplicationLatencyP90\\": 60,\\"ApplicationLatencyP99\\": 60,
 \\"ApplicationLatencyP95\\": 60,\\"ApplicationLatencyP85\\": 60,\\"CPUUser\\": 60,

```

```
\\"ApplicationRequests2xx\\": 60,\\"CPUIdle\\": 60,\\"ApplicationLatencyP50\\":
60,\\"ApplicationRequestsTotal\\": 60,\\"RootFilesystemUtil\\": 60,
\\"LoadAverage1min\\": 60,\\"CPUIrq\\": 60,\\"CPUNice\\": 60,\\"CPUiowait
\\": 60,\\"ApplicationLatencyP10\\": 60,\\"LoadAverage5min\\": 60,
\\"ApplicationRequests5xx\\": 60,\\"ApplicationLatencyP75\\": 60,\\"CPUSystem
\\": 60,\\"ApplicationRequests3xx\\": 60,\\"ApplicationRequests4xx\\": 60,
\\"InstanceHealth\\": 60,\\"CPUSoftirq\\": 60}},\\"Version\\": 1}}
]'
```

For an `.ebextensions` configuration file in YAML, you can provide the JSON document as is:

```
option_settings:
 - namespace: aws:elasticbeanstalk:healthreporting:system
 option_name: ConfigDocument
 value: {
"CloudWatchMetrics": {
 "Environment": {
 "ApplicationLatencyP99.9": 60,
 "InstancesSevere": 60,
 "ApplicationLatencyP90": 60,
 "ApplicationLatencyP99": 60,
 "ApplicationLatencyP95": 60,
 "InstancesUnknown": 60,
 "ApplicationLatencyP85": 60,
 "InstancesInfo": 60,
 "ApplicationRequests2xx": 60,
 "InstancesDegraded": 60,
 "InstancesWarning": 60,
 "ApplicationLatencyP50": 60,
 "ApplicationRequestsTotal": 60,
 "InstancesNoData": 60,
 "InstancesPending": 60,
 "ApplicationLatencyP10": 60,
 "ApplicationRequests5xx": 60,
 "ApplicationLatencyP75": 60,
 "InstancesOk": 60,
 "ApplicationRequests3xx": 60,
 "ApplicationRequests4xx": 60
 },
 "Instance": {
 "ApplicationLatencyP99.9": 60,
 "ApplicationLatencyP90": 60,
 "ApplicationLatencyP99": 60,
 "ApplicationLatencyP95": 60,
 "ApplicationLatencyP85": 60,
 "CPUUser": 60,
 "ApplicationRequests2xx": 60,
 "CPUIdle": 60,
 "ApplicationLatencyP50": 60,
 "ApplicationRequestsTotal": 60,
 "RootFilesystemUtil": 60,
 "LoadAverage1min": 60,
 "CPUIrq": 60,
 "CPUNice": 60,
 "CPUiowait": 60,
 "ApplicationLatencyP10": 60,
 "LoadAverage5min": 60,
 "ApplicationRequests5xx": 60,
```

```
"ApplicationLatencyP75": 60,
"CPUSystem": 60,
"ApplicationRequests3xx": 60,
"ApplicationRequests4xx": 60,
"InstanceHealth": 60,
"CPUSoftirq": 60
}
},
"Version": 1
}
```

## Using Enhanced Health Reporting with the AWS Elastic Beanstalk API

Because AWS Elastic Beanstalk enhanced health reporting has role and solution stack requirements, you must update scripts and code that you used prior to the release of enhanced health reporting before you can use it. To maintain backward compatibility, enhanced health reporting is not enabled by default when you create an environment using the Elastic Beanstalk API.

You configure enhanced health reporting by setting the service role, the instance profile, and Amazon CloudWatch configuration options for your environment. You can do this in three ways: by setting the configuration options in the `.ebextensions` folder, with saved configurations, or by configuring them directly in the `create-environment` call's `option-settings` parameter.

To use the API, SDKs, or AWS command line interface (CLI) to create an environment that supports enhanced health, you must:

- Create a service role and instance profile with the appropriate [permissions \(p. 17\)](#)
- Create a new environment with a solution stack for a new version of the [platform configuration \(p. 24\)](#)
- Set the health system type, instance profile, and service role [configuration options \(p. 131\)](#)

Use the following configuration options in the `aws:elasticbeanstalk:healthreporting:system`, `aws:autoscaling:launchconfiguration`, and `aws:elasticbeanstalk:environment` namespaces to configure your environment for enhanced health reporting.

### Enhanced Health Configuration Options

#### SystemType

Namespace: `aws:elasticbeanstalk:healthreporting:system`

To enable enhanced health reporting, set to **enhanced**.

#### IamInstanceProfile

Namespace: `aws:autoscaling:launchconfiguration`

Set to the name of an instance profile configured for use with Elastic Beanstalk.

#### ServiceRole

Namespace: `aws:elasticbeanstalk:environment`

Set to the name of a service role configured for use with Elastic Beanstalk.



### ConfigDocument (optional)

Namespace: `aws:elasticbeanstalk:healthreporting:system`

A JSON document that defines the and instance and environment metrics to publish to CloudWatch. For example:

```
{
 "CloudWatchMetrics":
 {
 "Environment":
 {
 "ApplicationLatencyP99.9": 60,
 "InstancesSevere": 60
 }
 "Instance":
 {
 "ApplicationLatencyP85": 60,
 "CPUUser": 60
 }
 }
 "Version": 1
}
```

#### Note

Config documents may require special formatting, such as escaping quotes, depending on how you provide them to Elastic Beanstalk. See [Providing Custom Metric Config Documents \(p. 303\)](#) for examples.

## Enhanced Health Log Format

AWS Elastic Beanstalk platforms use a custom web server log format to efficiently relay information about HTTP requests to the enhanced health reporting system, which analyzes the logs, identifies issues, and sets the instance and environment health accordingly. If you disable the web server proxy on your environment and serve requests directly from the web container, you can still make full use of enhanced health reporting by configuring your server to output logs in the location and format that the [Elastic Beanstalk health agent \(p. 311\)](#) uses.

## Web Server Log Configuration

Elastic Beanstalk platforms are configured to output two logs with information about HTTP requests. The first is in verbose format and provides detailed information about the request, including the requester's user agent information and a human-readable timestamp.

The following examples are from an nginx proxy running on a Ruby web server environment, but the format is similar for Apache:

`/var/log/nginx/access.log`

```
172.31.24.3 - - [23/Jul/2015:00:21:20 +0000] "GET / HTTP/1.1" 200 11 "-"
"curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.3.4
libidn/1.23 librtmp/2.3" "177.72.242.17"
172.31.24.3 - - [23/Jul/2015:00:21:21 +0000] "GET / HTTP/1.1" 200 11 "-"
"curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.3.4
libidn/1.23 librtmp/2.3" "177.72.242.17"
```

```
172.31.24.3 - - [23/Jul/2015:00:21:22 +0000] "GET / HTTP/1.1" 200 11 "-"
"curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.3.4
libidn/1.23 librtmp/2.3" "177.72.242.17"
172.31.24.3 - - [23/Jul/2015:00:21:22 +0000] "GET / HTTP/1.1" 200 11 "-"
"curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.3.4
libidn/1.23 librtmp/2.3" "177.72.242.17"
172.31.24.3 - - [23/Jul/2015:00:21:22 +0000] "GET / HTTP/1.1" 200 11 "-"
"curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.3.4
libidn/1.23 librtmp/2.3" "177.72.242.17"
```

The second log is in terse format. It includes information relevant only to enhanced health reporting. This log is output to a subfolder named `healthd` and rotates hourly. Old logs are deleted immediately after rotating out.

The following example shows a log in the machine-readable format.

`/var/log/nginx/healthd/application.log.2015-07-23-00`

```
1437609879.311"/"200"0.083"0.083"177.72.242.17
1437609879.874"/"200"0.347"0.347"177.72.242.17
1437609880.006"/bad/path"404"0.001"0.001"177.72.242.17
1437609880.058"/"200"0.530"0.530"177.72.242.17
1437609880.928"/bad/path"404"0.001"0.001"177.72.242.17
```

The enhanced health log format includes the following information:

- The time of the request, in Unix time.
- The path of the request.
- The HTTP status code for the result.
- The request time.
- The upstream time.
- The X-Forwarded-For HTTP header.

For nginx proxies, times are printed in floating-point seconds, with three decimal places. For Apache, whole milliseconds are used.

The following example shows the log configuration for nginx with the `healthd` log format highlighted:

`/etc/nginx/conf.d/webapp_healthd.conf`

```
upstream my_app {
 server unix:///var/run/puma/my_app.sock;
}

log_format healthd '$msec$uri'
 '$status$request_time$upstream_response_time'
 '$http_x_forwarded_for';

server {
 listen 80;
 server_name _ localhost; # need to listen to localhost for worker tier

 if ($time_iso8601 ~ "^(\\d{4})-(\\d{2})-(\\d{2})T(\\d{2})") {
 set $year $1;
 set $month $2;
 }
}
```

```
 set $day $3;
 set $hour $4;
}

access_log /var/log/nginx/access.log main;
access_log /var/log/nginx/healthd/application.log.$year-$month-$day-$hour
healthd;

location / {
 proxy_pass http://my_app; # match the name of upstream directive which is
defined above
 proxy_set_header Host $host;
 proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
}

location /assets {
 alias /var/app/current/public/assets;
 gzip_static on;
 gzip on;
 expires max;
 add_header Cache-Control public;
}

location /public {
 alias /var/app/current/public;
 gzip_static on;
 gzip on;
 expires max;
 add_header Cache-Control public;
}
}
```

## Generating Logs for Enhanced Health Reporting

To provide logs to the health agent, you must do the following:

- Output logs in the correct format, as shown in the previous section
- Output logs to `/var/log/nginx/healthd/`
- Name logs using the following format: `application.log.$year-$month-$day-$hour`
- Rotate logs once per hour
- Do not truncate logs

## Notifications and Troubleshooting

This page lists example cause messages for common issues and links to more information. Cause messages appear in the [environment dashboard](#) (p. 285) and are recorded in [events](#) (p. 317) when health issues persist across several checks.

## Deployments

Elastic Beanstalk monitors your environment for consistency following deployments. If a rolling deployment fails, the version of your application running on the instances in your environment may vary. This can occur if a deployment succeeds on one or more batches but fails prior to all batches completing.

*Incorrect application version found on 2 out of 5 instances. Expected version "v1" (deployment 1).*

*Incorrect application version on environment instances. Expected version "v1" (deployment 1).*

The expected application version is not running on some or all instances in an **environment**.

*Incorrect application version "v2" (deployment 2). Expected version "v1" (deployment 1).*

The application deployed to an **instance** differs from the expected version. If a deployment fails, the expected version is reset to the version from the most recent successful deployment. In the above example, the first deployment (version "v1") succeeded, but the second deployment (version "v2") failed. Any instances running "v2" are considered unhealthy.

To solve this issue, start another deployment. You can [redploy a previous version \(p. 98\)](#) that you know works, or configure your environment to [ignore health checks \(p. 100\)](#) during deployment and redeploy the new version to force the deployment to complete.

You can also identify and terminate the instances that are running the wrong application version. Elastic Beanstalk will launch instances with the correct version to replace any instances that you terminate. Use the [EB CLI health command \(p. 439\)](#) to identify instances that are running the wrong application version.

## Application Server

*15% of requests are erroring with HTTP 4xx*

*20% of the requests to the ELB are erroring with HTTP 4xx.*

A high percentage of HTTP requests to an **instance** or **environment** are failing with 4xx errors.

A 400 series status code indicates that the user made a bad request, such as requesting a page that doesn't exist (404 File Not Found) or that the user doesn't have access to (403 Forbidden). A low number of 404s is not unusual but a large number could mean that there are internal or external links to unavailable pages. These issues can be resolved by fixing bad internal links and adding redirects for bad external links.

*5% of the requests are failing with HTTP 5xx*

*3% of the requests to the ELB are failing with HTTP 5xx.*

A high percentage of HTTP requests to an **instance** or **environment** are failing with 500 series status codes.

A 500 series status code indicates that the application server encountered an internal error. These issues indicate that there is an error in your application code and should be identified and fixed quickly.

*95% of CPU is in use*

On an **instance**, the health agent is reporting an extremely high percentage of CPU usage and sets the instance health to **Warning** or **Degraded**.

Scale your environment to take load off of instances.

## Worker Instance

*20 messages waiting in the queue (25 seconds ago)*

Requests are being added to your worker environment's queue faster than they can be processed. Scale your environment to increase capacity.

*5 messages in Dead Letter Queue (15 seconds ago)*

Worker requests are failing repeatedly and being added to the [Dead Letter Queue \(p. 124\)](#). Check the requests in the dead letter queue to see why they are failing.

## Other Resources

*4 active instances is below Auto Scaling group minimum size 5*

The number of instances running in your environment is fewer than the minimum configured for the Auto Scaling group.

*Auto Scaling group (groupname) notifications have been deleted or modified*

The notifications configured for your Auto Scaling group have been modified outside of Elastic Beanstalk.

### Topics

- [The Elastic Beanstalk Health Agent \(p. 311\)](#)
- [Factors in Determining Instance and Environment Health \(p. 312\)](#)
- [Enhanced Health Roles \(p. 313\)](#)
- [Enhanced Health Events \(p. 314\)](#)
- [Enhanced Health Reporting Behavior During Updates, Deployments, and Scaling \(p. 314\)](#)

## The Elastic Beanstalk Health Agent

The Elastic Beanstalk health agent is a daemon process that runs on each EC2 instance in your environment, monitoring operating system and application-level health metrics and reporting issues to Elastic Beanstalk. The health agent is included in all Linux platform solution stacks starting with version 2.0 of each configuration.

The health agent reports similar metrics to those [published to CloudWatch \(p. 289\)](#) by Auto Scaling and Elastic Load Balancing as part of [basic health reporting \(p. 288\)](#), including CPU load, HTTP codes, and latency. The health agent, however, reports directly to Elastic Beanstalk, with greater granularity and frequency than basic health reporting.

For basic health, these metrics are published every five minutes and can be monitored with graphs in the environment management console. With enhanced health, the Elastic Beanstalk health agent reports metrics to Elastic Beanstalk every ten seconds. Elastic Beanstalk uses the metrics provided by the health agent to determine the health status of each instance in the environment, and, combined with other [factors \(p. 312\)](#), to determine the overall health of the environment.

The overall health of the environment can be viewed in real-time in the environment dashboard and is published to CloudWatch by Elastic Beanstalk every sixty seconds. Detailed metrics reported by the health agent can be viewed in real time with the [`eb health` \(p. 439\)](#) command in the [EB CLI \(p. 416\)](#).

For an additional charge, you can choose to publish individual instance and environment level metrics to CloudWatch every sixty seconds. Metrics published to CloudWatch can then be used to create [monitoring graphs \(p. 287\)](#) in the [environment management console \(p. 52\)](#).

Enhanced health reporting only incurs a charge if you choose to publish enhanced health metrics to CloudWatch. When you use enhanced health, you still get the basic health metrics published for free, even if you don't choose to publish enhanced health metrics.

See [Instance Metrics \(p. 299\)](#) for details on the metrics reported by the health agent. For details on publishing enhanced health metrics to CloudWatch, see [Publishing Amazon CloudWatch Custom Metrics for an Environment \(p. 300\)](#).

## Factors in Determining Instance and Environment Health

In addition to the basic health reporting system checks, including [Elastic Load Balancing Health Check \(p. 289\)](#) and [resource monitoring \(p. 289\)](#), Elastic Beanstalk enhanced health reporting gathers additional data about the state of the instances in your environment, including operating system metrics, server logs, and the state of ongoing environment operations such as deployments and updates. The Elastic Beanstalk health reporting service combines information from all available sources and analyzes it to determine the overall health of the environment.

## Operations and Commands

When you perform an operation on your environment, such as deploying a new version of an application, Elastic Beanstalk makes several changes that cause the health status of the environment to change.

For example, when you deploy a new version of an application to an environment that is running multiple instances, you might see messages similar to the following as you monitor the environment's health [with the EB CLI \(p. 439\)](#):

| id         | status  | cause                                                                                                 |
|------------|---------|-------------------------------------------------------------------------------------------------------|
| Overall    | Info    | Command is executing on 3 out of 5 instances                                                          |
| i-bb65c145 | Pending | 91 % of CPU is in use. 24 % in I/O wait<br>Performing application deployment (running for 31 seconds) |
| i-ba65c144 | Pending | Performing initialization (running for 12 seconds)                                                    |
| i-f6a2d525 | Ok      | Application deployment completed 23 seconds ago and took 26 seconds                                   |
| i-e8a2d53b | Pending | 94 % of CPU is in use. 52 % in I/O wait<br>Performing application deployment (running for 33 seconds) |
| i-e81cca40 | Ok      |                                                                                                       |

In this example, the overall status of the environment is `Ok` and the cause of this status is that the *Command is executing on 3 out of 5 instances*. Three of the instances in the environment have the status `Pending`, indicating that an operation is in progress.

When an operation completes, Elastic Beanstalk reports additional information about the operation. For the example, Elastic Beanstalk displays the following information about an instance that has already been updated with the new version of the application:

```
i-f6a2d525 Ok Application deployment completed 23 seconds ago and
took 26 seconds
```

Instance health information also includes details about the most recent deployment to each instance in your environment. Each instance reports a deployment ID and status. The deployment ID is an integer that increases by one each time you deploy a new version of your application or change settings for on-instance configuration options such as environment variables. You can use the deployment

information to identify instances that are running the wrong version of your application after a failed [rolling deployment \(p. 99\)](#).

In the cause column, Elastic Beanstalk includes informational messages about successful operations and other healthy states across multiple health checks, but they do not persist indefinitely. Causes for unhealthy environment statuses persist until the environment returns to a healthy status.

## Command Timeout

Elastic Beanstalk applies a command timeout from the time an operation begins to allow an instance to transition into a healthy state. This command timeout is set in your environment's update and deployment configuration (in the [aws:elasticbeanstalk:command \(p. 156\)](#) namespace) and defaults to 10 minutes.

During rolling updates, Elastic Beanstalk applies a separate timeout to each batch in the operation. This timeout is set as part of the environment's rolling update configuration (in the [aws:autoscaling:updatepolicy:rollingupdate \(p. 153\)](#) namespace). If all instances in the batch are healthy within the command timeout, the operation continues to the next batch. If not, the operation fails.

### Note

If your application does not pass health checks with `Ok` status but is stable at a different level, you can set the `HealthCheckSuccessThreshold` option in the [aws:elasticbeanstalk:command namespace \(p. 156\)](#) to change the level at which Elastic Beanstalk considers an instance to be healthy.

For a web server environment to be considered healthy, each instance in the environment or batch must pass 12 consecutive health checks over the course of two minutes. For worker tier, each instance must pass 18 health checks. Prior to command timeout, Elastic Beanstalk does not lower an environment's health status when health checks fail. As long as the instances in the environment and become healthy within the command timeout, the operation succeeds.

## HTTP Requests

When no operation is in progress on an environment, the primary source of information about instance and environment health is the web server logs for each instance. To determine the health of an instance and the overall health of the environment, Elastic Beanstalk considers the number of requests, the result of each request, and the speed at which each request was resolved.

If you use Multicontainer Docker, which does not include a web server, or disable the web server (nginx or Apache) that is included in other Elastic Beanstalk platforms, additional configuration is required to get the [Elastic Beanstalk health agent \(p. 311\)](#) logs in the format that it needs to relay health information to the Elastic Beanstalk service. See [Enhanced Health Log Format \(p. 307\)](#) for details.

## Operating System Metrics

Elastic Beanstalk monitors operating system metrics reported by the health agent to identify instances that are consistently low on system resources.

See [Instance Metrics \(p. 299\)](#) for details on the metrics reported by the health agent.

## Enhanced Health Roles

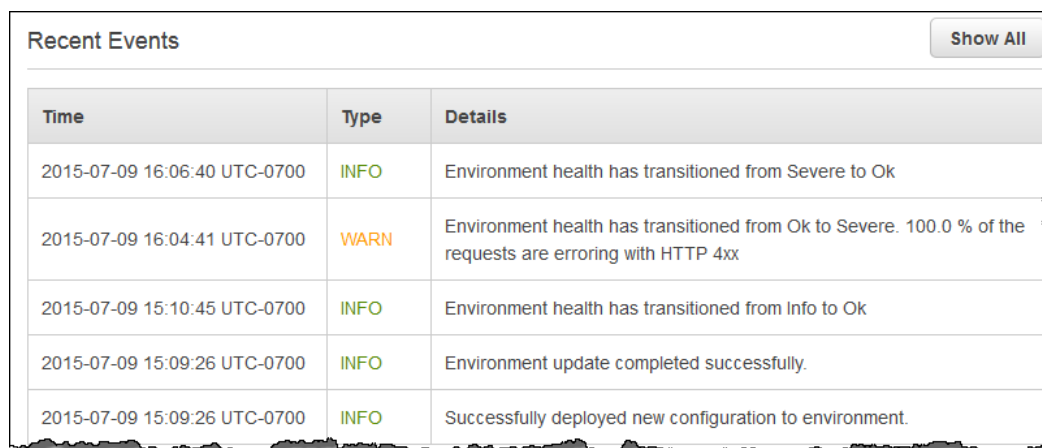
Enhanced health reporting requires two roles—a service role for Elastic Beanstalk and an instance profile for the environment. The service role allows Elastic Beanstalk to interact with other AWS services on your behalf in order to gather information about the resources in your environment. The instance profile allows the instances in your environment to write logs to Amazon S3.

When you create an Elastic Beanstalk environment in the AWS Management Console, the console prompts you to create an instance profile and service role with appropriate permissions. The EB CLI also assists you in creating these roles when you call `eb create` to create an environment.

If you use the API, an SDK, or the AWS CLI to create environments, you must create these roles beforehand and specify them during environment creation to use enhanced health. For instructions on creating appropriate roles for your environments, see [Service Roles, Instance Profiles, and User Policies](#) (p. 17).

## Enhanced Health Events

The enhanced health system generates events when an environment transitions between states. The following example shows events output by an environment transitioning between Info, OK and Severe states:



| Recent Events <span>Show All</span> |      |                                                                                                           |
|-------------------------------------|------|-----------------------------------------------------------------------------------------------------------|
| Time                                | Type | Details                                                                                                   |
| 2015-07-09 16:06:40 UTC-0700        | INFO | Environment health has transitioned from Severe to Ok                                                     |
| 2015-07-09 16:04:41 UTC-0700        | WARN | Environment health has transitioned from Ok to Severe. 100.0 % of the requests are erroring with HTTP 4xx |
| 2015-07-09 15:10:45 UTC-0700        | INFO | Environment health has transitioned from Info to Ok                                                       |
| 2015-07-09 15:09:26 UTC-0700        | INFO | Environment update completed successfully.                                                                |
| 2015-07-09 15:09:26 UTC-0700        | INFO | Successfully deployed new configuration to environment.                                                   |

When transitioning to a worse state, Elastic Beanstalk includes a message indicating the cause in the event.

Not all changes in status at an instance level will cause Elastic Beanstalk to emit an event. To prevent false alarms, Elastic Beanstalk only generates a health related event if an issue persists across multiple checks.

Real time environment level health information, including status, color and cause, is available in the [environment dashboard](#) (p. 53) and the [EB CLI](#) (p. 416). By attaching the EB CLI to your environment and running the `eb health` (p. 439) command, you can also view real time statuses from each of the *instances* in your environment.

## Enhanced Health Reporting Behavior During Updates, Deployments, and Scaling

Enabling enhanced health reporting can affect how your environment behaves during configuration updates and deployments. Elastic Beanstalk won't complete a batch of updates until all of the instances pass health checks consistently, and since enhanced health reporting applies a higher standard for health and monitors more factors, instances that pass basic health reporting's [ELB health check](#) (p. 289) won't necessarily pass muster with enhanced health reporting. See the topics on [rolling configuration updates](#) (p. 106) and [rolling deployments](#) (p. 99) for details on how health checks affect the update process.

Enhanced health reporting can also highlight the need to set a proper [health check URL](#) (p. 241) for Elastic Load Balancing. When your environment scales up to meet demand, new instances will



start taking requests as soon as they pass enough ELB health checks. If a health check URL is not configured, this can be as little as 20 seconds after a new instance is able to accept a TCP connection.

If your application hasn't finished starting up by the time the load balancer declares it healthy enough to receive traffic, you will see a flood of failed requests, and your environment will start to fail health checks. A health check URL that hits a path served by your application can prevent this issue; ELB health checks won't pass until a GET request to the health check URL returns a 200 status code.

## Manage Alarms

You can create alarms for metrics that you are monitoring by using the AWS Management Console. Alarms help you monitor changes to your environment so that you can easily identify and mitigate problems before they occur. For example, you can set an alarm that notifies you when CPU utilization in an environment exceeds a certain threshold, ensuring that you are notified before a potential problem occurs. For more information, see [Using Elastic Beanstalk with Amazon CloudWatch \(p. 328\)](#).

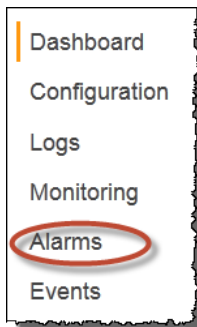
### Note

Elastic Beanstalk uses CloudWatch for monitoring and alarms, meaning CloudWatch costs are applied to your AWS account for any alarms that you use.

For more information about monitoring specific metrics, see [Basic Health Reporting \(p. 288\)](#).

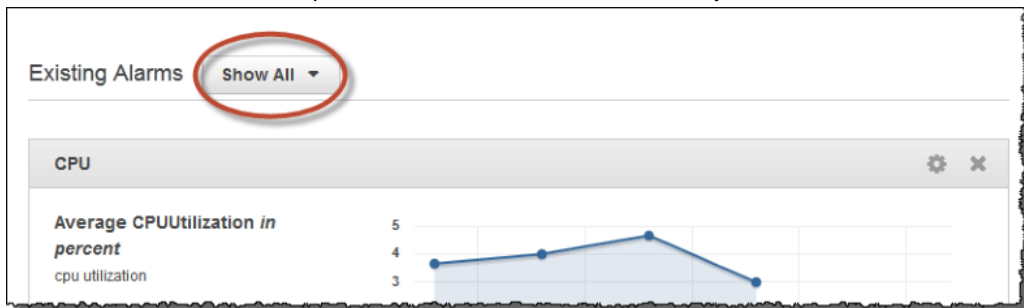
### To check the state of your alarms

1. From the Elastic Beanstalk console applications page, click the environment name that you want to manage alarms for.
2. From the navigation menu, click **Alarms** to see a list of alarms.



If any alarms is in the alarm state, they are flagged with **⚠** (warning).

3. To filter alarms, click the drop-down filter and select the filter that you want.




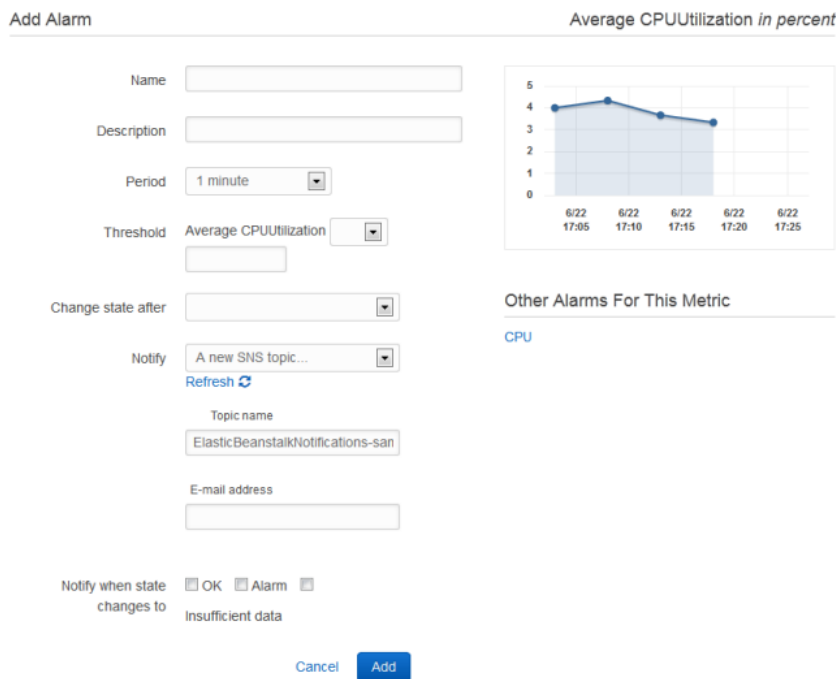
4. To edit or delete an alarm, click **⚙** (edit) or **✕** (delete).

### To create an alarm

1. From the Elastic Beanstalk console applications page, click the environment name that you want to add alarms to.
2. From the navigation menu, click **Monitoring**.



3. For the metric that you want to create an alarm for, click . You are directed to the **Alarms** page.

A screenshot of the 'Add Alarm' form in the AWS Elastic Beanstalk console. The form is titled 'Add Alarm' and is for the metric 'Average CPUUtilization in percent'. It includes fields for Name, Description, Period (set to 1 minute), Threshold (set to Average CPUUtilization), Change state after, Notify (set to A new SNS topic...), Topic name (ElasticBeanstalkNotifications-san), and E-mail address. There are also checkboxes for 'Notify when state changes to' (OK, Alarm, Insufficient data) and buttons for 'Cancel' and 'Add'. To the right of the form is a line graph showing 'Average CPUUtilization in percent' over time, with data points for 6/22 at 17:05, 17:10, 17:15, 17:20, and 17:25. Below the graph is a section titled 'Other Alarms For This Metric' with a sub-section for 'CPU'.

4. Enter details about the alarm:
  - **Name:** A name for this alarm.
  - **Description** (optional): A short description of what this alarm is.
  - **Period:** The time interval between readings.
  - **Threshold:** Describes the behavior and value that the metric must exceed in order to trigger an alarm.
  - **Change state after:** The amount a time after a threshold has been exceed that triggers a change in state of the alarm.
  - **Notify:** The Amazon SNS topic that is notified when an alarm changes state.
  - **Notify when state changes to:**
    - **OK:** The metric is within the defined threshold.

- **Alarm:** The metric exceeded the defined threshold.
  - **Insufficient data:** The alarm has just started, the metric is not available, or not enough data is available for the metric to determine the alarm state.
5. Click **Add**. The environment status changes to gray while the environment updates. You can view the alarm that you created by going to the **Alarms** page.

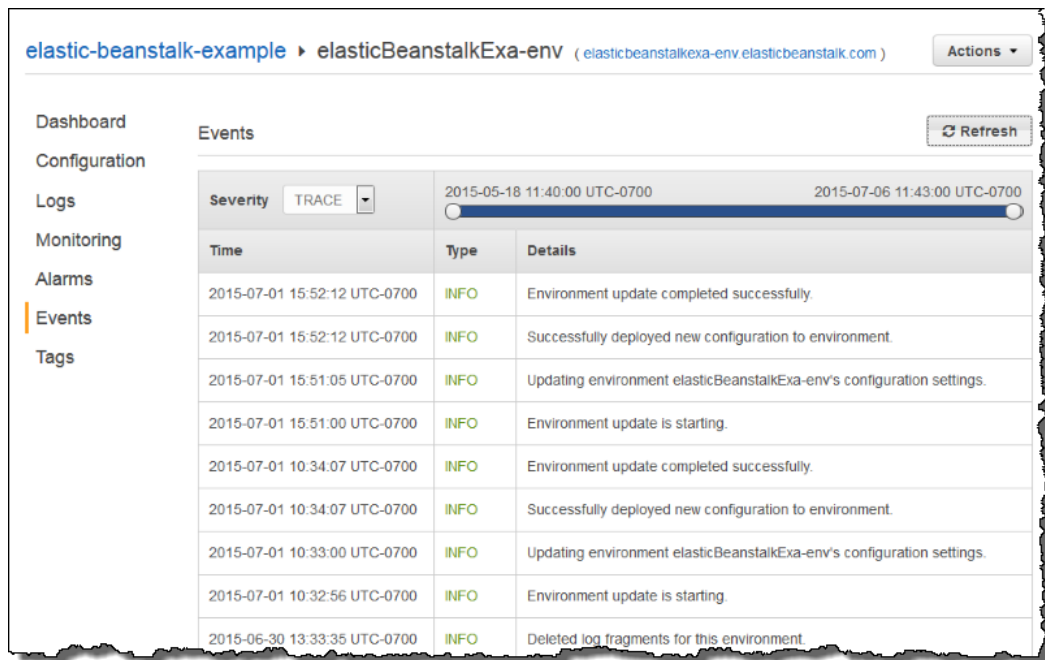
## Viewing an Elastic Beanstalk Environment's Event Stream

You can use the AWS Management Console to access events and notifications associated with your application. For more details on the most common events, see [Understanding Environment Events](#) (p. 809). For information on how to view events using the AWS Toolkit for Eclipse, see [Viewing Events](#) (p. 631).

### AWS Management Console

#### To view environment and application events

1. Navigate to the [management console](#) (p. 52) for your environment.
2. From the navigation menu, click **Events**.



The Events page shows you a list of all events that have been recorded for the environment and application version. You can filter on the type of events by using the **Severity** drop-down list. You can also filter when the events occurred by using the time slider.

## Command Line

The [EB CLI \(p. 416\)](#) and [AWS CLI](#) both provide commands for retrieving events. If you are managing your environment using the EB CLI, use `eb events` ([p. 462](#)) to print a list of events. This command also has a `--follow` option that continues to show new events until you press **Ctrl+C** to stop output.

To pull events using the AWS CLI, use the `describe-events` command and specify the environment by name or ID:

```
$ aws elasticbeanstalk describe-events --environment-id e-gbjzqcra3
{
 "Events": [
 {
 "ApplicationName": "elastic-beanstalk-example",
 "EnvironmentName": "elasticBeanstalkExa-env",
 "Severity": "INFO",
 "RequestId": "a4c7bfd6-2043-11e5-91e2-9114455c358a",
 "Message": "Environment update completed successfully.",
 "EventDate": "2015-07-01T22:52:12.639Z"
 },
 ...
]
}
```

For more information on the command line tools, see [Tools \(p. 416\)](#).

## API

You can use the Elastic Beanstalk APIs to view all events for your application. In this example, we use the APIs to get a list of all events for an application named My First Elastic Beanstalk Application.

### To view all application events

- Call `DescribeEvents` with the following parameter:
  - `ApplicationName = My First Elastic Beanstalk Application`

### Example

```
https://elasticbeanstalk.us-west-2.amazonaws.com/?ApplicationName=My%20First%20Elastic%20Beanstalk%20Application&Operation=DescribeEvents&AuthParams
```

## Listing and Connecting to Server Instances

You can view a list of Amazon EC2 instances running your Elastic Beanstalk application environment through the AWS Management Console. You can connect to the instances using any SSH client. For more information about listing and connecting to Server Instances using the AWS Toolkit for Eclipse, see [Listing and Connecting to Server Instances \(p. 631\)](#). You can connect to the instances running Windows using Remote Desktop. For more information about listing and connecting to Server Instances using the AWS Toolkit for Visual Studio, see [Listing and Connecting to Server Instances \(p. 679\)](#).

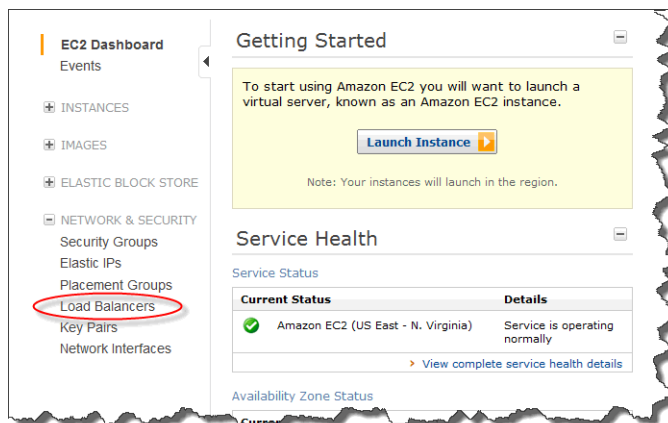
### Important

You must create an Amazon EC2 key pair and configure your Elastic Beanstalk-provisioned Amazon EC2 instances to use the Amazon EC2 key pair before you can access your Elastic

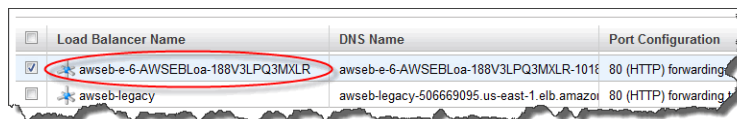
Beanstalk-provisioned Amazon EC2 instances. You can set up your Amazon EC2 key pairs using the [AWS Management Console](#). For instructions on creating a key pair for Amazon EC2, go to the *Amazon EC2 Getting Started Guide*. For more information on how to configure your Amazon EC2 instances to use an Amazon EC2 key pair, see [EC2 Key Pair \(p. 234\)](#). Elastic Beanstalk does not enable remote connections to EC2 instances in a Windows container by default except for legacy Windows containers. (Beanstalk configures EC2 instances in legacy Windows containers to use port 3389 for RDP connections.) You can enable remote connections to your EC2 instances running Windows by adding a rule to a security group that authorizes inbound traffic to the instances. We strongly recommend that you remove the rule when you end your remote connection. You can add the rule again the next time you need to log in remotely. For more information, see [Adding a Rule for Inbound RDP Traffic to a Windows Instance](#) and [Connect to Your Windows Instance](#) in the *Amazon Elastic Compute Cloud User Guide for Microsoft Windows*.

### To view and connect to Amazon EC2 instances for an environment

1. Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.
2. In the navigation (left) pane of the console, click **Load Balancers**.



3. Load balancers created by Elastic Beanstalk will have an **awseb** in the name. Find the load balancer for your environment and click it.

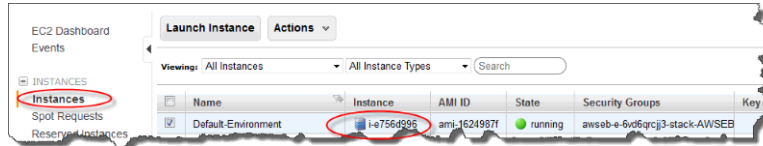


4. Click the **Instances** tab in the bottom pane of the console window.



A list of the instances that the load balancer for your Elastic Beanstalk environment uses is displayed. Make a note of an instance ID that you want to connect to.

5. Click the **Instances** link in the left side of the Amazon EC2 console, and find your instance ID in the list.



6. Right-click the instance ID for the Amazon EC2 instance running in your environment's load balancer, and then select **Connect** from the context menu.
7. Make a note of the instance's public DNS address on the **Description** tab.
8. To connect to an instance running Linux, use the SSH client of your choice to connect to your instance and type `ssh -i .ec2/mykeypair.pem ec2-user@<public-DNS-of-the-instance>`. For instructions on how to connect to an instance running Windows, see [Connect to your Windows Instance](#) in the *Amazon Elastic Compute Cloud Microsoft Windows Guide*.

For more information on connecting to an Amazon EC2 instance, see the [Amazon Elastic Compute Cloud Getting Started Guide](#).

## Instance Logs

The EC2 instances in your Elastic Beanstalk environment generate logs that you can view to troubleshoot issues with your application or configuration files. Logs created by the web server, application server, Elastic Beanstalk platform scripts, and AWS CloudFormation are stored locally on individual instances, and can be easily retrieved with the environment management console or EB CLI.

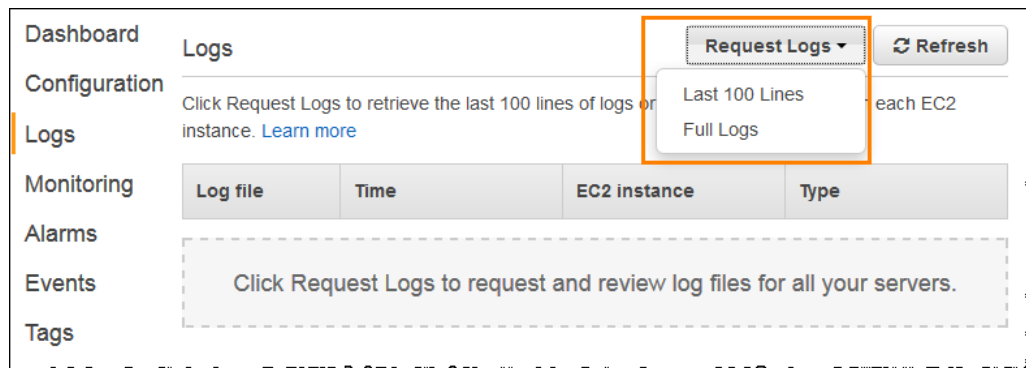
Tail logs are the last 100 lines of the most commonly used log files – Elastic Beanstalk operational logs and logs from the web server and/or application server. When you request tail logs in the environment management console or with `eb logs`, an instance in your environment concatenates the most recent log entries into a single text file and uploads it to Amazon S3.

Bundle logs are full logs for a wider range of log files, including logs from yum and cron and several logs from AWS CloudFormation. When you request bundle logs, an instance in your environment packages the full log files into a ZIP archive and uploads it to Amazon S3.

### Note

Elastic Beanstalk Windows Server platforms do not support bundle logs.

To retrieve logs in the [environment management console \(p. 52\)](#), navigate to **Logs**, choose **Request Logs**, and then choose the type of logs to retrieve. To get tail logs, choose **Last 100 Lines**. To get bundle logs, choose **Full Logs**.



When Elastic Beanstalk finishes retrieving your logs, choose **Download**.

Tail and bundle logs are removed from Amazon S3 15 minutes after they are created. To persist logs, you can configure your environment to publish logs to Amazon S3 automatically after they have been rotated.

To enable log rotation to Amazon S3, navigate to the Software Configuration section of the [Configuration page \(p. 141\)](#) in the environment management console. Under **Log Options**, select **Enable log file rotation to Amazon S3** and then choose **Apply**. Instances in your environment will attempt to upload logs that have been rotated once per hour.

To upload rotated logs to Amazon S3, the instances in your environment must have an [instance profile \(p. 18\)](#) with permission to write to your Elastic Beanstalk Amazon S3 bucket. These permissions are included in the default instance profile that Elastic Beanstalk prompts you to create when you launch an environment in the Elastic Beanstalk console for the first time.

If your application generates logs in a location that is not part of the default configuration for your environment's platform, you can extend the default configuration with configuration files ([.ebextensions \(p. 178\)](#)). You can add your application's log files to tail logs, bundle logs, or log rotation.

#### Sections

- [Log Location on-Instance \(p. 321\)](#)
- [Log Location in S3 \(p. 322\)](#)
- [Extending the Default Log Task Configuration \(p. 322\)](#)
- [Instance-Local Log Rotation Settings \(p. 323\)](#)

## Log Location on-Instance

Logs are stored in standard locations on the EC2 instances in your environment. Elastic Beanstalk generates the following logs:

#### Linux

- `/var/log/eb-activity.log`
- `/var/log/eb-commandprocessor.log`
- `/var/log/eb-version-deployment.log`

#### Windows Server

- `C:\Program Files\Amazon\ElasticBeanstalk\logs\`

These logs contain messages about deployment activities including messages related to configuration files ([.ebextensions \(p. 178\)](#)).

Each application and web server stores logs in its own folder:

- **Apache** – `/var/log/httpd/`
- **IIS** – `C:\inetpub\wwwroot\`
- **Node.js** – `/var/log/nodejs/`
- **nginx** – `/var/log/nginx/`
- **Passenger** – `/var/app/support/logs/`
- **Puma** – `/var/log/puma/`
- **Python** – `/opt/python/log/`
- **Tomcat** – `/var/log/tomcat8/`

## Log Location in S3

When you request tail or bundle logs from your environment, or instances upload rotated logs, they are stored in your Elastic Beanstalk bucket in Amazon S3. Elastic Beanstalk creates a bucket named `elasticbeanstalk-region-account-id` for each region in which you create environments. Within this bucket, logs are stored under the path `resources/environments/logs/logtype/environment-id/instance-id`.

For example, logs from instance `i-0a1fd158`, in Elastic Beanstalk environment `e-mpcwnwheky` in region `us-west-2` in account `0123456789012`, are stored in the following locations:

- **Tail Logs** –

```
s3://elasticbeanstalk-us-west-2-0123456789012/resources/environments/logs/tail/e-mpcwnwheky/i-0a1fd158
```

- **Bundle Logs** –

```
s3://elasticbeanstalk-us-west-2-0123456789012/resources/environments/logs/bundle/e-mpcwnwheky/i-0a1fd158
```

- **Rotated Logs** –

```
s3://elasticbeanstalk-us-west-2-0123456789012/resources/environments/logs/publish/e-mpcwnwheky/i-0a1fd158
```

### Tip

You can find your environment ID in the [environment management console](#) (p. 52).

Elastic Beanstalk deletes tail and bundle logs from Amazon S3 automatically 15 minutes after they are created. Rotated logs persist until you delete them or move them to Amazon Glacier.

## Extending the Default Log Task Configuration

Elastic Beanstalk uses files in subfolders of `/opt/elasticbeanstalk/tasks` (Linux) or `C:\Program Files\Amazon\ElasticBeanstalk\config` (Windows Server) on the EC2 instance to configure tasks for tail logs, bundle logs and log rotation.

### Linux

- **Tail Logs** –

```
/opt/elasticbeanstalk/tasks/taillogs.d/
```

- **Bundle Logs** –

```
/opt/elasticbeanstalk/tasks/bundlelogs.d/
```

- **Rotated Logs** –

```
/opt/elasticbeanstalk/tasks/publishlogs.d/
```

### Windows Server

- **Tail Logs** –

```
c:\Program Files\Amazon\ElasticBeanstalk\config\taillogs.d/
```

- **Rotated Logs** –

```
c:\Program Files\Amazon\ElasticBeanstalk\config\publogs.d/
```



For example, the file `eb-activity.conf` adds two logs files to the tail logs task:

```
/opt/elasticbeanstalk/tasks/taillogs.d/eb-activity.conf
```

```
/var/log/eb-commandprocessor.log
/var/log/eb-activity.log
```

You can add `.conf` files to these folder with configuration files ([.ebextensions](#) (p. 178)) to add log files specific to your application to those tasks.

Use the `files` (p. 186) key to add configuration files to the tasks that you want to modify. For example, the following configuration file adds a config to each instance in your environment that adds `/var/log/cloud-init.log` to tail logs:

```
files:
 "/opt/elasticbeanstalk/tasks/taillogs.d/cloud-init.conf" :
 mode: "000755"
 owner: root
 group: root
 content: |
 /var/log/cloud-init.log
```

Add this text to a file with the `.config` extension to your source bundle under a folder named `.ebextensions`:

```
~/workspace/my-app
|-- .ebextensions
| |-- tail-logs.config
|-- index.php
`-- styles.css
```

You can also use wildcards in log task configurations. This configuration file adds all files with the `.log` extension from the `log` folder in the application root to bundle logs:

```
files:
 "/opt/elasticbeanstalk/tasks/bundlelogs.d/applogs.conf" :
 mode: "000755"
 owner: root
 group: root
 content: |
 /var/app/current/log/*.log
```

For more information on using configuration files, see [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178).

## Instance-Local Log Rotation Settings

On Linux platforms, Elastic Beanstalk uses `logrotate` to rotate logs periodically. After a log is rotated locally, it gets picked up by the log rotation task and is uploaded to Amazon S3 if configured. Logs that have been rotated locally do not appear in tail or bundle logs by default.

You can find Elastic Beanstalk's configuration files for `logrotate` in `/etc/logrotate.elasticbeanstalk.hourly/`. The specific rotation settings are platform specific and may change in future versions of the platform. For more information on the available settings and example configurations, run `man logrotate`.

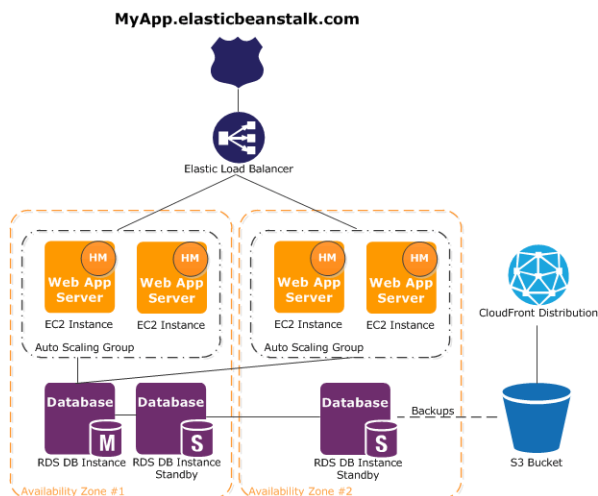
The configuration files are invoked by cron jobs in `/etc/cron.hourly/`. For more information on cron, run `man cron`.

# Using Elastic Beanstalk with Other AWS Services

The topics in this chapter discuss the integration of Elastic Beanstalk with resources from other AWS services that are not managed by Elastic Beanstalk as part of your environment.

## Architectural Overview

The following diagram illustrates an example architecture of Elastic Beanstalk across multiple Availability Zones working with other AWS products such as Amazon CloudFront, Amazon Simple Storage Service (Amazon S3), and Amazon Relational Database Service (Amazon RDS). For a more detailed discussion about Amazon Route 53, Elastic Load Balancing, Amazon Elastic Compute Cloud (Amazon EC2) and host manager (HM), see [Architectural Overview \(p. 14\)](#).



To plan for fault-tolerance, it is advisable to have N+1 Amazon EC2 instances and spread your instances across multiple Availability Zones. In the unlikely case that one Availability Zone goes down,

you will still have your other Amazon EC2 instances running in another Availability Zone. You can adjust Auto Scaling to allow for a minimum number of instances as well as multiple Availability Zones. For instructions on how to do this, see [Launch Configuration \(p. 222\)](#). For more information about building fault-tolerant applications, go to [Building Fault-Tolerant Applications on AWS](#).

The following sections discuss in more detail integration with Amazon CloudFront, Amazon CloudWatch, Amazon DynamoDB Amazon ElastiCache, Amazon RDS, Amazon Route 53, Amazon Simple Storage Service, Amazon VPC , and IAM.

#### Topics

- [Using Elastic Beanstalk with Amazon CloudFront \(p. 326\)](#)
- [Logging Elastic Beanstalk API Calls with AWS CloudTrail \(p. 326\)](#)
- [Using Elastic Beanstalk with Amazon CloudWatch \(p. 328\)](#)
- [Using Elastic Beanstalk with Amazon CloudWatch Logs \(p. 328\)](#)
- [Using Elastic Beanstalk with DynamoDB \(p. 331\)](#)
- [Using Elastic Beanstalk with Amazon ElastiCache \(p. 332\)](#)
- [Using Elastic Beanstalk with AWS Identity and Access Management \(p. 332\)](#)
- [Using Elastic Beanstalk with Amazon RDS \(p. 380\)](#)
- [Using Elastic Beanstalk with Amazon S3 \(p. 389\)](#)
- [Using Elastic Beanstalk with Amazon VPC \(p. 390\)](#)

## Using Elastic Beanstalk with Amazon CloudFront

Amazon CloudFront distributes your web content (such as images, video, and so on) using a network of edge locations around the world. End users are routed to the nearest edge location, so content is delivered with the best possible performance. CloudFront works seamlessly with Amazon S3. After you create and deploy your Elastic Beanstalk you can sign up for Amazon CloudFront and start using Amazon CloudFront to distribute your content. Create your distribution from a custom origin, and use an Elastic Beanstalk domain name. To get started using Amazon CloudFront, go to the [Amazon CloudFront Developer Guide](#).

## Logging Elastic Beanstalk API Calls with AWS CloudTrail

Elastic Beanstalk is integrated with CloudTrail, a service that captures all of the Elastic Beanstalk API calls and delivers the log files to an Amazon S3 bucket that you specify. CloudTrail captures API calls from the Elastic Beanstalk console or from your code to the Elastic Beanstalk APIs. Using the information collected by CloudTrail, you can determine the request that was made to Elastic Beanstalk, the source IP address from which the request was made, who made the request, when it was made, and so on.

To learn more about CloudTrail, including how to configure and enable it, see the [AWS CloudTrail User Guide](#).

### Elastic Beanstalk Information in CloudTrail History

The CloudTrail API activity history feature lets you look up and filter events captured by CloudTrail. You can look up events related to the creation, modification, or deletion of resources in your AWS account

on a per-region basis. Events can be looked up by using the CloudTrail console, or programmatically by using the AWS SDKs or AWS CLI ([lookup-events](#)).

For a list of supported actions, see [AWS Elastic Beanstalk APIs](#) in the *CloudTrail User Guide*.

## Elastic Beanstalk Information in CloudTrail Logging

When CloudTrail logging is enabled in your AWS account, API calls made to Elastic Beanstalk actions are tracked in CloudTrail log files, where they are written with other AWS service records. CloudTrail determines when to create and write to a new file based on a time period and file size.

All Elastic Beanstalk actions are logged by CloudTrail and are documented in the [Elastic Beanstalk API Reference](#). For example, calls to the **CreateEnvironment**, **UpdateEnvironment** and **TerminateEnvironment** sections generate entries in the CloudTrail log files.

Every log entry contains information about who generated the request. The user identity information in the log entry helps you determine the following:

- Whether the request was made with root or IAM user credentials
- Whether the request was made with temporary security credentials for a role or federated user
- Whether the request was made by another AWS service

For more information, see the [CloudTrail userIdentity Element](#).

You can store your log files in your Amazon S3 bucket for as long as you want, but you can also define Amazon S3 lifecycle rules to archive or delete log files automatically. By default, your log files are encrypted with Amazon S3 server-side encryption (SSE).

If you want to be notified upon log file delivery, you can configure CloudTrail to publish Amazon SNS notifications when new log files are delivered. For more information, see [Configuring Amazon SNS Notifications for CloudTrail](#).

You can also aggregate Elastic Beanstalk log files from multiple AWS regions and multiple AWS accounts into a single Amazon S3 bucket.

For more information, see [Receiving CloudTrail Log Files from Multiple Regions](#) and [Receiving CloudTrail Log Files from Multiple Accounts](#).

## Understanding Elastic Beanstalk Log File Entries

CloudTrail log files can contain one or more log entries. Each entry lists multiple JSON-formatted events. A log entry represents a single request from any source and includes information about the requested action, the date and time of the action, request parameters, and so on. Log entries are not an ordered stack trace of the public API calls, so they do not appear in any specific order.

The following example shows a CloudTrail log entry that demonstrates the `UpdateEnvironment` action called by an IAM user named `intern`.

```
{
 "Records": [{
 "eventVersion": "1.03",
 "userIdentity": {
 "type": "IAMUser",
 "principalId": "AIXDAYQEXAMPLEUMLYNGL",
 "arn": "arn:aws:iam::123456789012:user/intern",
 "accountId": "123456789012",
```

```
 "accessKeyId": "ASXIAGXEXAMPLEQULKNXV",
 "userName": "intern",
 "sessionContext": {
 "attributes": {
 "mfaAuthenticated": "false",
 "creationDate": "2016-04-22T00:23:24Z"
 }
 },
 "invokedBy": "signin.amazonaws.com"
 },
 "eventTime": "2016-04-22T00:24:14Z",
 "eventSource": "elasticbeanstalk.amazonaws.com",
 "eventName": "UpdateEnvironment",
 "awsRegion": "us-west-2",
 "sourceIPAddress": "255.255.255.54",
 "userAgent": "signin.amazonaws.com",
 "requestParameters": {
 "optionSettings": []
 },
 "responseElements": null,
 "requestID": "84ae9ecf-0280-17ce-8612-705c7b132321",
 "eventID": "e48b6a08-c6be-4a22-99e1-c53139cbfb18",
 "eventType": "AwsApiCall",
 "recipientAccountId": "123456789012"
}]
}
```

## Using Elastic Beanstalk with Amazon CloudWatch

Amazon CloudWatch enables you to monitor, manage, and publish various metrics, as well as configure alarm actions based on data from metrics. Amazon CloudWatch monitoring enables you to collect, analyze, and view system and application metrics so that you can make operational and business decisions more quickly and with greater confidence. You can use Amazon CloudWatch to collect metrics about your Amazon Web Services (AWS) resources—such as the performance of your Amazon EC2 instances. You can also publish your own metrics directly to Amazon CloudWatch. Amazon CloudWatch alarms help you implement decisions more easily by enabling you to send notifications or automatically make changes to the resources you are monitoring, based on rules that you define. For example, you can create alarms that initiate Auto Scaling and Amazon Simple Notification Service (Amazon SNS) actions on your behalf. Elastic Beanstalk automatically uses Amazon CloudWatch to help you monitor your application and environment status. You can navigate to the Amazon CloudWatch console to see your dashboard and get an overview of all of your resources as well as your alarms. You can also choose to view more metrics or add custom metrics. For more information about Amazon CloudWatch, go to the [Amazon CloudWatch Developer Guide](#). For an example of how to use Amazon CloudWatch with Elastic Beanstalk, see [Example: Using Custom Amazon CloudWatch Metrics](#) (p. 181).

## Using Elastic Beanstalk with Amazon CloudWatch Logs

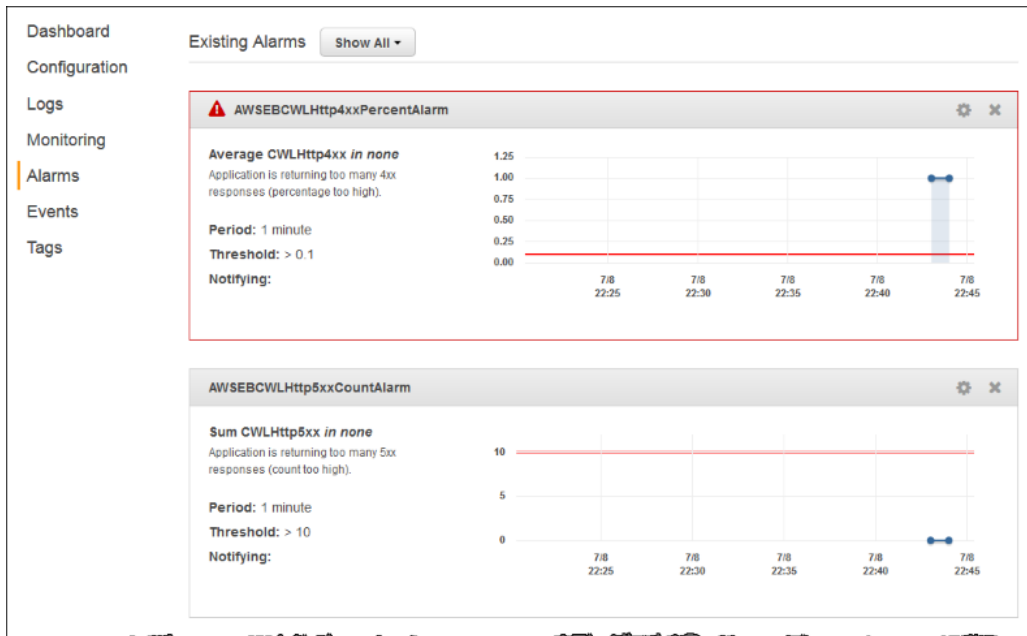
With CloudWatch Logs, you can monitor and archive your Elastic Beanstalk application, system, and custom log files. Furthermore, you can configure alarms that make it easier for you to take actions in response to specific log stream events that your metric filters extract. The CloudWatch Logs agent installed on each Amazon EC2 in your environment publishes metric data points to the CloudWatch

service for each log group you configure. Each log group applies its own filter patterns to determine what log stream events to send to CloudWatch as data points. Log streams that belong to the same log group share the same retention, monitoring, and access control settings. For more information about CloudWatch Logs, including terminology and concepts, go to [Monitoring System, Application, and Custom Log Files](#).

The following figure displays graphs on the **Monitoring** page for an environment that is configured with CloudWatch Logs integration. The example metrics in this environment are named **CWLHttp4xx** and **CWLHttp5xx**. In the image, the **CWLHttp4xx** metric has triggered an alarm according to conditions specified in the configuration files.



The following figure displays graphs on the **Alarms** page for the example alarms named **AWSEBCWLHttp4xxPercentAlarm** and **AWSEBCWLHttp5xxCountAlarm** that correspond to the **CWLHttp4xx** and **CWLHttp5xx** metrics, respectively.



## Granting IAM Permissions for the CloudWatch Logs Agent

Before you can configure integration with CloudWatch Logs, you must set up IAM permissions to use with the CloudWatch Logs agent. You can attach the following custom policy to the [instance profile](#) (p. 18) that you assign to your environment:

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Effect": "Allow",
 "Action": [
 "logs:CreateLogGroup",
 "logs:CreateLogStream",
 "logs:GetLogEvents",
 "logs:PutLogEvents",
 "logs:DescribeLogGroups",
 "logs:DescribeLogStreams",
 "logs:PutRetentionPolicy"
],
 "Resource": [
 "arn:aws:logs:us-west-2:*:*"
]
 }
]
}
```

Replace the region in the above policy with the region in which you launch your environment.

## Setting Up CloudWatch Logs Integration with Configuration Files

When you create or update an environment, you can use the sample configuration files in the following list to set up and configure integration with CloudWatch Logs. You can include the `.zip` file that contains following configuration files or the extracted configuration files in the `.ebextensions` directory at the top level of your application source bundle. Use the appropriate files for the web server for your container type. For more information about the web server used by each container type, see [Supported Platforms](#) (p. 24).

### Note

You cannot configure CloudWatch Logs integration with Elastic Beanstalk applications created in .NET containers.

You can download the configuration files at the following locations:

- [Tomcat \(Java\) configuration files](#)
- [Apache \(PHP and Python\) configuration files](#)
- [nginx \(Ruby, Node.js, and Docker\) configuration files](#)

Each `.zip` file contains the following configuration files:

- `cwl-setup.config` – This file installs the CloudWatch Logs agent on each Amazon EC2 instance in your environment and then configures the agent. This file also creates the `general.conf` file



when Elastic Beanstalk launches the instance. You can use the `cwl-setup.config` file without any modifications.

If you prefer, you can manually set up the CloudWatch Logs agent on a new instance as explained in either [Quick Start: Install and Configure the CloudWatch Logs Agent on a New EC2 Instance](#) (for new instances) or [Quick Start: Install and Configure the CloudWatch Logs Agent on an Existing EC2 Instance](#) (for existing instances) in the *Amazon CloudWatch Developer Guide*.

- `cwl-webrequest-metrics.config` – This file specifies which logs the CloudWatch Logs agent monitors. The file also specifies the metric filters the CloudWatch Logs agent applies to each log that it monitors. Metric filters include filter patterns that map to the space-delimited entries in your log files. (If you have custom logs, update or replace the example filter patterns in this example configuration file as needed.)

Metric filters also include metric transformations that specify what metric name and value to use when the CloudWatch Logs agent sends metric data points to the CloudWatch service. The CloudWatch Logs agent sends metric data points based on whether any entries in the web server access log file match the filter patterns.

Finally, the configuration file also includes an alarm action to send a message to an Amazon Simple Notification Service topic, if you created one for your environment, when the alarm conditions specified in the `cwl-setup.config` file are met. For more information about filter patterns, see [Filter and Pattern Syntax](#) in the *Amazon CloudWatch Developer Guide*. For more information about Amazon SNS, go to the [Amazon Simple Notification Service Developer Guide](#). For more information about managing alarms from the Elastic Beanstalk management console, see [Manage Alarms](#) (p. 315).

#### Note

CloudWatch costs are applied to your AWS account for any alarms that you use.

- `eb-logs.config` – This file sets up the CloudWatch Logs log files for the CloudWatch Logs agent. This configuration file also ensures that log files are copied to Amazon S3 as part of log rotation. You can use this file without any modifications.

## Troubleshooting CloudWatch Logs Integration

If Elastic Beanstalk cannot launch your environment when you try to integrate Elastic Beanstalk with CloudWatch Logs, you can investigate the following common issues:

- Your IAM role lacks the required IAM permissions.
- You attempted to launch an environment in a region where CloudWatch Logs is not supported.
- Access logs do not exist at the path specified in the `cwl-webrequest-metrics.config` file (`/var/log/httpd/elasticbeanstalk-access_log`).

## Using Elastic Beanstalk with DynamoDB

DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. If you are a developer, you can use DynamoDB to create a database table that can store and retrieve any amount of data, and serve any level of request traffic. DynamoDB automatically spreads the data and traffic for the table over a sufficient number of servers to handle the request capacity specified by the customer and the amount of data stored, while maintaining consistent and fast performance. All data items are stored on Solid State Disks (SSDs) and are automatically replicated across multiple Availability Zones in a Region to provide built-in high availability and data durability.

If you use [periodic tasks](#) (p. 125) in a worker environment, Elastic Beanstalk creates a DynamoDB table and uses it to perform leader election and store information about the task. Each instance in the

environment attempts to write to the table every few seconds to become leader and perform the task when scheduled.

You can use [configuration files \(p. 178\)](#) to create a DynamoDB table for your application. See [eb-node-express-sample](#) on GitHub for a sample Node.js application that creates a table with a configuration file and connects to it with the AWS SDK for Node.js. For an example walkthrough using DynamoDB with PHP, see [Example: DynamoDB, CloudWatch, and SNS \(p. 207\)](#). For an example that uses the AWS SDK for Java, see [Manage Tomcat Session State with DynamoDB](#) in the AWS SDK for Java documentation.

For more information about DynamoDB, go to the [DynamoDB Developer Guide](#).

## Using Elastic Beanstalk with Amazon ElastiCache

Amazon ElastiCache is a web service that makes it easy to set up, manage, and scale distributed in-memory cache environments in the cloud. It provides a high performance, resizable, and cost-effective in-memory cache, while removing the complexity associated with deploying and managing a distributed cache environment. Amazon ElastiCache is protocol-compliant with Memcached, so the code, applications, and most popular tools that you use today with your existing Memcached environments will work seamlessly with the service. For more information about Amazon ElastiCache, go to the [Amazon ElastiCache product page](#).

### To use Elastic Beanstalk with Amazon ElastiCache

1. Create an ElastiCache cluster. For instructions on how to create an ElastiCache cluster, go to [Create a Cache Cluster](#) in the *Amazon ElastiCache Getting Started Guide*.
2. Configure your Amazon ElastiCache Security Group to allow access from the Amazon EC2 security group used by your Elastic Beanstalk application. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see [Security Groups \(p. 233\)](#). For more information, go to [Authorize Access](#) in the *Amazon ElastiCache Getting Started Guide*.

If you are using a non-legacy container, you can also use configuration files to customize your Elastic Beanstalk environment to use Amazon ElastiCache. For information on supported container types and customizing your environment, see [AWS Elastic Beanstalk Environment Configuration \(p. 130\)](#). For an example snippet using Amazon ElastiCache with Elastic Beanstalk, see [Example Snippets: ElastiCache \(p. 199\)](#).

## Using Elastic Beanstalk with AWS Identity and Access Management

AWS Identity and Access Management (IAM) helps you securely control access to your AWS resources. This section includes reference materials for working with IAM policies, instance profiles, and service roles.

For an overview of permissions, see [Service Roles, Instance Profiles, and User Policies \(p. 17\)](#). For most environments, the service role and instance profile that the AWS Management Console prompts you to create when you launch your first environment have all of the permissions that you need. Likewise, the [managed policies \(p. 341\)](#) provided by Elastic Beanstalk for full access and read-only access contain all of the user permissions required for daily use.

The [IAM User Guide](#) provides in-depth coverage of AWS permissions.

Topics

- [Managing Elastic Beanstalk Instance Profiles](#) (p. 333)
- [Managing Elastic Beanstalk Service Roles](#) (p. 337)
- [Controlling Access to Elastic Beanstalk](#) (p. 341)
- [Amazon Resource Name Format for Elastic Beanstalk](#) (p. 345)
- [Resources and Conditions for Elastic Beanstalk Actions](#) (p. 346)
- [Example Policies Based on Managed Policies](#) (p. 372)
- [Example Policies Based on Resource Permissions](#) (p. 375)

## Managing Elastic Beanstalk Instance Profiles

An instance profile is a container for an AWS Identity and Access Management (IAM) role that you can use to pass role information to an EC2 instance when the instance starts. When you launch an environment in the AWS Elastic Beanstalk environment management console, the console creates a default instance profile, called `aws-elasticbeanstalk-ec2-role`, and assigns managed policies with default permissions to it.

Elastic Beanstalk provides three managed policies: one for the web server tier, one for the worker tier, and one with additional permissions required for multicontainer Docker environments. The console assigns all of these policies to the default instance profile. The policies follow.

### Managed Instance Profile Policies

- **AWSElasticBeanstalkWebTier** – Grants permissions for log rotation.

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "BucketAccess",
 "Action": [
 "s3:Get*",
 "s3:List*",
 "s3:PutObject"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:s3:::elasticbeanstalk-*",
 "arn:aws:s3:::elasticbeanstalk-*/*"
]
 }
]
}
```

- **AWSElasticBeanstalkWorkerTier** – Grants permissions for log rotation, metric publication, and worker instance tasks, including queue management, leader election, and periodic tasks.

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "MetricsAccess",
 "Action": [
 "cloudwatch:PutMetricData"
],
 "Effect": "Allow",

```

```

 "Resource": "*"
 },
 {
 "Sid": "QueueAccess",
 "Action": [
 "sqs:ChangeMessageVisibility",
 "sqs:DeleteMessage",
 "sqs:ReceiveMessage",
 "sqs:SendMessage"
],
 "Effect": "Allow",
 "Resource": "*"
 },
 {
 "Sid": "BucketAccess",
 "Action": [
 "s3:Get*",
 "s3:List*",
 "s3:PutObject"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:s3:::elasticbeanstalk-*",
 "arn:aws:s3:::elasticbeanstalk-*/*"
]
 },
 {
 "Sid": "DynamoPeriodicTasks",
 "Action": [
 "dynamodb:BatchGetItem",
 "dynamodb:BatchWriteItem",
 "dynamodb:DeleteItem",
 "dynamodb:GetItem",
 "dynamodb:PutItem",
 "dynamodb:Query",
 "dynamodb:Scan",
 "dynamodb:UpdateItem"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:dynamodb:*:*:table/*-stack-AWSEBWorkerCronLeaderRegistry*"
]
 }
]
}

```

- **AWSElasticBeanstalkMulticontainerDocker** – Grants permissions for the Amazon EC2 Container Service to coordinate cluster tasks.

```

{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "ECSAccess",
 "Effect": "Allow",
 "Action": [
 "ecs:Poll",
 "ecs:StartTask",

```

```
 "ecs:StopTask",
 "ecs:DiscoverPollEndpoint",
 "ecs:StartTelemetrySession",
 "ecs:RegisterContainerInstance",
 "ecs:DeregisterContainerInstance",
 "ecs:DescribeContainerInstances",
 "ecs:Submit*"
],
 "Resource": "*"
}
]
```

To allow the EC2 instances in your environment to assume the `aws-elasticbeanstalk-ec2-role` role, the instance profile specifies Amazon EC2 as a trusted entity in the trust relationship policy:

```
{
 "Version": "2008-10-17",
 "Statement": [
 {
 "Effect": "Allow",
 "Principal": {
 "Service": "ec2.amazonaws.com"
 },
 "Action": "sts:AssumeRole"
 }
]
}
```

To customize permissions, you can either add policies to the default instance profile, or create your own instance profile with a restricted set of permissions.

#### Sections

- [Verifying the Permissions Assigned to the Default Instance Profile \(p. 335\)](#)
- [Updating an Out-of-Date Default Instance Profile \(p. 336\)](#)
- [Adding Permissions to the Default Instance Profile \(p. 336\)](#)
- [Creating an Instance Profile \(p. 336\)](#)

## Verifying the Permissions Assigned to the Default Instance Profile

The permissions assigned to your default instance profile can vary depending on when it was created, the last time you launched an environment, and which client you used. You can verify the permissions on the default instance profile in the IAM console.

### To verify the default instance profile's permissions

1. Open the [Roles page](#) in the IAM console.
2. Choose **aws-elasticbeanstalk-ec2-role**.
3. Choose the **Permissions** tab and review the **Managed Policies** and **Inline Policies** sections to see the policies attached to the role.
4. To see the permissions that a policy grants, choose **Show Policy** next to the policy.

## Updating an Out-of-Date Default Instance Profile

If the default instance profile lacks the required permissions, you can update it by [creating a new environment \(p. 61\)](#) in the Elastic Beanstalk environment management console.

Alternatively, you can add the managed policies to the default instance profile manually.

### To add managed policies to the default instance profile

1. Open the [Roles page](#) in the IAM console.
2. Choose **aws-elasticbeanstalk-ec2-role**.
3. On the **Permissions** tab, under **Managed Policies**, choose **Attach Policy**.
4. Type **AWSElasticBeanstalk** to filter the policies.
5. Select the following policies, and then choose **Attach Policies**:
  - **AWSElasticBeanstalkWebTier**
  - **AWSElasticBeanstalkWorkerTier**
  - **AWSElasticBeanstalkMulticontainerDocker**

## Adding Permissions to the Default Instance Profile

If your application accesses AWS APIs or resources to which permissions aren't granted in the default instance profile, add policies that grant permissions in the IAM console.

### To add policies to the default instance profile

1. Open the [Roles page](#) in the IAM console.
2. Choose **aws-elasticbeanstalk-ec2-role**.
3. On the **Permissions** tab, under **Managed Policies**, choose **Attach Policy**.
4. Select the managed policy for the additional services that your application uses. For example, **AmazonS3FullAccess Or AmazonDynamoDBFullAccess**.
5. Choose **Attach Policies**.

## Creating an Instance Profile

An instance profile is a wrapper around a standard IAM role that allows an EC2 instance to assume the role. You can create additional instance profiles to customize permissions for different applications or to create an instance profile that doesn't grant permissions for worker tier or multicontainer Docker environments if you don't use those features.

### To create an instance profile

1. Open the [Roles page](#) in the IAM console.
2. Choose **Create New Role**.
3. Type a name, and then choose **Next Step**.
4. Under **AWS Service Roles**, choose **Amazon EC2**.
5. Attach the appropriate managed policies provided by Elastic Beanstalk and any additional policies that provide permissions that your application needs.
6. Choose **Next Step**.
7. Choose **Create Role**.

## Managing Elastic Beanstalk Service Roles

When you launch an environment in the AWS Elastic Beanstalk environment management console, the console creates a default service role, called `aws-elasticbeanstalk-service-role`, and attaches managed policies with default permissions to it.

Elastic Beanstalk provides a managed policy for [enhanced health monitoring \(p. 291\)](#), and one with additional permissions required for [managed platform updates \(p. 113\)](#). The console assigns both of these policies to the default service role. The managed service role policies follow.

### Managed Service Role Policies

- **AWSElasticBeanstalkEnhancedHealth** – Grants permissions for Elastic Beanstalk to monitor instance and environment health.

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Effect": "Allow",
 "Action": [
 "elasticloadbalancing:DescribeInstanceHealth",
 "ec2:DescribeInstances",
 "ec2:DescribeInstanceStatus",
 "ec2:GetConsoleOutput",
 "ec2:AssociateAddress",
 "ec2:DescribeAddresses",
 "ec2:DescribeSecurityGroups",
 "sqs:GetQueueAttributes",
 "sqs:GetQueueUrl",
 "autoscaling:DescribeAutoScalingGroups",
 "autoscaling:DescribeAutoScalingInstances",
 "autoscaling:DescribeScalingActivities",
 "autoscaling:DescribeNotificationConfigurations"
],
 "Resource": [
 "*"
]
 }
]
}
```

- **AWSElasticBeanstalkService** – Grants permissions for Elastic Beanstalk to update environments on your behalf to perform managed updates.

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "AllowCloudformationOperationsOnElasticBeanstalkStacks",
 "Effect": "Allow",
 "Action": [
 "cloudformation:*"
],
 "Resource": [
 "arn:aws:cloudformation:*:*:stack/awseb-*",
 "arn:aws:cloudformation:*:*:stack/eb-*"
]
 }
]
}
```

```

 },
 {
 "Sid": "AllowS3OperationsOnElasticBeanstalkBuckets",
 "Effect": "Allow",
 "Action": [
 "s3:*"
],
 "Resource": [
 "arn:aws:s3:::elasticbeanstalk-*",
 "arn:aws:s3:::elasticbeanstalk-*/*"
]
 },
 {
 "Sid": "AllowOperations",
 "Effect": "Allow",
 "Action": [
 "autoscaling:AttachInstances",
 "autoscaling:CreateAutoScalingGroup",
 "autoscaling:CreateLaunchConfiguration",
 "autoscaling>DeleteLaunchConfiguration",
 "autoscaling>DeleteAutoScalingGroup",
 "autoscaling>DeleteScheduledAction",
 "autoscaling:DescribeAccountLimits",
 "autoscaling:DescribeAutoScalingGroups",
 "autoscaling:DescribeAutoScalingInstances",
 "autoscaling:DescribeLaunchConfigurations",
 "autoscaling:DescribeLoadBalancers",
 "autoscaling:DescribeNotificationConfigurations",
 "autoscaling:DescribeScalingActivities",
 "autoscaling:DescribeScheduledActions",
 "autoscaling:DetachInstances",
 "autoscaling:PutScheduledUpdateGroupAction",
 "autoscaling:ResumeProcesses",
 "autoscaling:SetDesiredCapacity",
 "autoscaling:SuspendProcesses",
 "autoscaling:TerminateInstanceInAutoScalingGroup",
 "autoscaling:UpdateAutoScalingGroup",
 "cloudwatch:PutMetricAlarm",
 "ec2:AuthorizeSecurityGroupEgress",
 "ec2:AuthorizeSecurityGroupIngress",
 "ec2:CreateSecurityGroup",
 "ec2>DeleteSecurityGroup",
 "ec2:DescribeAccountAttributes",
 "ec2:DescribeImages",
 "ec2:DescribeInstances",
 "ec2:DescribeKeyPairs",
 "ec2:DescribeSecurityGroups",
 "ec2:DescribeSubnets",
 "ec2:DescribeVpcs",
 "ec2:RevokeSecurityGroupEgress",
 "ec2:RevokeSecurityGroupIngress",
 "ec2:TerminateInstances",
 "ecs:CreateCluster",
 "ecs>DeleteCluster",
 "ecs:DescribeClusters",
 "ecs:RegisterTaskDefinition",
 "elasticbeanstalk:*",
 "elasticloadbalancing:ApplySecurityGroupsToLoadBalancer",
 "elasticloadbalancing:ConfigureHealthCheck",

```



```

 "elasticloadbalancing:CreateLoadBalancer",
 "elasticloadbalancing>DeleteLoadBalancer",
 "elasticloadbalancing:DeregisterInstancesFromLoadBalancer",
 "elasticloadbalancing:DescribeInstanceHealth",
 "elasticloadbalancing:DescribeLoadBalancers",
 "elasticloadbalancing:DescribeTargetHealth",
 "elasticloadbalancing:RegisterInstancesWithLoadBalancer",
 "iam:ListRoles",
 "iam:PassRole",
 "logs:CreateLogGroup",
 "logs:PutRetentionPolicy",
 "rds:DescribeDBInstances",
 "rds:DescribeOrderableDBInstanceOptions",
 "s3:CopyObject",
 "s3:GetObject",
 "s3:GetObjectAcl",
 "s3:GetObjectMetadata",
 "s3:ListBucket",
 "s3:listBuckets",
 "s3:ListObjects",
 "sns:CreateTopic",
 "sns:GetTopicAttributes",
 "sns:ListSubscriptionsByTopic",
 "sns:Subscribe",
 "sqs:GetQueueAttributes",
 "sqs:GetQueueUrl"
],
 "Resource": [
 "*"
]
}

```

To allow Elastic Beanstalk to assume the `aws-elasticbeanstalk-service-role` role, the service role specifies Elastic Beanstalk as a trusted entity in the trust relationship policy:

```

{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "",
 "Effect": "Allow",
 "Principal": {
 "Service": "elasticbeanstalk.amazonaws.com"
 },
 "Action": "sts:AssumeRole",
 "Condition": {
 "StringEquals": {
 "sts:ExternalId": "elasticbeanstalk"
 }
 }
 }
]
}

```

The [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) uses the default service role if it's available. If you use the Elastic Beanstalk API to create an environment, specify a service role with the `ServiceRole` configuration option in the `aws:elasticbeanstalk:environment` namespace. See [Using Enhanced Health Reporting with the AWS Elastic Beanstalk API \(p. 306\)](#) for details on using enhanced health monitoring with the Elastic Beanstalk API.

#### Sections

- [Verifying the Default Service Role's Permissions \(p. 340\)](#)
- [Updating an Out-of-Date Default Service Role \(p. 340\)](#)
- [Adding Permissions to the Default Service Role \(p. 340\)](#)
- [Creating a Service Role \(p. 341\)](#)

## Verifying the Default Service Role's Permissions

The permissions granted by your default service role can vary depending on when it was created, the last time you launched an environment, and which client you used. You can verify the permissions granted by the default service role in the IAM console.

### To verify the default service role's permissions

1. Open the [Roles page](#) in the IAM console.
2. Choose **aws-elasticbeanstalk-service-role**.
3. On the **Permissions** tab, in the **Managed Policies** and **Inline Policies** sections, review the list of policies attached to the role.
4. To view the permissions that a policy grants, choose **Show Policy** next to the policy.

## Updating an Out-of-Date Default Service Role

If the default service role lacks the required permissions, you can update it by [creating a new environment \(p. 61\)](#) in the Elastic Beanstalk environment management console.

Alternatively, you can add the managed policies to the default service role manually.

### To add managed policies to the default service role

1. Open the [Roles page](#) in the IAM console.
2. Choose **aws-elasticbeanstalk-service-role**.
3. On the **Permissions** tab, under **Managed Policies**, choose **Attach Policy**.
4. Type **AWSElasticBeanstalk** to filter the policies.
5. Select the following policies, and then choose **Attach Policies**:
  - **AWSElasticBeanstalkEnhancedHealth**
  - **AWSElasticBeanstalkService**

## Adding Permissions to the Default Service Role

If your application includes configuration files that refer to AWS resources for which permissions aren't included in the default service role, Elastic Beanstalk might need additional permissions to resolve these references when it processes the configuration files during a managed update. If permissions are missing, the update fails and Elastic Beanstalk returns a message indicating which permission it needs. Add permissions for additional services to the default service role in the IAM console.

### To add additional policies to the default service role

1. Open the [Roles page](#) in the IAM console.
2. Choose **aws-elasticbeanstalk-service-role**.
3. On the **Permissions** tab, under **Managed Policies**, choose **Attach Policy**.
4. Select the managed policy for the additional services that your application uses. For example, `AmazonAPIGatewayAdministrator` or `AmazonElasticFileSystemFullAccess`.
5. Choose **Attach Policies**.

## Creating a Service Role

If you can't use the default service role, create a service role.

### To create a service role

1. Open the [Roles page](#) in the IAM console.
2. Choose **Create New Role**.
3. Type a name, and then choose **Next Step**.
4. Under **AWS Service Roles**, choose **AWS Elastic Beanstalk**.
5. Attach the `AWSElasticBeanstalkService` and `AWSElasticBeanstalkEnhancedHealth` managed policies and any additional policies that provide permissions that your application needs.
6. Choose **Next Step**.
7. Choose **Create Role**.

You can apply your custom service role when you create an environment in the [environment creation wizard](#) (p. 63) or with the `--service-role` option on the `eb create` (p. 455) command.

## Controlling Access to Elastic Beanstalk

AWS Elastic Beanstalk provides two managed policies that enable you to assign full access or read-only access to all Elastic Beanstalk resources. You can attach the policies to AWS Identity and Access Management (IAM) users or groups.

### Managed User Policies

- **AWSElasticBeanstalkFullAccess** – Allows the user to create, modify, and delete Elastic Beanstalk applications, application versions, configuration settings, environments, and their underlying resources.

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Effect": "Allow",
 "Action": [
 "elasticbeanstalk:*",
 "ec2:*",
 "ecs:*",
 "elasticloadbalancing:*",
 "autoscaling:*",
 "cloudwatch:*",
 "dynamodb:*",
 "s3:*"
]
 }
]
}
```

```

 "sns:*",
 "cloudformation:*",
 "rds:*",
 "sqs:*",
 "iam:GetPolicyVersion",
 "iam:GetRole",
 "iam:PassRole",
 "iam:ListRolePolicies",
 "iam:ListAttachedRolePolicies",
 "iam:ListInstanceProfiles",
 "iam:ListRoles",
 "iam:ListServerCertificates",
 "acm:DescribeCertificate",
 "acm:ListCertificates"
],
 "Resource": "*"
 },
 {
 "Effect": "Allow",
 "Action": [
 "iam:AddRoleToInstanceProfile",
 "iam:CreateInstanceProfile",
 "iam:CreateRole"
],
 "Resource": [
 "arn:aws:iam::*:role/aws-elasticbeanstalk*",
 "arn:aws:iam::*:instance-profile/aws-elasticbeanstalk*"
]
 },
 {
 "Effect": "Allow",
 "Action": [
 "iam:AttachRolePolicy"
],
 "Resource": "*",
 "Condition": {
 "StringLike": {
 "iam:PolicyArn": [
 "arn:aws:iam::aws:policy/AWSElasticBeanstalk*",
 "arn:aws:iam::aws:policy/service-role/
AWSElasticBeanstalk*"
]
 }
 }
 }
]
}

```

- **AWSElasticBeanstalkReadOnlyAccess** – Allows the user to view applications and environments, but not to perform operations on them. It provides read-only access to all Elastic Beanstalk resources.

```

{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Effect": "Allow",
 "Action": [

```

```
 "elasticbeanstalk:Check*",
 "elasticbeanstalk:Describe*",
 "elasticbeanstalk:List*",
 "elasticbeanstalk:RequestEnvironmentInfo",
 "elasticbeanstalk:RetrieveEnvironmentInfo",
 "ec2:Describe*",
 "elasticloadbalancing:Describe*",
 "autoscaling:Describe*",
 "cloudwatch:Describe*",
 "cloudwatch:List*",
 "cloudwatch:Get*",
 "s3:Get*",
 "s3:List*",
 "sns:Get*",
 "sns:List*",
 "cloudformation:Describe*",
 "cloudformation:Get*",
 "cloudformation:List*",
 "cloudformation:Validate*",
 "cloudformation:Estimate*",
 "rds:Describe*",
 "sqs:Get*",
 "sqs:List*"
],
 "Resource": "*"
}
]
```

## Controlling Access with Managed Policies

You can use managed policies to grant full access or read-only access to Elastic Beanstalk. Elastic Beanstalk updates these policies automatically when additional permissions are required to access new features.

### To apply a managed policy to an IAM user

1. Open the [Users page](#) in the IAM console.
2. In the navigation pane, choose **Permissions**.
3. Choose **Attach Policy**.
4. Type `AWSElasticBeanstalk` to filter the policies.
5. Select **AWSElasticBeanstalkReadOnlyAccess** or **AWSElasticBeanstalkFullAccess**, and then choose **Attach Policy**.

## Creating a Custom User Policy

You can create your own IAM policy to allow or deny specific Elastic Beanstalk API actions on specific Elastic Beanstalk resources. For more information about attaching a policy to a user or group, see [Working with Policies](#) in *Using AWS Identity and Access Management*.

An IAM policy contains policy statements that describe the permissions that you want to grant. When you create a policy statement for Elastic Beanstalk, you need to understand how to use the following four parts of a policy statement:

- **Effect** specifies whether to allow or deny the actions in the statement.

- **Action** specifies the [API operations](#) that you want to control. For example, use `elasticbeanstalk:CreateEnvironment` to specify the `CreateEnvironment` operation. Certain operations, such as creating an environment, require additional permissions to perform those actions. For more information, see [Resources and Conditions for Elastic Beanstalk Actions](#) (p. 346).

**Resource** specifies the resources that you want to control access to. To specify Elastic Beanstalk resources, list the [Amazon Resource Name](#) (p. 345) (ARN) of each resource.

- (optional) **Condition** specifies restrictions on the permission granted in the statement. For more information, see [Resources and Conditions for Elastic Beanstalk Actions](#) (p. 346).

The following example policy contains three statements that enable a user who has this policy to call the `CreateEnvironment` action to create an environment whose name begins with `test` with the specified application and application version.

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "CreateEnvironmentPerm",
 "Action": [
 "elasticbeanstalk:CreateEnvironment"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-east-1:123456789012:environment/My First Elastic Beanstalk Application/Test*"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": ["arn:aws:elasticbeanstalk:us-east-1:123456789012:application/My First Elastic Beanstalk Application"],
 "elasticbeanstalk:FromApplicationVersion": ["arn:aws:elasticbeanstalk:us-east-1:123456789012:applicationversion/My First Elastic Beanstalk Application/First Release"]
 }
 }
 },
 {
 "Sid": "AllNonResourceCalls",
 "Action": [
 "elasticbeanstalk:CheckDNSAvailability",
 "elasticbeanstalk:CreateStorageLocation"
],
 "Effect": "Allow",
 "Resource": [
 "*"
]
 }
]
}
```

The above policy shows how to grant limited access to Elastic Beanstalk operations. In order to actually launch an environment, the user must have permission to create the AWS resources that power the environment as well. For example, the following policy grants access to the default set of resources for a web server environment:

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Effect": "Allow",
 "Action": [
 "ec2:*",
 "ecs:*",
 "elasticloadbalancing:*",
 "autoscaling:*",
 "cloudwatch:*",
 "s3:*",
 "sns:*",
 "cloudformation:*",
 "sqs:*"
],
 "Resource": "*"
 }
]
}
```

Note that while you can restrict how a user interacts with Elastic Beanstalk APIs, there is not currently an effective way to prevent users who have permission to create the necessary underlying resources from creating other resources in Amazon EC2 and other services.

## Amazon Resource Name Format for Elastic Beanstalk

You specify a resource for an IAM policy using that resource's Amazon Resource Name (ARN). For Elastic Beanstalk, the ARN has the following format.

```
arn:aws:elasticbeanstalk:region:accountid:resourcetype/resourcepath
```

Where:

- *region* is the region the resource resides in (for example, `us-west-2`).
- *accountid* is the AWS account ID, with no hyphens (for example, `123456789012`).
- *resourcetype* identifies the type of the Elastic Beanstalk resource—for example, `environment`. See the table below for a list of all Elastic Beanstalk resource types.
- *resourcepath* is the portion that identifies the specific resource. An Elastic Beanstalk resource has a path that uniquely identifies that resource. See the table below for the format of the resource path for each resource type. For example, an environment is always associated with an application. The resource path for the environment `myEnvironment` in the application `myApp` would look like this:

```
myApp/myEnvironment
```

Elastic Beanstalk has several types of resources you can specify in a policy. The following table shows the ARN format for each resource type and an example.

| Resource Type | Format for ARN                                                                                  |
|---------------|-------------------------------------------------------------------------------------------------|
| application   | arn:aws:elasticbeanstalk: <i>region</i> : <i>accountid</i> :application/ <i>applicationname</i> |

| Resource Type         | Format for ARN                                                                                                                                                                                                                                        |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Example: <code>arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App</code>                                                                                                                                                              |
| applicationversion    | arn:aws:elasticbeanstalk: <i>region</i> : <i>accountid</i> :applicationversion/ <i>applicationname</i> / <i>versionlabel</i><br><br>Example: <code>arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version</code>        |
| environment           | arn:aws:elasticbeanstalk: <i>region</i> : <i>accountid</i> :environment/ <i>applicationname</i> / <i>environmentname</i><br><br>Example: <code>arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/MyEnvironment</code>                |
| solutionstack         | arn:aws:elasticbeanstalk: <i>region</i> ::solutionstack/ <i>solutionstackname</i><br><br>Example: <code>arn:aws:elasticbeanstalk:us-west-2::solutionstack/32bit Amazon Linux running Tomcat 7</code>                                                  |
| configurationtemplate | arn:aws:elasticbeanstalk: <i>region</i> : <i>accountid</i> :configurationtemplate/ <i>applicationname</i> / <i>templatename</i><br><br>Example: <code>arn:aws:elasticbeanstalk:us-west-2:123456789012:configurationtemplate/My App/My Template</code> |

An environment, application version, and configuration template are always contained within a specific application. You'll notice that these resources all have an application name in their resource path so that they are uniquely identified by their resource name and the containing application. Although solution stacks are used by configuration templates and environments, solution stacks are not specific to an application or AWS account and do not have the application or AWS account in their ARNs.

## Resources and Conditions for Elastic Beanstalk Actions

This section describes the resources and conditions that you can use in policy statements to grant permissions that allow specific Elastic Beanstalk actions to be performed on specific Elastic Beanstalk resources.

Conditions enable you to specify permissions to resources that the action needs to complete. For example, when you can call the `CreateEnvironment` action, you must also specify the application version to deploy as well as the application that contains that application name. When you set permissions for the `CreateEnvironment` action, you specify the application and application version that you want the action to act upon by using the `InApplication` and `FromApplicationVersion` conditions.

In addition, you can specify the environment configuration with a solution stack (`FromSolutionStack`) or a configuration template (`FromConfigurationTemplate`). The following policy statement allows the `CreateEnvironment` action to create an environment with the name `myenv` (specified by `Resource`) in the application `My App` (specified by the `InApplication` condition) using the application version `My Version` (`FromApplicationVersion`) with a `32bit Amazon Linux running Tomcat 7` configuration (`FromSolutionStack`):



```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "elasticbeanstalk:CreateEnvironment"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": ["arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"],
 "elasticbeanstalk:FromApplicationVersion": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version"],
 "elasticbeanstalk:FromSolutionStack": [
 "arn:aws:elasticbeanstalk:us-west-2::solutionstack/32bit Amazon Linux running Tomcat 7"
]
 }
 }
 }
]
}
```

#### Sections

- [Policy Information for Elastic Beanstalk Actions \(p. 347\)](#)
- [Condition Keys for Elastic Beanstalk Actions \(p. 369\)](#)

## Policy Information for Elastic Beanstalk Actions

The following table lists all Elastic Beanstalk actions, the resource that each action acts upon, and the additional contextual information that can be provided using conditions.

### Policy information for Elastic Beanstalk actions, including resources, conditions, examples, and dependencies

| Resource                                              | Conditions | Example Statement                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Action:</b> <a href="#">AbortEnvironmentUpdate</a> |            |                                                                                                                                                                                                                                                                                           |
| application<br>environment                            | N/A        | <p>The following policy allows a user to abort environment update operations on environments in an application named <code>My App</code>.</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:AbortEnvironmentUpdate"       ],</pre> |

| Resource                                            | Conditions | Example Statement                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                     |            | <pre> "Effect": "Allow", "Resource": [   "arn:aws:elasticbeanstalk:us- west-2:123456789012:application/My App" ] } ] } </pre>                                                                                                                                                                                                                                                                           |
| <b>Action:</b> <a href="#">CheckDNSAvailability</a> |            |                                                                                                                                                                                                                                                                                                                                                                                                         |
| "*"                                                 | N/A        | <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:CheckDNSAvailability"       ],       "Effect": "Allow",       "Resource": "*"     }   ] } </pre>                                                                                                                                                                                                  |
| <b>Action:</b> <a href="#">ComposeEnvironments</a>  |            |                                                                                                                                                                                                                                                                                                                                                                                                         |
| application                                         | N/A        | <p>The following policy allows a user to compose environments that belong to an application named My App.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:ComposeEnvironments"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us- west-2:123456789012:environment/My App"       ]     }   ] } </pre> |
| <b>Action:</b> <a href="#">CreateApplication</a>    |            |                                                                                                                                                                                                                                                                                                                                                                                                         |

| Resource                                                   | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| application                                                | N/A           | <p>This example allows the <code>CreateApplication</code> action to create applications whose names begin with <code>DivA</code>:</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:CreateApplication"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/DivA*"       ]     }   ] } </pre>                                                                                                                                                                                                                                                              |
| <b>Action:</b> <a href="#">CreateApplicationVersion</a>    |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| applicationversion                                         | InApplication | <p>This example allows the <code>CreateApplicationVersion</code> action to create application versions with any name (*) in the application <code>My App</code>:</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:CreateApplicationVersion"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/*"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <b>Action:</b> <a href="#">CreateConfigurationTemplate</a> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Resource                                                | Conditions                                                                                                                      | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| configurationtemplate                                   | InApplication<br>FromApplication<br>FromApplicationVersion<br>FromConfigurationTemplate<br>FromEnvironment<br>FromSolutionStack | <p>The following policy allows the <code>CreateConfigurationTemplate</code> action to create configuration templates whose name begins with <b>My Template</b> (My Template*) in the application <b>My App</b>:</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:CreateConfigurationTemplate"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:configurationtemplate/My App/My Template*"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ],           "elasticbeanstalk:FromSolutionStack": [             "arn:aws:elasticbeanstalk:us-west-2::solutionstack/32bit Amazon Linux running Tomcat 7"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">CreateEnvironment</a></p> |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Resource                                             | Conditions                                                                                | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                          | InApplication<br>FromApplicationVersion<br>FromConfigurationTemplate<br>FromSolutionStack | <p>The following policy allows the <code>CreateEnvironment</code> action to create an environment whose name is <code>myenv</code> in the application <code>My App</code> and using the solution stack <code>32bit Amazon Linux running Tomcat 7</code>:</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:CreateEnvironment"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ],           "elasticbeanstalk:FromApplicationVersion": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version"           ],           "elasticbeanstalk:FromSolutionStack": [             "arn:aws:elasticbeanstalk:us-west-2::solutionstack/32bit Amazon Linux running Tomcat 7"           ]         }       }     }   ] }</pre> |
| <b>Action:</b> <a href="#">CreateStorageLocation</a> |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Resource                                                | Conditions | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| "*"                                                     | N/A        | <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:CreateStorageLocation"       ],       "Effect": "Allow",       "Resource": "*"     }   ] }</pre>                                                                                                                                                                                                               |
| <b>Action:</b> <a href="#">DeleteApplication</a>        |            |                                                                                                                                                                                                                                                                                                                                                                                                                     |
| application                                             | N/A        | <p>The following policy allows the <code>DeleteApplication</code> action to delete the application <code>My App</code>:</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk&gt;DeleteApplication"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"       ]     }   ] }</pre> |
| <b>Action:</b> <a href="#">DeleteApplicationVersion</a> |            |                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Resource                                                          | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| applicationversion                                                | InApplication | <p>The following policy allows the DeleteApplicationVersion action to delete an application version whose name is <b>My Version</b> in the application <b>My App</b>:</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:DeleteApplicationVersion"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">DeleteConfigurationTemplate</a></p> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Resource                                                      | Conditions               | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| configurationtemplate                                         | InApplication (Optional) | <p>The following policy allows the <code>DeleteConfigurationTemplate</code> action to delete a configuration template whose name is <code>My Template</code> in the application <code>My App</code>. Specifying the application name as a condition is optional.</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:DeleteConfigurationTemplate"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:configurationtemplate/My App/My Template"       ]     }   ] }</pre> |
| <b>Action:</b> <a href="#">DeleteEnvironmentConfiguration</a> |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| environment                                                   | InApplication (Optional) | <p>The following policy allows the <code>DeleteEnvironmentConfiguration</code> action to delete a draft configuration for the environment <code>myenv</code> in the application <code>My App</code>. Specifying the application name as a condition is optional.</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:DeleteEnvironmentConfiguration"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ]     }   ] }</pre>              |
| <b>Action:</b> <a href="#">DescribeApplications</a>           |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



| Resource                                                    | Conditions             | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| application                                                 | N/A                    | <p>The following policy allows the <code>DescribeApplications</code> action to describe the application <code>My App</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:DescribeApplications"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"       ]     }   ] } </pre>                                                                                                                                                |
| <b>Action:</b> <a href="#">DescribeApplicationVersions</a>  |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| applicationversion                                          | Application (Optional) | <p>The following policy allows the <code>DescribeApplicationVersions</code> action to describe the application version <code>My Version</code> in the application <code>My App</code>. Specifying the application name as a condition is optional.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:DescribeApplicationVersions"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version"       ]     }   ] } </pre> |
| <b>Action:</b> <a href="#">DescribeConfigurationOptions</a> |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Resource                                                     | Conditions                  | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment<br>configurationtemplate<br>solutionstack        | InApplication<br>(Optional) | <p>The following policy allows the DescribeConfigurationOptions action to describe the configuration options for the environment <code>myenv</code> in the application <code>My App</code>. Specifying the application name as a condition is optional.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action":         "elasticbeanstalk:DescribeConfigurationOptions",       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us- west-2:123456789012:environment/My App/ myenv"       ]     }   ] } </pre>    |
| <b>Action:</b> <a href="#">DescribeConfigurationSettings</a> |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| environment,<br>configurationtemplate                        | InApplication<br>(Optional) | <p>The following policy allows the DescribeConfigurationSettings action to describe the configuration settings for the environment <code>myenv</code> in the application <code>My App</code>. Specifying the application name as a condition is optional.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action":         "elasticbeanstalk:DescribeConfigurationSettings",       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us- west-2:123456789012:environment/My App/ myenv"       ]     }   ] } </pre> |
| <b>Action:</b> <a href="#">DescribeEnvironmentHealth</a>     |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Resource                                                    | Conditions               | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                                 | N/A                      | <p>The following policy allows use of <code>DescribeEnvironmentHealth</code> to retrieve health information for an environment named <code>myenv</code>.</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action":         "elasticbeanstalk:DescribeEnvironmentHealth",       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ]     }   ] }</pre>                                                                                                          |
| <b>Action:</b> <a href="#">DescribeEnvironmentResources</a> |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| environment                                                 | InApplication (Optional) | <p>The following policy allows the <code>DescribeEnvironmentResources</code> action to return list of AWS resources for the environment <code>myenv</code> in the application <code>My App</code>. Specifying the application name as a condition is optional.</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action":         "elasticbeanstalk:DescribeEnvironmentResources",       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ]     }   ] }</pre> |
| <b>Action:</b> <a href="#">DescribeEnvironments</a>         |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Resource                                      | Conditions               | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                   | InApplication (Optional) | <p>The following policy allows the <code>DescribeEnvironments</code> action to describe the environments <code>myenv</code> and <code>myotherenv</code> in the application <code>My App</code>. Specifying the application name as a condition is optional.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action":         "elasticbeanstalk:DescribeEnvironments",       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us- west-2:123456789012:environment/My App/ myenv",         "arn:aws:elasticbeanstalk:us- west-2:123456789012:environment/My App2/ myotherenv"       ]     }   ] } </pre> |
| <b>Action:</b> <a href="#">DescribeEvents</a> |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Resource                                                                  | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| application<br>applicationversion<br>configurationtemplate<br>environment | InApplication | <p>The following policy allows the <code>DescribeEvents</code> action to list event descriptions for the environment <code>myenv</code> and the application version <code>My Version</code> in the application <code>My App</code>.</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action":         "elasticbeanstalk:DescribeEvents",       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us- west-2:123456789012:environment/My App/ myenv",         "arn:aws:elasticbeanstalk:us- west-2:123456789012:applicationversion/My App/My Version"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication":             ["arn:aws:elasticbeanstalk:us- west-2:123456789012:application/My App"]         }       }     }   ] }</pre> |
| <b>Action:</b> <a href="#">DescribeInstancesHealth</a>                    |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| environment                                                               | N/A           | <p>The following policy allows use of <code>DescribeInstancesHealth</code> to retrieve health information for instances in an environment named <code>myenv</code>.</p> <pre>{   "Version": "2012-10-17",   "Statement": [     {       "Action":         "elasticbeanstalk:DescribeInstancesHealth",       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us- west-2:123456789012:environment/My App/ myenv"       ]     }   ] }</pre>                                                                                                                                                                                                                                                                                                                                                           |
| <b>Action:</b> <a href="#">ListAvailableSolutionStacks</a>                |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Resource                                              | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| solutionstack                                         | N/A           | <p>The following policy allows the <code>ListAvailableSolutionStacks</code> action to return only the solution stack <b>32bit Amazon Linux running Tomcat 7</b>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [  "elasticbeanstalk:ListAvailableSolutionStacks"       ],       "Effect": "Allow",       "Resource": "arn:aws:elasticbeanstalk:us-west-2::solutionstack/32bit Amazon Linux running Tomcat 7"     }   ] } </pre>                                                                                                                                                                     |
| <b>Action:</b> <a href="#">RebuildEnvironment</a>     |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| environment                                           | InApplication | <p>The following policy allows the <code>RebuildEnvironment</code> action to rebuild the environment <b>myenv</b> in the application <b>My App</b>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [  "elasticbeanstalk:RebuildEnvironment"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": ["arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"]         }       }     }   ] } </pre> |
| <b>Action:</b> <a href="#">RequestEnvironmentInfo</a> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Resource                                               | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                            | InApplication | <p>The following policy allows the <code>RequestEnvironmentInfo</code> action to compile information about the environment <code>myenv</code> in the application <code>My App</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:RequestEnvironmentInfo"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">RestartAppServer</a></p> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Resource                                                      | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                                   | InApplication | <p>The following policy allows the <code>RestartAppServer</code> action to restart the application container server for the environment <code>myenv</code> in the application <code>My App</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:RestartAppServer"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">RetrieveEnvironmentInfo</a></p> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |



| Resource                                                    | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                                 | InApplication | <p>The following policy allows the <code>RetrieveEnvironmentInfo</code> action to retrieve the compiled information for the environment <code>myenv</code> in the application <code>My App</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:RetrieveEnvironmentInfo"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">SwapEnvironmentCNAMES</a></p> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Resource                                            | Conditions                                                 | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                         | InApplication (Optional)<br><br>FromEnvironment (Optional) | <p>The following policy allows the SwapEnvironmentCNAMEs action to swap the CNAMEs for the environments <b>mysrcenv</b> and <b>mydestenv</b>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:SwapEnvironmentCNAMEs"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/mysrcenv",         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/mydestenv"       ]     }   ] } </pre> |
| <b>Action:</b> <a href="#">TerminateEnvironment</a> |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Resource                                                | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                             | InApplication | <p>The following policy allows the <code>TerminateEnvironment</code> action to terminate the environment <code>myenv</code> in the application <code>My App</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:TerminateEnvironment"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <b>Action:</b> <a href="#">UpdateApplication</a>        |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| application                                             | N/A           | <p>The following policy allows the <code>UpdateApplication</code> action to update properties of the application <code>My App</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:UpdateApplication"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"       ]     }   ] } </pre>                                                                                                                                                                                                                                                     |
| <b>Action:</b> <a href="#">UpdateApplicationVersion</a> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Resource                                                          | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| applicationversion                                                | InApplication | <p>The following policy allows the <code>UpdateApplicationVersion</code> action to update the properties of the application version <b>My Version</b> in the application <b>My App</b>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:UpdateApplicationVersion"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">UpdateConfigurationTemplate</a></p> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Resource                                                | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| configurationtemplate                                   | InApplication | <p>The following policy allows the UpdateConfigurationTemplate action to update the properties or options of the configuration template <b>My Template</b> in the application <b>My App</b>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:UpdateConfigurationTemplate"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:configurationtemplate/My App/My Template"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">UpdateEnvironment</a></p> |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Resource                                                            | Conditions                                                           | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| environment                                                         | InApplication<br>FromApplicationVersion<br>FromConfigurationTemplate | <p>The following policy allows the <code>UpdateEnvironment</code> action to update the environment <code>myenv</code> in the application <code>My App</code> by deploying the application version <code>My Version</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:UpdateEnvironment"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ],           "elasticbeanstalk:FromApplicationVersion": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version"           ]         }       }     }   ] } </pre> |
| <p><b>Action:</b> <a href="#">ValidateConfigurationSettings</a></p> |                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Resource                | Conditions    | Example Statement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| template<br>environment | InApplication | <p>The following policy allows the <code>ValidateConfigurationSettings</code> action to validate configuration settings against the environment <code>myenv</code> in the application <code>My App</code>.</p> <pre> {   "Version": "2012-10-17",   "Statement": [     {       "Action": [         "elasticbeanstalk:ValidateConfigurationSettings"       ],       "Effect": "Allow",       "Resource": [         "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/myenv"       ],       "Condition": {         "StringEquals": {           "elasticbeanstalk:InApplication": [             "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"           ]         }       }     }   ] } </pre> |

## Condition Keys for Elastic Beanstalk Actions

Keys enable you to specify conditions that express dependencies, restrict permissions, or specify constraints on the input parameters for an action. Elastic Beanstalk supports the following keys.

### InApplication

Specifies the application that contains the resource that the action operates on.

The following example allows the `UpdateApplicationVersion` action to update the properties of the application version `My Version`. The `InApplication` condition specifies `My App` as the container for `My Version`.

```

{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "elasticbeanstalk:UpdateApplicationVersion"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My App/My Version"
],
 }
],
}

```

```

 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": ["arn:aws:elasticbeanstalk:us-
west-2:123456789012:application/My App"]
 }
 }
]
}

```

#### FromApplicationVersion

Specifies an application version as a dependency or a constraint on an input parameter.

The following example allows the `UpdateEnvironment` action to update the environment **myenv** in the application **My App**. The `FromApplicationVersion` condition constrains the `VersionLabel` parameter to allow only the application version **My Version** to update the environment.

```

{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "elasticbeanstalk:UpdateEnvironment"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My
App/myenv"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": ["arn:aws:elasticbeanstalk:us-
west-2:123456789012:application/My App"],
 "elasticbeanstalk:FromApplicationVersion":
["arn:aws:elasticbeanstalk:us-west-2:123456789012:applicationversion/My
App/My Version"]
 }
 }
 }
]
}

```

#### FromConfigurationTemplate

Specifies a configuration template as a dependency or a constraint on an input parameter.

The following example allows the `UpdateEnvironment` action to update the environment **myenv** in the application **My App**. The `FromConfigurationTemplate` condition constrains the `TemplateName` parameter to allow only the configuration template **My Template** to update the environment.

```

{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "elasticbeanstalk:UpdateEnvironment"

```



```

],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My
App/myenv"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": ["arn:aws:elasticbeanstalk:us-
west-2:123456789012:application/My App"],
 "elasticbeanstalk:FromConfigurationTemplate":
["arn:aws:elasticbeanstalk:us-west-2:123456789012:configurationtemplate/
My App/My Template"]
 }
 }
]
}

```

#### FromEnvironment

Specifies an environment as a dependency or a constraint on an input parameter.

The following example allows the `SwapEnvironmentCNAMEs` action to swap the CNAMEs in **My App** for all environments whose names begin with `mysrcenv` and `mydestenv` but not those environments whose names begin with `mysrcenvPROD*` and `mydestenvPROD*`.

```

{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "elasticbeanstalk:SwapEnvironmentCNAMEs"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My
App/mysrcenv*",
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My
App/mydestenv*"
],
 "Condition": {
 "StringNotLike": {
 "elasticbeanstalk:FromEnvironment":
["arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/
mysrcenvPROD*"],
 "elasticbeanstalk:FromEnvironment":
["arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/My App/
mydestenvPROD*"]
 }
 }
 }
]
}

```

#### FromSolutionStack

Specifies a solution stack as a dependency or a constraint on an input parameter.

The following policy allows the `CreateConfigurationTemplate` action to create configuration templates whose name begins with `My Template` (`My Template*`) in the application `My App`. The `FromSolutionStack` condition constrains the `solutionstack` parameter to allow only the solution stack `32bit Amazon Linux running Tomcat 7` as the input value for that parameter.

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "elasticbeanstalk:CreateConfigurationTemplate"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:configurationtemplate/My App/My Template*"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": ["arn:aws:elasticbeanstalk:us-west-2:123456789012:application/My App"],
 "elasticbeanstalk:FromSolutionStack":
 ["arn:aws:elasticbeanstalk:us-west-2::solutionstack/32bit Amazon Linux running Tomcat 7"]
 }
 }
 }
]
}
```

## Example Policies Based on Managed Policies

This section demonstrates how to control user access to AWS Elastic Beanstalk and includes example policies that provide the required access for common scenarios. These policies are derived from the Elastic Beanstalk managed policies. For information about attaching managed policies to users and groups, see [Controlling Access to Elastic Beanstalk](#) (p. 341).

In this scenario, Example Corp. is a software company with three teams responsible for the company website: administrators who manage the infrastructure, developers who build the software for the website, and a QA team that tests the website. To help manage permissions to their Elastic Beanstalk resources, Example Corp. creates three groups to which members of each respective team belong: Admins, Developers, and Testers. Example Corp. wants the Admins group to have full access to all applications, environments, and their underlying resources so that they can create, troubleshoot, and delete all Elastic Beanstalk assets. Developers require permissions to view all Elastic Beanstalk assets and to create and deploy application versions. Developers should not be able to create new applications or environments or terminate running environments. Testers need to view all Elastic Beanstalk resources to monitor and test applications. The Testers should not be able to make changes to any Elastic Beanstalk resources.

The following example policies provide the required permissions for each group.

### Example 1: Allow the Admins group to use all Elastic Beanstalk and related service APIs

The following policy gives users permissions for all actions required to use Elastic Beanstalk. This policy also allows Elastic Beanstalk to provision and manage resources on your behalf in the following services. Elastic Beanstalk relies on these additional services to provision underlying resources when creating an environment.

- Amazon Elastic Compute Cloud
- Elastic Load Balancing
- Auto Scaling
- Amazon CloudWatch
- Amazon Simple Storage Service
- Amazon Simple Notification Service
- Amazon Relational Database Service
- AWS CloudFormation

#### Note

The following policy is an example. It gives a broad set of permissions to the AWS services that Elastic Beanstalk uses to manage applications and environments. For example, `ec2:*` allows an AWS Identity and Access Management (IAM) user to perform any action on any Amazon EC2 resource in the AWS account. These permissions are not limited to the resources that you use with Elastic Beanstalk. As a best practice, you should grant individuals only the permissions they need to perform their duties.

```
{
 "Version" : "2012-10-17",
 "Statement" : [
 {
 "Effect" : "Allow",
 "Action" : [
 "elasticbeanstalk:*",
 "ec2:*",
 "elasticloadbalancing:*",
 "autoscaling:*",
 "cloudwatch:*",
 "s3:*",
 "sns:*",
 "rds:*",
 "cloudformation:*"
],
 "Resource" : "*"
 }
]
}
```

## Example 2: Allow the Developers group to perform all actions except highly privileged operations, such as creating applications and environments

The following policy denies permission to create applications and environments, but allows all other Elastic Beanstalk actions.

### Note

The following policy is an example. It gives a broad set of permissions to the AWS products that Elastic Beanstalk uses to manage applications and environments. For example, `ec2:*` allows an IAM user to perform any action on any Amazon EC2 resource in the AWS account. These permissions are not limited to the resources that you use with Elastic Beanstalk. As a best practice, you should grant individuals only the permissions they need to perform their duties.

```
{
 "Version" : "2012-10-17",
 "Statement" : [
 {
 "Action" : [
 "elasticbeanstalk:CreateApplication",
 "elasticbeanstalk:CreateEnvironment",
 "elasticbeanstalk>DeleteApplication",
 "elasticbeanstalk:RebuildEnvironment",
 "elasticbeanstalk:SwapEnvironmentCNAMEs",
 "elasticbeanstalk:TerminateEnvironment"],
 "Effect" : "Deny",
 "Resource" : "*"
 },
 {
 "Action" : [
 "elasticbeanstalk:*",
 "ec2:*",
 "elasticloadbalancing:*",
 "autoscaling:*",
 "cloudwatch:*",
 "s3:*",
 "sns:*",
 "rds:*",
 "cloudformation:*"],
 "Effect" : "Allow",
 "Resource" : "*"
 }
]
}
```

### Example 3: Allow the Testers group to view all Elastic Beanstalk assets, but not to perform any actions

The following policy allows read-only access to all applications, application versions, events, and environments.

```
{
 "Version" : "2012-10-17",
 "Statement" : [
 {
 "Effect" : "Allow",
 "Action" : [
 "elasticbeanstalk:Check*",
 "elasticbeanstalk:Describe*",
 "elasticbeanstalk:List*",
 "elasticbeanstalk:RequestEnvironmentInfo",
 "elasticbeanstalk:RetrieveEnvironmentInfo",
 "ec2:Describe*",
 "elasticloadbalancing:Describe*",
 "autoscaling:Describe*",
 "cloudwatch:Describe*",
 "cloudwatch:List*",
 "cloudwatch:Get*",
 "s3:Get*",
 "s3:List*",
 "sns:Get*",
 "sns:List*",
 "rds:Describe*",
 "cloudformation:Describe*",
 "cloudformation:Get*",
 "cloudformation:List*",
 "cloudformation:Validate*",
 "cloudformation:Estimate*"
],
 "Resource" : "*"
 }
]
}
```

## Example Policies Based on Resource Permissions

This section walks through a use case for controlling user permissions for Elastic Beanstalk actions that access specific Elastic Beanstalk resources. We'll walk through the sample policies that support the use case. For more information policies on Elastic Beanstalk resources, see [Creating a Custom User Policy \(p. 343\)](#). For information about attaching policies to users and groups, go to [Managing IAM Policies](#) in *Using AWS Identity and Access Management*.

In our use case, Example Corp. is a small consulting firm developing applications for two different customers. John is the development manager overseeing the development of the two Elastic Beanstalk applications, app1 and app2. John does development and some testing on the two applications, and only he can update the production environment for the two applications. These are the permissions that he needs for app1 and app2:

- View application, application versions, environments, and configuration templates
- Create application versions and deploy them to the staging environment
- Update the production environment

- Create and terminate environments

Jill is a tester who needs access to view the following resources in order to monitor and test the two applications: applications, application versions, environments, and configuration templates. However, she should not be able to make changes to any Elastic Beanstalk resources.

Jack is the developer for app1 who needs access to view all resources for app1 and also needs to create application versions for app1 and deploy them to the staging environment.

Joe is the administrator of the AWS account for Example Corp. He has created IAM users for John, Jill, and Jack and attaches the following policies to those users to grant the appropriate permissions to the app1 and app2 applications.

As a best practice, you should grant individuals only the permissions they need to perform their creating an environment. For a list of supported non-legacy container types, see [Why are some container types marked legacy? \(p. 117\)](#). We have broken down John's policy into three separate policies so that they are easier to read and manage. Together, they give John the permissions he needs to perform the Elastic Beanstalk actions on the two applications watch: AWS Elastic Beanstalk Developer Guide

**Example 1: Policies that allow John to perform his development, test, and deployment actions on app1 and app2**

```

 "sns:*" ,
 "s3:*" ,
 "ec2:*" ,
 "iam:PassRole"
],
 "Effect": "Allow" ,
 "Resource": [
 "*"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app1" ,
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app2"
]
 }
 }
},
{
 "Sid": "AllCallsOnApplications" ,
 "Action": [
 "elasticbeanstalk:*"
],
 "Effect": "Allow" ,
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app1" ,
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app2"
]
},
{
 "Sid": "AllCallsOnSolutionStacks" ,
 "Action": [
 "elasticbeanstalk:*"
],

```

The third policy specifies the Elastic Beanstalk actions that the second policy needs permissions to in order to complete those Elastic Beanstalk actions. The `AllNonResourceCalls` statement allows the `elasticbeanstalk:CheckDNSAvailability` action, which is required to call `elasticbeanstalk:CreateEnvironment` and other actions. It also allows the `elasticbeanstalk:CreateStorageLocation` action, which is required for `elasticbeanstalk:CreateApplication`, `elasticbeanstalk:CreateEnvironment`, and other actions.

```

 "elasticbeanstalk:CheckDNSAvailability" ,
 "elasticbeanstalk:CreateStorageLocation"
],
 "Effect": "Allow" ,
 "Resource": [
 "*"
]
}
]
}

```

We have broken down Jill's policy into three separate policies so they are easier to read and manage. Together, they give Jill the permissions she needs to perform the Elastic Beanstalk actions on the two applications.

**Example 1: Policies Based on Resource Permissions**

```

 "cloudwatch:Get*",
 "s3:Get*",
 "s3:List*",
 "sns:Get*",
 "sns:List*",
 "cloudformation:Describe*",
 "cloudformation:Get*",
 "cloudformation:List*",
 "iam:List*",
 "iam:Put*",
 "iam:Remove*",
 "iam:Update*",
 "iam:Validate*",
 "iam:Verify*",
 "iam:Write*",
 "iam:Delete*",
 "iam:Create*",
 "iam:Attach*",
 "iam:Detach*",
 "iam:Pass*",
 "iam:Simulate*",
 "iam:Trust*",
 "iam:Group*",
 "iam:User*",
 "iam:Role*",
 "iam:Policy*",
 "iam:Account*",
 "iam:Entity*",
 "iam:Group*",
 "iam:User*",
 "iam:Role*",
 "iam:Policy*",
 "iam:Account*",
 "iam:Entity*"
],
 "Effect": "Allow",
 "Resource": [
 "*"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app1",
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app2"
]
 }
 }
},
{
 "Sid": "AllReadCallsOnApplications",
 "Action": [
 "elasticbeanstalk:DescribeApplications",
 "elasticbeanstalk:DescribeEvents"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app1",
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app2"
]
},
{
 "Sid": "AllReadCallsOnSolutionStacks",
 "Action": [
 "elasticbeanstalk:ListAvailableSolutionStacks",
 "elasticbeanstalk:DescribeConfigurationOptions",
 "elasticbeanstalk:ValidateConfigurationSettings",
 "elasticbeanstalk:CheckDNSAvailability"
],
 "Effect": "Allow",
 "Resource": [
 "*"
]
}
]
}

```

**Example 2: Policies that allow Jill to test and monitor app1 and app2**

The second policy specifies the Elastic Beanstalk actions that Jill is allowed to perform on the app1 and app2 resources. The AllReadCallsOnApplications statement allows her to call the Describe\* actions and the EnvironmentInfo actions. The AllReadCallsOnApplications statement allows her to call the DescribeApplications and DescribeEvents actions on the app1 and app2 application resources. The AllReadCallsOnSolutionStacks statement allows viewing actions that involve solution stack resources (ListAvailableSolutionStacks, DescribeConfigurationOptions, and ValidateConfigurationSettings).

```

 "elasticbeanstalk:Describe*",
 "elasticbeanstalk:RequestEnvironmentInfo",
 "elasticbeanstalk:RetrieveEnvironmentInfo"
],
 "Effect": "Allow",
 "Resource": [
 "*"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app1",
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app2"
]
 }
 }
},
{
 "Sid": "AllReadCallsOnApplications",
 "Action": [
 "elasticbeanstalk:DescribeApplications",
 "elasticbeanstalk:DescribeEvents"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app1",
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/app2"
]
},
{
 "Sid": "AllReadCallsOnSolutionStacks",
 "Action": [
 "elasticbeanstalk:ListAvailableSolutionStacks",
 "elasticbeanstalk:DescribeConfigurationOptions",
 "elasticbeanstalk:ValidateConfigurationSettings",
 "elasticbeanstalk:CheckDNSAvailability"
],
 "Effect": "Allow",
 "Resource": [
 "*"
]
}
]
}

```

The third policy specifies the Elastic Beanstalk actions that the second policy needs permissions to in order to complete those Elastic Beanstalk actions. The AllNonResourceCalls statement allows the elasticbeanstalk:CheckDNSAvailability action, which is required for some viewing actions.

```

 "elasticbeanstalk:CheckDNSAvailability"
],
 "Effect": "Allow",
 "Resource": [
 "*"
]
}
]
}

```



manage. Together, they give Jack the permissions he needs to perform the Elastic Beanstalk actions on the app1 resource.

```
],
 "Condition": "AWS_ElasticBeanstalk_Developer_Guide"
 }
}
```

**Example 3: Policies Based on Resource Permissions**

```
"elasticbeanstalk:InApplication": [
 "arn:aws:elasticbeanstalk:us-
```

**Example 3: Policies that allow Jack to access app1 to test, monitor, create application versions, and deploy to the staging environment**

```
 }
 },
 {
 "Sid": "AllReadCallsOnApplications",
 "Action": [
 "elasticbeanstalk:DescribeApplications",
 "elasticbeanstalk:DescribeEvents"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:application/
app1"
]
 },
 {
 "Sid": "UpdateEnvironmentInApplications",
 "Action": [
 "elasticbeanstalk:UpdateEnvironment"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:123456789012:environment/
app1/app1-staging*"
],
 "Condition": {
 "StringEquals": {
 "elasticbeanstalk:InApplication": [
 "arn:aws:elasticbeanstalk:us-
west-2:123456789012:application/app1"
]
 },
 "StringLike": {
 "elasticbeanstalk:FromApplicationVersion": [
 "arn:aws:elasticbeanstalk:us-
west-2:123456789012:applicationversion/app1/*"
]
 }
 }
 },
}
```

```
{
 "Sid": "AllReadCallsOnSolutionStacks",
 "Version": "2012-10-17",
 "Statement": [
 {
 "Action": [
 "elasticbeanstalk:ListAvailableSolutionStacks",
 "elasticbeanstalk:DescribeConfigurationOptions",
 "elasticbeanstalk:CheckDNSAvailability",
 "elasticbeanstalk:CreateEnvironment",
 "elasticbeanstalk:CreateStorageLocation",
 "elasticbeanstalk:CreateEnvironment"
],
 "Resource": [
 "arn:aws:elasticbeanstalk:us-west-2:solutionstack/*"
],
 "Effect": "Allow"
 }
]
}
```

```
]
 }
}
```

## Using Elastic Beanstalk with Amazon RDS

Elastic Beanstalk provides support for [running Amazon RDS instances in your Elastic Beanstalk environment \(p. 243\)](#). This works great for development and testing environments, but is not ideal for a production environment because it ties the lifecycle of the database instance to the lifecycle of your application's environment.

### Note

If you haven't used a DB instance with your application before, try adding one to a test environment with the Elastic Beanstalk console first. This lets you verify that your application is able to read environment properties, construct a connection string, and connect to a DB instance prior to adding VPCs and security group configuration to the mix. See [Configuring Databases with Elastic Beanstalk \(p. 243\)](#) for details.

To decouple your database instance from your environment, you can run a database instance in Amazon Relational Database Service and configure your application to connect to it on launch. This allows you to connect multiple environments to a database, terminate an environment without affecting the database, and perform seamless updates with blue-green deployments.

To allow the EC2 instances in your environment to connect to an outside database, you can configure the environment's Auto Scaling group with an additional security group. The security group that you attach to your environment can be the same one that is attached to your database instance, or a separate security group from which the database's security group allows ingress.

### Note

It is possible to connect your environment to a database by adding a rule to your database's security group that allows ingress from the autogenerated security group that Elastic Beanstalk attaches to your environment's Auto Scaling group. However, doing so creates a dependency between the two security groups. Subsequently, when you attempt to terminate the environment, Elastic Beanstalk will be unable to delete the environment's security group because the database's security group is dependent on it.

After launching your database instance and configuring security groups, you can pass the connection information (endpoint, password, etc.) to your application by using environment properties, the same mechanism that Elastic Beanstalk uses when you run a database instance in your environment.

For additional security, you can store your connection information in Amazon S3, and configure Elastic Beanstalk to retrieve it during deployment. With [configuration files \(.ebextensions\) \(p. 178\)](#), you can configure the instances in your environment to securely retrieve files from Amazon S3 when you deploy your application.

### Topics

- [Launching and Connecting to an External RDS Instance in a Default VPC \(p. 380\)](#)
- [Launching and Connecting to an External RDS Instance in EC2 Classic \(p. 384\)](#)
- [Storing the Connection String in Amazon S3 \(p. 387\)](#)

## Launching and Connecting to an External RDS Instance in a Default VPC

To use an external database with a application running in Elastic Beanstalk, first launch a DB instance with Amazon RDS. Any instance that you launch with Amazon RDS is completely independent of Elastic Beanstalk and your Elastic Beanstalk environments, and is not dependent on Elastic Beanstalk for configuration. This means that you can use any DB engine and instance type supported by Amazon RDS, even those not used by Elastic Beanstalk.

The following procedures describe the process for a [default VPC](#). The process is the same if you are using a custom VPC. The only additional requirements are that your environment and DB instance are in the same subnet, or in subnets that are allowed to communicate with each other. See [Using Elastic Beanstalk with Amazon VPC \(p. 390\)](#) for details on configuring a custom VPC for use with Elastic Beanstalk.

### To launch an RDS DB instance in a default VPC

1. Open the [RDS management console](#).
2. Choose **Launch DB Instance**.
3. Choose a **DB Engine** and preset configuration.
4. Under **Instance Specifications**, choose a **DB Instance Class**. For high availability, set **Multi-AZ Deployment** to **Yes**.
5. Under **Settings**, type a **Master Username** and **Master Password** and note the values that you entered for later.
6. Choose **Next**.
7. For **Network and Security** settings, choose the following:
  - **VPC** – `Default VPC`
  - **Subnet Group** – `default`
  - **Publicly Accessible** – `No`
  - **Availability Zone** – `No Preference`
  - **VPC Security Groups** – `Create new Security Group`
8. For **Database Name**, type `ebdb`, and verify the default settings for the remaining options. Note the values of the following options:
  - **Database Name**
  - **Database Port**
9. Choose **Launch DB Instance**.

Next, modify the security group attached to your DB instance to allow inbound traffic on the appropriate port. This is the same security group that you will attach to your Elastic Beanstalk environment later, so the rule that you add will grant ingress permission to other resources in the same security group.

### To modify the ingress rules on your RDS instance's security group

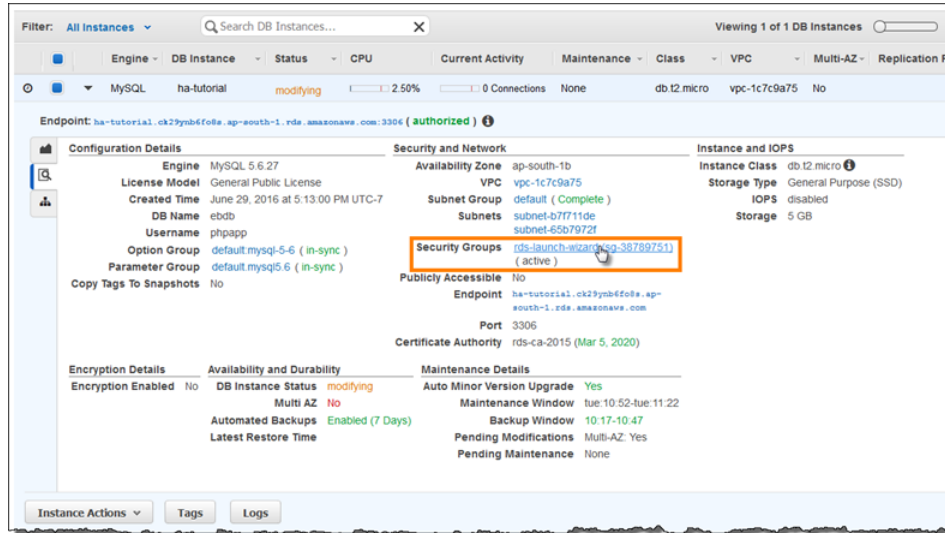
1. Open the [Amazon RDS console](#).
2. Choose **Instances**.
3. Choose the arrow next to the entry for your DB instance to expand the view.
4. Choose the **Details** tab.
5. In the **Security and Network** section, the security group associated with the DB instance is shown. Open the link to view the security group in the Amazon EC2 console.

#### Note

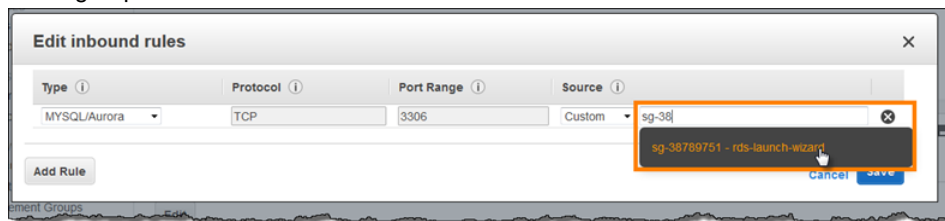
Also note the Endpoint shown on this page for use later.

# AWS Elastic Beanstalk Developer Guide

## Launching and Connecting to an External RDS Instance in a Default VPC



6. In the security group details, choose the **Inbound** tab.
7. Choose **Edit**.
8. Choose **Add Rule**.
9. For **Type**, choose the DB engine that your application uses.
10. For **Source**, choose **Custom IP**, and then type the group ID of the security group. This allows resources in the security group to receive traffic on the database port from other resources in the same group.



11. Choose **Save**.

Next, add the DB instance's security group to your running environment. This procedure causes Elastic Beanstalk to reprovision all instances in your environment with the additional security group attached.

### Note


In a custom VPC, use the security group's group ID instead of its group name.

### To add a security group to your environment

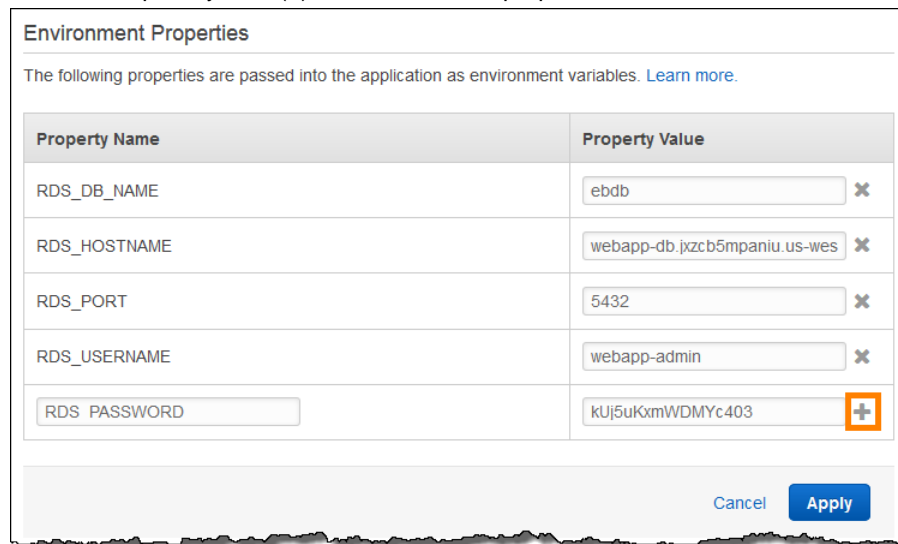
1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. Choose **Instances**.
5. For **EC2 security groups**, type a comma after the name of the auto-generated security group followed by the name of the RDS DB instance's security group. By default, the RDS console creates a security group called `rdslaunch-wizard`.
6. Choose **Apply**.
7. Read the warning, and then choose **Save**.

Next, pass the connection information to your environment by using environment properties. When you [add a DB instance to your environment \(p. 243\)](#) with the Elastic Beanstalk console, Elastic Beanstalk uses environment properties like **RDS\_HOSTNAME** to pass connection information to your application. You can use the same properties, which will let you use the same application code with both integrated DB instances and external DB instances, or choose your own property name(s).

### To configure environment properties

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .
5. In the **Environment Properties** section, define the variables that your application reads to construct a connection string. For compatibility with environments that have an integrated RDS DB instance, use the following:
  - **RDS\_DB\_NAME** – The **DB Name** shown in the Amazon RDS console.
  - **RDS\_HOSTNAME** – The **Endpoint** of the DB instance shown in the Amazon RDS console.
  - **RDS\_PORT** – The **Port** shown in the Amazon RDS console.
  - **RDS\_USERNAME** – The **Master Username** that you entered when you added the database to your environment.
  - **RDS\_PASSWORD** – The **Master Password** that you entered when you added the database to your environment.

Choose the plus symbol (+) to add additional properties:



| Property Name | Property Value               |
|---------------|------------------------------|
| RDS_DB_NAME   | ebdb                         |
| RDS_HOSTNAME  | webapp-db.jzcb5mpaniu.us-wes |
| RDS_PORT      | 5432                         |
| RDS_USERNAME  | webapp-admin                 |
| RDS_PASSWORD  | kUj5uKxmWDMYc403             |

6. Choose **Apply**.

If you haven't programmed your application to read environment properties and construct a connection string yet, see the following language-specific topics for instructions:

- Java — [Adding an Amazon RDS Database to Your Elastic Beanstalk Environment \(p. 614\)](#)
- Node.js — [Using a New Amazon RDS DB Instance with Node.js \(p. 727\)](#)
- .NET — [Using a New Amazon RDS DB Instance with .NET \(p. 667\)](#)
- PHP — [Using a New Amazon RDS DB Instance with PHP \(p. 760\)](#)

- Python — [Using a New Amazon RDS DB Instance with Python \(p. 784\)](#)
- Ruby — [Using a New Amazon RDS DB Instance with Ruby \(p. 804\)](#)

Finally, depending on when your application reads environment variables, you may need to restart the application server on the instances in your environment.

### To restart your environment's app servers

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Actions** and then choose **Restart App Server(s)**.

## Launching and Connecting to an External RDS Instance in EC2 Classic

If you use EC2 Classic (no VPC) with Elastic Beanstalk, the procedure changes slightly due to differences in how security groups work. In EC2 Classic, DB instances cannot use EC2 security groups, so they get a DB security group that only works with Amazon RDS.

You can add rules to a DB security group that allows ingress from EC2 security groups, but you cannot attach a DB security group to your environment's Auto Scaling group. To avoid creating a dependency between the DB security group and your environment, you must create a third security group in Amazon EC2, grant it ingress from the DB security group, and then assign it to the Auto Scaling group in your Elastic Beanstalk environment.

### To launch an RDS instance in EC2 Classic (no VPC)

1. Open the [RDS management console](#).
2. Choose **Launch a DB Instance**.
3. Proceed through the wizard until you reach the **Advanced Settings** page. Note the values that you enter for the following options:
  - **Master Username**
  - **Master Password**
4. For **Network and Security** settings, choose the following:
  - **VPC – Not in VPC**. If this option is not available, your account may not support [EC2-Classic](#), or you may have chosen an [instance type that is only available in VPC](#).
  - **Availability Zone – No Preference**
  - **DB Security Group(s) – Create new Security Group**
5. Configure the remaining options and choose **Launch DB Instance**. Note the values that you enter for the following options:
  - **Database Name**
  - **Database Port**

In EC2-classic, your DB instance will have a DB security group instead of a VPC security group. You cannot attach a DB security group to your Elastic Beanstalk environment, so you need to create a new security group that you can authorize to access the DB instance and attach to your environment. We will refer to this as a *bridge security group* and name it `webapp-bridge`.

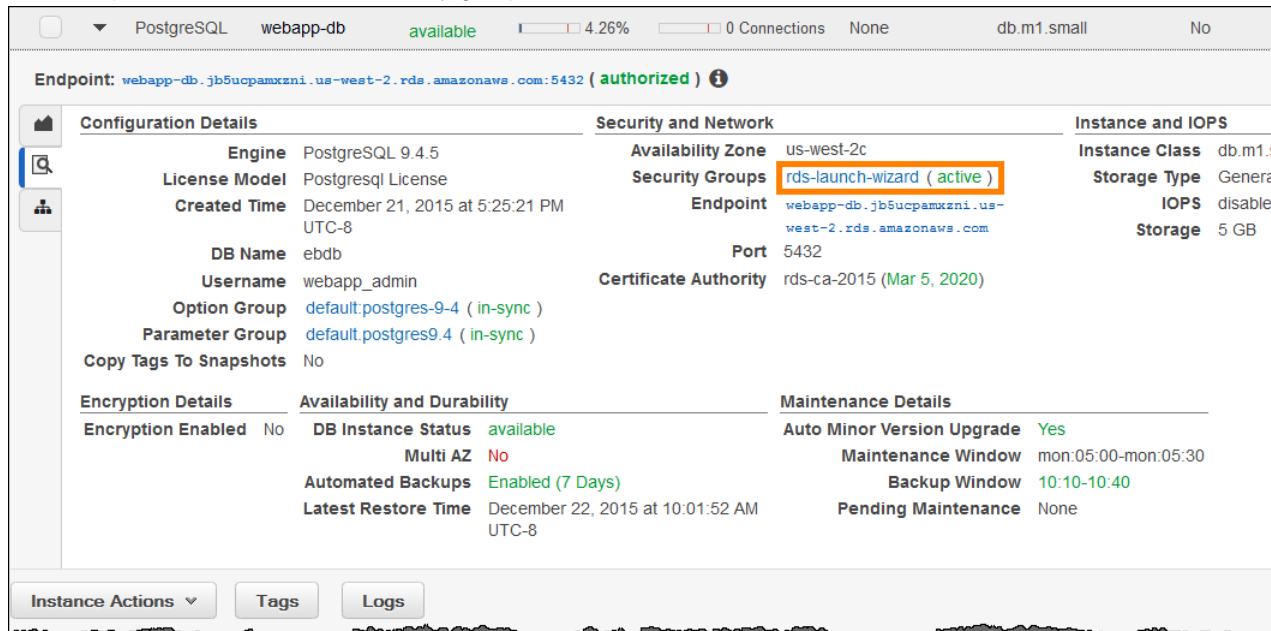
### To create a bridge security group

1. Open the [Amazon EC2 console](#)
2. Choose **Security Groups** under **Network & Security** in the navigation sidebar.
3. Choose **Create Security Group**.
4. For **Security group name**, type `webapp-bridge`.
5. For **Description**, type `Provide access to DB instance from Elastic Beanstalk environment instances.`
6. For **VPC**, select **No VPC**.
7. Choose **Create**

Next, modify the security group attached to your DB instance to allow inbound traffic from the bridge security group.

### To modify the ingress rules on your RDS instance's security group

1. Open the [Amazon RDS console](#).
2. Choose **Instances**.
3. Choose the arrow next to the entry for your DB instance to expand the view.
4. Choose the **Details** tab.
5. In the **Security and Network** section, the security group associated with the DB instance is shown. Open the link to view the security group in the Amazon EC2 console.



6. In the security group details, set **Connection Type** to **EC2 Security Group**.
7. Set **EC2 Security Group Name** to the name of the bridge security group that you created.
8. Choose **Authorize**.


Next, add the bridge security group to your running environment. This procedure requires all instances in your environment to be reprovisioned with the additional security group attached.

### To add a security group to your environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. Choose **Instances**.
5. For **EC2 security groups**, type a comma after the name of the autogenerated security group followed by the name of the bridge security group that you created.
6. Choose **Apply**
7. Read the warning and then choose **Save**.

Next, pass the connection information to your environment by using environment properties. When you [add a DB instance to your environment \(p. 243\)](#) with the Elastic Beanstalk console, Elastic Beanstalk uses environment properties like **RDS\_HOSTNAME** to pass connection information to your application. You can use the same properties, which will let you use the same application code with both integrated DB instances and external DB instances, or choose your own property name(s).

### To configure environment properties

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .
5. In the **Environment Properties** section, define the variables that your application reads to construct a connection string. For compatibility with environments that have an integrated RDS instance, use the following:
  - **RDS\_DB\_NAME** – The **DB Name** shown in the Amazon RDS console.
  - **RDS\_USERNAME** – The **Master Username** that you enter when you add the database to your environment.
  - **RDS\_PASSWORD** – The **Master Password** that you enter when you add the database to your environment.
  - **RDS\_HOSTNAME** – The **Endpoint** of the DB instance shown in the Amazon RDS console.
  - **RDS\_PORT** – The **Port** shown in the Amazon RDS console.

Choose the plus symbol to add additional properties:



| Property Name | Property Value               |
|---------------|------------------------------|
| RDS_DB_NAME   | ebdb                         |
| RDS_HOSTNAME  | webapp-db.jxzc5mpaniu.us-wes |
| RDS_PORT      | 5432                         |
| RDS_USERNAME  | webapp-admin                 |
| RDS_PASSWORD  | kUj5uKxmWDMYc403             |

6. Choose **Apply**

If you haven't programmed your application to read environment properties and construct a connection string yet, see the following language-specific topics for instructions:

- Java — [Adding an Amazon RDS Database to Your Elastic Beanstalk Environment](#) (p. 614)
- Node.js — [Using a New Amazon RDS DB Instance with Node.js](#) (p. 727)
- .NET — [Using a New Amazon RDS DB Instance with .NET](#) (p. 667)
- PHP — [Using a New Amazon RDS DB Instance with PHP](#) (p. 760)
- Python — [Using a New Amazon RDS DB Instance with Python](#) (p. 784)
- Ruby — [Using a New Amazon RDS DB Instance with Ruby](#) (p. 804)

Finally, depending on when your application reads environment variables, you may need to restart the application server on the instances in your environment.

### To restart your environment's app servers

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Actions** and then choose **Restart App Server(s)**.

## Storing the Connection String in Amazon S3

Providing connection information to your application with environment properties is a good way to keep passwords out of your code, but it's not a perfect solution. Environment properties are discoverable in the [Environment Management Console](#) (p. 52), and can be viewed by any user that has permission to [describe configuration settings](#) on your environment. Depending on the platform, environment properties may also appear in [instance logs](#) (p. 320).

You can lock down your connection information by storing it in an Amazon S3 bucket that you control. The basic steps are as follows:

- Upload a file that contains your connection string to an Amazon S3 bucket.
- Grant the EC2 instance profile permission to read the file.

- Configure your application to download the file during deployment.
- Read the file in your application code.

First, create a bucket to store the file that contains your connection string. For this example, we will use a JSON file that has a single key and value. The value is a JDBC connection string for a PostgreSQL DB instance in Amazon RDS:

beanstalk-database.json

```
{
 "connection": "jdbc:postgresql://mydb.b5uacpxzni jm.us-
west-2.rds.amazonaws.com:5432/ebdb?user=username&password=mypassword"
}
```

The highlighted portions of the URL correspond to the endpoint, port, DB name, username and password for the database.

### To create a bucket and upload a file

1. Open the [Amazon S3 console](#).
2. Choose **Create Bucket**.
3. Type a **Bucket Name** and choose a **Region**.
4. Choose **Create**.
5. Open the bucket and choose **Upload**
6. Follow the prompts to upload the file.

By default, your account owns the file and has permission to manage it, but IAM users and roles do not unless you grant them access explicitly. Grant the instances in your Elastic Beanstalk environment by adding a policy to the [instance profile \(p. 18\)](#).

The default instance is named `aws-elasticbeanstalk-ec2-role`. If you are not sure what your instance profile is called, you can find it on the **Configuration** page in [Environment Management Console \(p. 230\)](#).

### To add permissions to the instance profile

1. Open the [IAM console](#).
2. Choose **Roles**.
3. Choose **aws-elasticbeanstalk-ec2-role**.
4. Under **Inline Policies**, choose **Create Role Policy**. Choose **Custom Policy**.
5. Add a policy that allows the instance to retrieve the file:

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "database",
 "Action": [
 "s3:GetObject"
],
 "Effect": "Allow",
 "Resource": [
 "arn:aws:s3:::my-secret-bucket-123456789012/beanstalk-
database.json"
]
 }
]
}
```

```

]
 }
]
}

```

Replace the bucket and object names with the names of your bucket and object.

Next, add a [configuration file \(p. 178\)](#) to your source code that tells Elastic Beanstalk to download the file from Amazon S3 during deployment:

```
~/my-app/.ebextensions/database.config
```

```

Resources:
 AWSEBAutoScalingGroup:
 Metadata:
 AWS::CloudFormation::Authentication:
 S3Auth:
 type: "s3"
 buckets: ["my-secret-bucket-123456789012"]
 roleName: "aws-elasticbeanstalk-ec2-role"

files:
 "/tmp/beanstalk-database.json" :
 mode: "000644"
 owner: root
 group: root
 authentication: "S3Auth"
 source: https://s3-us-west-2.amazonaws.com/my-secret-
bucket-123456789012/beanstalk-database.json

```

This configuration file does two things. The `Resources` key adds an authentication method to your environment's Auto Scaling group metadata that Elastic Beanstalk can use to access Amazon S3. The `files` key tells Elastic Beanstalk to download the file from Amazon S3 and store it locally in `/tmp/` during deployment.

Deploy your application with the configuration file in `.ebextensions` folder at the root of your source code. If you configured permissions correctly, the deployment will succeed and the file will be downloaded to all of the instances in your environment. If not, the deployment will fail.

Finally, add code to your application to read the JSON file and use the connection string to connect to the database. See the following language-specific topics for more information:

- Java — [Adding an Amazon RDS Database to Your Elastic Beanstalk Environment \(p. 614\)](#)
- Node.js — [Using a New Amazon RDS DB Instance with Node.js \(p. 727\)](#)
- .NET — [Using a New Amazon RDS DB Instance with .NET \(p. 667\)](#)
- PHP — [Using a New Amazon RDS DB Instance with PHP \(p. 760\)](#)
- Python — [Using a New Amazon RDS DB Instance with Python \(p. 784\)](#)
- Ruby — [Using a New Amazon RDS DB Instance with Ruby \(p. 804\)](#)

## Using Elastic Beanstalk with Amazon S3

Amazon S3 provides highly durable, fault-tolerant data storage. Behind the scenes, Amazon S3 stores objects redundantly on multiple devices across multiple facilities in a region.

Elastic Beanstalk creates an Amazon S3 bucket named `elasticbeanstalk-region-account-id` for each region in which you create environments. Elastic Beanstalk uses this bucket to store application versions, logs, and other supporting files.

Elastic Beanstalk applies a bucket policy to buckets it creates to allow environments to write to the bucket and prevent accidental deletion. If you need to delete a bucket that Elastic Beanstalk created, first delete the bucket policy from the **Permissions** section of the bucket properties in the Amazon S3 Management Console.

### To delete an Elastic Beanstalk storage bucket (console)

1. Open the [Amazon S3 Management Console](#)
2. Select the Elastic Beanstalk storage bucket.
3. Choose **Properties**.
4. Choose **Permissions**.
5. Choose **Edit Bucket Policy**.
6. Choose **Delete**.
7. Choose **OK**.
8. Choose **Actions** and then choose **Delete Bucket**.
9. Type the name of the bucket and then choose **Delete**.

## Using Elastic Beanstalk with Amazon VPC

Amazon Virtual Private Cloud (Amazon VPC) enables you to define a virtual network in your own isolated section within the Amazon Web Services (AWS) cloud, known as a *virtual private cloud (VPC)*. Using VPC, you can deploy a new class of web applications on Elastic Beanstalk, including internal web applications (such as your recruiting application), web applications that connect to an on-premise database (using a VPN connection), as well as private web service backends. Elastic Beanstalk launches your AWS resources, such as instances, into your VPC. Your VPC closely resembles a traditional network, with the benefits of using AWS's scalable infrastructure. You have complete control over your VPC; you can select the IP address range, create subnets, and configure routes and network gateways. To protect the resources in each subnet, you can use multiple layers of security, including security groups and network access control lists. For more information about Amazon VPC, go to the [Amazon VPC User Guide](#).

### Note

Elastic Beanstalk does not currently support linux proxy settings (HTTP\_PROXY, HTTPS\_PROXY and NO\_PROXY) for configuring a web proxy. Instances in your environment must have access to the Internet directly or through a NAT device.

### Important

Instances in your Elastic Beanstalk environment use Network Time Protocol (NTP) to synchronize the system clock. If instances are unable to communicate on UDP port 123, the clock may go out of sync, causing issues with Elastic Beanstalk health reporting. Ensure that your VPC security groups and network ACLs allow outbound UDP traffic on port 123 to avoid these issues.

## What VPC Configurations Do I Need?

When you use Amazon VPC with Elastic Beanstalk, you can launch Elastic Beanstalk resources, such as Amazon EC2 instances, in a public or private subnet. The subnets that you require depend on your Elastic Beanstalk application environment type and whether the resources you launch are public or private. The following scenarios discuss sample VPC configurations that you might use for a particular environment.

#### Topics

- [Single-instance environments \(p. 391\)](#)
- [Load-balancing, autoscaling environments \(p. 391\)](#)
- [Extend your own network into AWS \(p. 392\)](#)

## Single-instance environments

For single-instance environments, Elastic Beanstalk assigns an Elastic IP address (a static, public IP address) to the instance so that it can communicate directly with the Internet. No additional network interface, such as a network address translator (NAT), is required for a single-instance environment.

If you have a single-instance environment without any associated private resources, such as a back-end Amazon RDS DB instance, create a VPC with one public subnet, and include the instance in that subnet. For more information, see [Example: Launching a Single-Instance Environment without Any Associated Private Resources in a VPC \(p. 392\)](#).

If you have resources that you don't want public, create a VPC with one public subnet and one private subnet. Add all of your public resources, such as the single Amazon EC2 instance, in the public subnet, and add private resources such as a back-end Amazon RDS DB instance in the private subnet. If you do launch an Amazon RDS DB instance in a VPC, you must create at least two different private subnets that are in different Availability Zones (an Amazon RDS requirement).

## Load-balancing, autoscaling environments

For load-balancing, autoscaling environments, you can either create a public and private subnet for your VPC, or use a single public subnet. In the case of a load-balancing, autoscaling environment, with both a public and private subnet, Amazon EC2 instances in the private subnet require Internet connectivity. Consider the following scenarios:

#### Scenarios

- [You want your Amazon EC2 instances to have a private IP address \(p. 391\)](#)
- [You have resources that are private \(p. 392\)](#)
- [You don't have any private resources \(p. 392\)](#)
- [You require direct access to your Amazon EC2 instances in a private subnet \(p. 392\)](#)

### You want your Amazon EC2 instances to have a private IP address

Create a public and private subnet for your VPC in each Availability Zone (an Elastic Beanstalk requirement). Then add your public resources, such as the load balancer and NAT, to the public subnet. Elastic Beanstalk assigns them a unique Elastic IP addresses (a static, public IP address). Launch your Amazon EC2 instances in the private subnet so that Elastic Beanstalk assigns them private IP addresses.

Without a public IP address, an Amazon EC2 instance can't directly communicate with the Internet. Although Amazon EC2 instances in a private subnet can't send outbound traffic by default, neither can they receive unsolicited inbound connections from the Internet.

To enable communication between the private subnet, and the public subnet and the Internet beyond the public subnet, create routing rules that do the following:

- Route all inbound traffic to your Amazon EC2 instances through the load balancer.
- Route all outbound traffic from your Amazon EC2 instances through the NAT device.

## You have resources that are private

If you have associated resources that are private, such as a back-end Amazon RDS DB instance, launch the resources in private subnets.

### Note

Amazon RDS requires at least two subnets, each in a separate Availability Zone. For more information, see [Example: Launching an Elastic Beanstalk in a VPC with Amazon RDS](#) (p. 404).

## You don't have any private resources

You can create a single public subnet for your VPC. If you want to use a single public subnet, you must choose the **Associate Public IP Address** option to add the load balancer and your Amazon EC2 instances to the public subnet. Elastic Beanstalk assigns a public IP address to each Amazon EC2 instance, and eliminates the need for a NAT device to allow the instances to communicate with the Internet.

For more information, see [Example: Launching a Load-Balancing, Autoscaling Environment with Public and Private Resources in a VPC](#) (p. 396).

## You require direct access to your Amazon EC2 instances in a private subnet

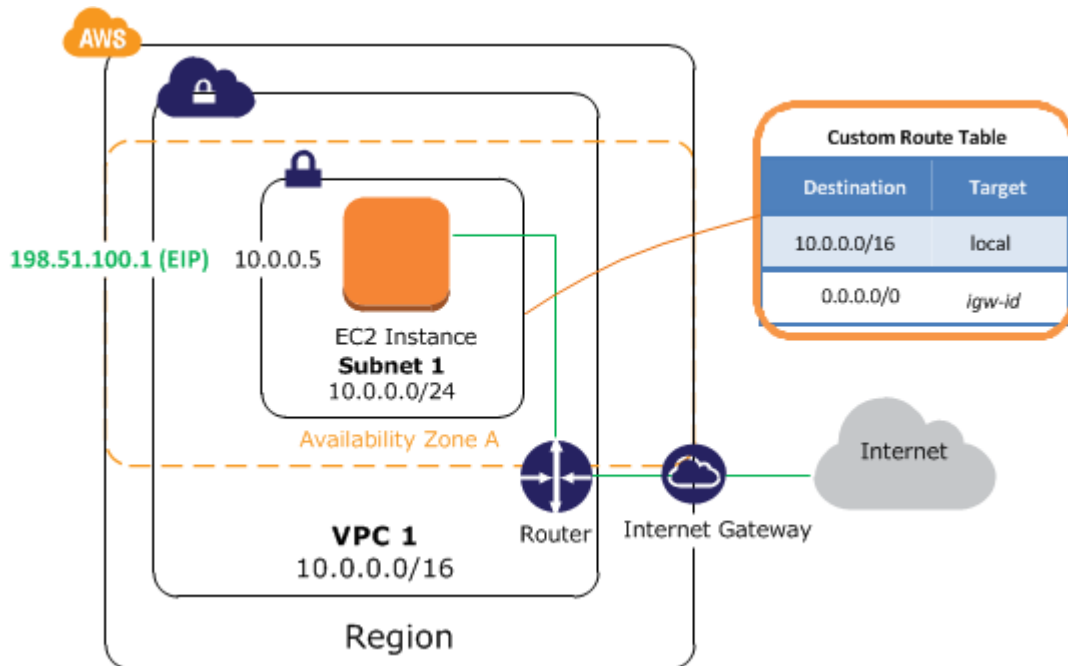
If you require direct access to your Amazon EC2 instances in a private subnet (for example, if you want to use SSH to sign in to an instance), create a bastion host in the public subnet that proxies requests from the Internet. From the Internet, you can connect to your instances by using the bastion host. For more information, see [Example: Launching an Elastic Beanstalk Application in a VPC with Bastion Hosts](#) (p. 401).

## Extend your own network into AWS

If you want to extend your own network into the cloud and also directly access the Internet from your VPC, create a VPN gateway. For more information about creating a VPN Gateway, see [Scenario 3: VPC with Public and Private Subnets and Hardware VPN Access](#) in the *Amazon VPC User Guide*.

## Example: Launching a Single-Instance Environment without Any Associated Private Resources in a VPC

You can deploy an Elastic Beanstalk application in a public subnet. Use this configuration if you just have a single instance without any private resources that are associated with the instance, such as an Amazon RDS DB instance that you don't want publicly accessible. Elastic Beanstalk assigns an Elastic IP address to the instance so that it can access the Internet through the VPC Internet gateway.



To deploy a single-instance Elastic Beanstalk application inside a VPC, you need to complete the following:

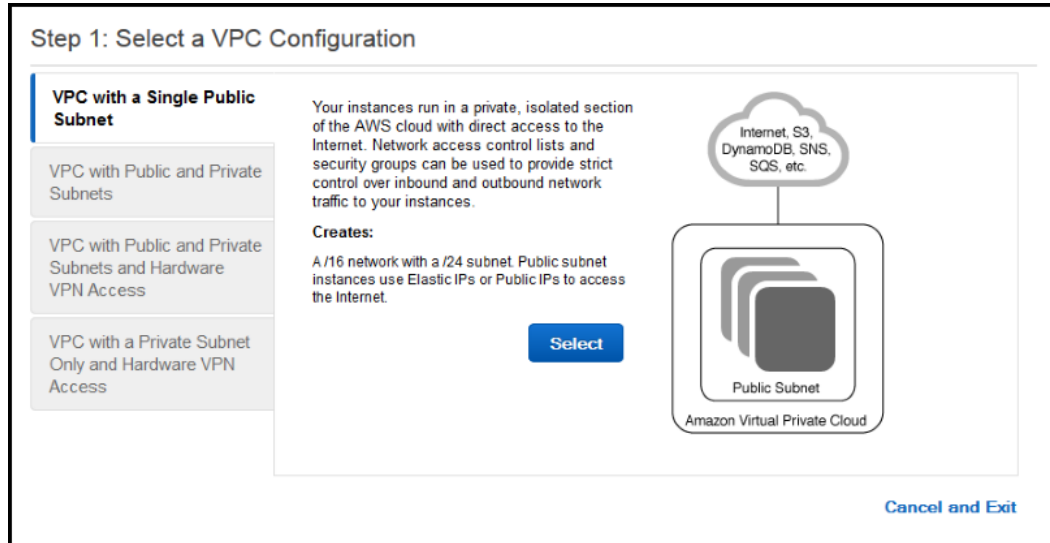
#### Topics

- [Create a VPC with a Public Subnet \(p. 393\)](#)
- [Deploy to Elastic Beanstalk \(p. 395\)](#)

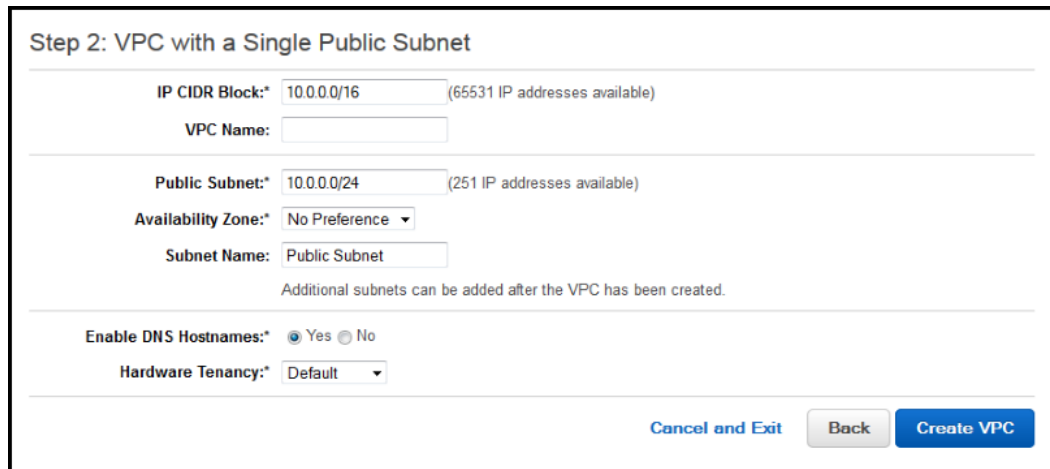
## Create a VPC with a Public Subnet

### To create a VPC

1. Sign in to the AWS Management Console and open the Amazon VPC console at <https://console.aws.amazon.com/vpc/>.
2. In the navigation pane, choose **VPC Dashboard** and then choose **Start VPC Wizard**.
3. Select **VPC with a Single Public Subnet** and then choose **Select**.



A confirmation page shows the CIDR blocks used for the VPC and subnet. The page also shows the subnet and the associated Availability Zone.

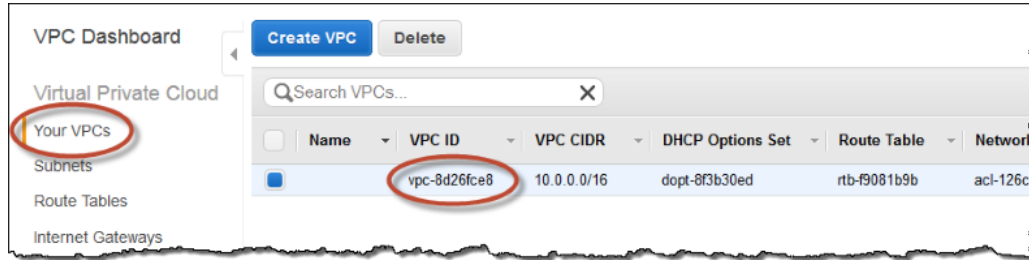


4. Choose **Create VPC**.

AWS creates your VPC, subnet, Internet gateway, and route table. Choose **OK** to exit the wizard.

After AWS successfully creates the VPC, it assigns the VPC a VPC ID. You will need this for this for the next step. To view your VPC ID, choose **Your VPCs** in the left pane of the [Amazon VPC console](#).





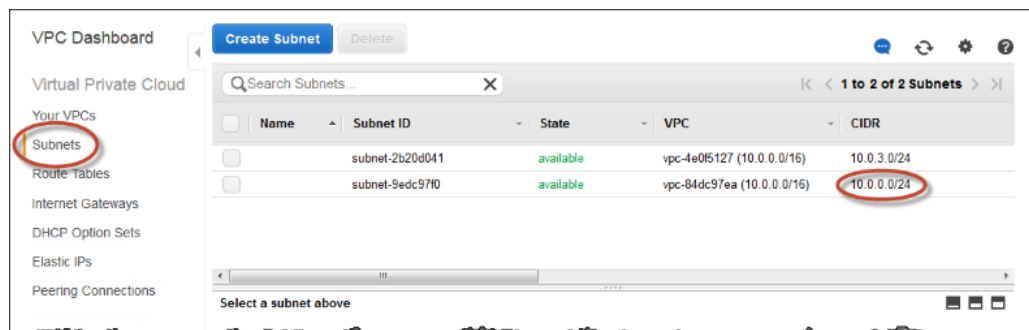
## Deploy to Elastic Beanstalk

After you set up your VPC, you can create your environment inside your VPC and deploy your application to Elastic Beanstalk. You can do this using the Elastic Beanstalk console, or you can use the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API. If you use the Elastic Beanstalk console, you just need to upload your `.war` or `.zip` file and select the VPC settings inside the wizard. Elastic Beanstalk then creates your environment inside your VPC and deploys your application. Alternatively, you can use the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API to deploy your application. To do this, you need to define your VPC option settings in a configuration file and deploy this file with your source bundle. This topic provides instructions for both methods.

### Deploying with the Elastic Beanstalk Console

When you create an Elastic Beanstalk application or launch an environment, the Elastic Beanstalk console walks you through creating your environment inside a VPC. For more information, see [Managing and Configuring AWS Elastic Beanstalk Applications \(p. 36\)](#).

You'll need to select the VPC ID and subnet ID for your instance. By default, VPC creates a public subnet using 10.0.0.0/24. You can view your subnet IDs by choosing **Subnets** in the [Amazon VPC console](#).



### Deploying with the AWS Toolkits, Eb, CLI, or API

When deploying your application to Elastic Beanstalk using the AWS toolkits, the EB CLI, the AWS CLI, or API, you can specify your VPC option settings in a file and deploy it with your source bundle. See [Advanced Environment Customization with Configuration Files \(.ebextensions\) \(p. 178\)](#) for more information.

#### **aws:ec2:vpc (p. 155) Namespace:**

##### VPCId

The identifier of your VPC.



### Note

In this configuration, you cannot connect to your instances remotely because the instances are located in a private subnet. If you need to be able to connect to your instances, and your instances must be in a private subnet, you must implement a bastion host as described in [Example: Launching an Elastic Beanstalk Application in a VPC with Bastion Hosts \(p. 401\)](#).

To deploy an Elastic Beanstalk application inside a VPC using a NAT gateway, you need to complete the following:

### Topics

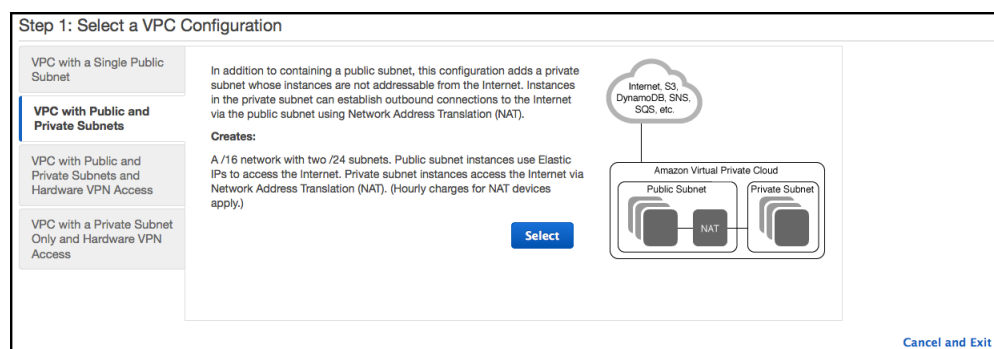
- [Create a VPC with a Public and Private Subnet \(p. 397\)](#)
- [Create a Security Group for Your Instances \(p. 398\)](#)
- [Deploy to Elastic Beanstalk \(p. 398\)](#)

## Create a VPC with a Public and Private Subnet

You can use the [Amazon VPC console](#) to create a VPC.

### To create a VPC

1. Sign in to the [Amazon VPC console](#).
2. In the navigation pane, choose **VPC Dashboard**. Then choose **Start VPC Wizard**.
3. Choose **VPC with Public and Private Subnets** and then choose **Select**.



4. Your Elastic Load Balancing load balancer and your Amazon EC2 instances must be in the same Availability Zone so they can communicate with each other. Choose the same Availability Zone from each **Availability Zone** list.

Step 2: VPC with Public and Private Subnets

IP CIDR block: 10.0.0.0/16 (65531 IP addresses available)

VPC name:

Public subnet: 10.0.0.0/24 (251 IP addresses available)

Availability Zone: No Preference

Public subnet name: public subnet

Private subnet: 10.0.1.0/24 (251 IP addresses available)

Availability Zone: No Preference

Private subnet name: private subnet

You can add more subnets after AWS creates the VPC.

Specify the details of your NAT gateway (NAT gateway rates apply). Use a NAT instance instead

Elastic IP Allocation ID:

Enable DNS hostnames: Yes No

Hardware tenancy: Default

Enable ClassicLink: Yes No

Cancel and Exit Back Create VPC

5. Choose an Elastic IP address for your NAT gateway.

6. Choose **Create VPC**.

The wizard begins to create your VPC, subnets, and Internet gateway. It also updates the main route table and creates a custom route table. Finally, the wizard creates a NAT gateway in the public subnet.

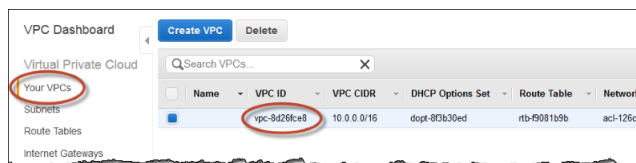
**Note**

You can choose to launch a NAT instance in the public subnet instead of a NAT gateway. For more information, see [Scenario 2: VPC with Public and Private Subnets \(NAT\)](#) in the *Amazon VPC User Guide*.

<step>

After the VPC is successfully created, you will get a VPC ID. You will need this for this for the next step. To view your VPC ID, choose **Your VPCs** in the left pane of the [Amazon VPC console](#).

</step>



## Create a Security Group for Your Instances

You can optionally create a security group for your Elastic Beanstalk instances. You can add rules to the security group to control inbound and outbound traffic for the instances associated with that security group. To create a security group, perform the following procedure. You should give this security group a meaningful name, such as `Instance Group`, that will allow you to easily identify the security group later. For more information about security groups, see [Security Groups for Your VPC](#) in the *Amazon VPC User Guide*.

### To create a new security group

1. Open the Amazon VPC console at <https://console.aws.amazon.com/vpc/>.
2. In the navigation pane, choose **Security Groups**.
3. Choose **Create Security Group**.
4. In the **Create Security Group** dialog box, enter the following and choose **Yes, Create**.

**Name tag** (Optional)

Enter a name tag for the security group.

**Group name**

Enter the name of the security group.

**Description**

Enter a description for the security group.

**VPC**

Select your VPC.

The security group is created and appears on the **Security Groups** page. Notice that it has an ID (e.g., `sg-xxxxxxxx`). You might have to turn on the **Group ID** column by clicking **Show/Hide** in the top right corner of the page.

## Deploy to Elastic Beanstalk

After you set up your VPC, you can create your environment inside your VPC and deploy your application to Elastic Beanstalk. You can do this using the Elastic Beanstalk console, or you can use

the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API. If you use the Elastic Beanstalk console, you just need to upload your `.war` or `.zip` file and select the VPC settings inside the wizard. Elastic Beanstalk then creates your environment inside your VPC and deploys your application. Alternatively, you can use the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API to deploy your application. To do this, you need to define your VPC option settings in a configuration file and deploy this file with your source bundle. This topic provides instructions for both methods.

#### Topics

- [Deploying with the Elastic Beanstalk Console \(p. 399\)](#)
- [Deploying with the AWS Toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API \(p. 399\)](#)

## Deploying with the Elastic Beanstalk Console

The Elastic Beanstalk console walks you through creating your new environment inside your VPC. You need to provide a `.war` file (for Java applications) or a `.zip` file (for all other applications). In the **VPC Configuration** page of the Elastic Beanstalk environment wizard, you will need to make the following selections:

#### VPC

Select your VPC

#### VPC security group

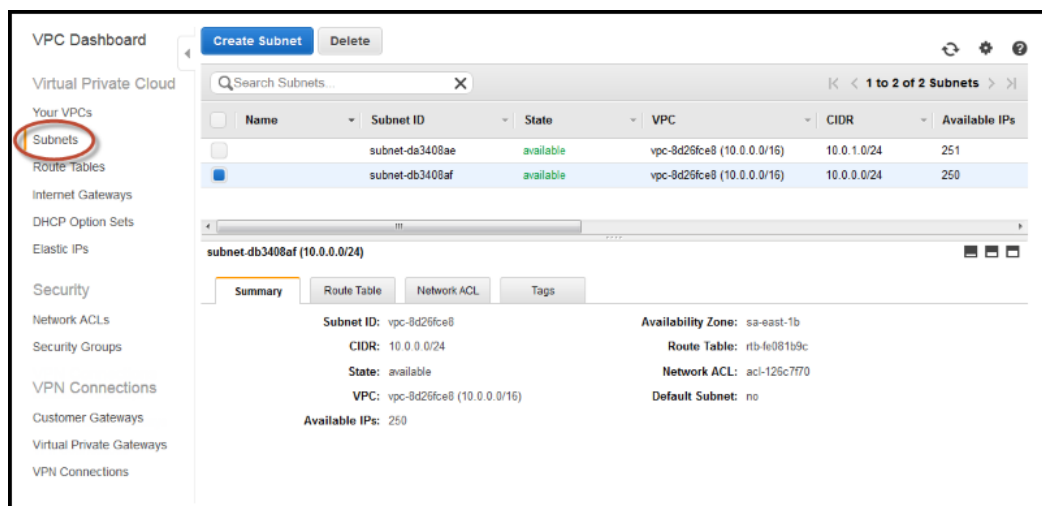
Select the instance security group you created above.

#### ELB visibility

Select `External` if your load balancer should be publicly available, or select `Internal` if the load balancer should only be available within your VPC.

Select the subnets for your load balancer and EC2 instances. Make sure you select the public subnet for the load balancer, and the private subnet for your Amazon EC2 instances. By default, the VPC creation wizard creates the public subnet in `10.0.0.0/24` and the private subnet in `10.0.1.0/24`.

You can view your subnet IDs by choosing **Subnets** in the [Amazon VPC console](#).



## Deploying with the AWS Toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API

When deploying your application to Elastic Beanstalk using the AWS toolkits, the EB CLI, the AWS CLI, or API, you can specify your VPC option settings in a file and deploy it with your source bundle.

See [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178) for more information.

When you create your configuration file with your option settings, you need to specify the following configuration options:

**aws:autoscaling:launchconfiguration (p. 147) Namespace:**

**EC2KeyName**

The name of the Amazon EC2 key pair to apply to the instances.

**InstanceType**

The instance type used to run your application in the environment.

The instance types available depend on platform, solution stack (configuration) and region. To get a list of available instance types for your solution stack of choice, use the [DescribeConfigurationOptions](#) action in the API, [describe-configuration-options](#) command in the [AWS CLI](#).

**SecurityGroups**

The identifier(s) of the security group(s) to apply to the instances. In this example, this will be the identifier of the security group you created in [Create a Security Group for Your Instances](#) (p. 398). If you did not create a security group, you can use the default security group for your VPC.

You can specify multiple identifiers by separating them with a comma.

**aws:ec2:vpc (p. 155) Namespace:**

**VPCId**

The identifier of your VPC.

**Subnets**

The identifier(s) of the subnet(s) to launch the instances in. In this example, this is the ID of the private subnet.

You can specify multiple identifiers by separating them with a comma.

**ELBSubnets**

The identifier(s) of the subnet(s) for the load balancer. In this example, this is the ID of the public subnet.

You can specify multiple identifiers by separating them with a comma.

**ELBScheme (Optional)**

Specify `internal` if you want to create an internal load balancer inside your VPC so that your Elastic Beanstalk application cannot be accessed from outside your VPC.

**DBSubnets (Optional)**

Contains the identifiers of the Amazon RDS DB subnets. This is only used if you want to add an Amazon RDS DB Instance as part of your application. For an example, see [Example: Launching an Elastic Beanstalk in a VPC with Amazon RDS](#) (p. 404).

**Note**

When using `DBSubnets`, you need to create additional subnets in your VPC to cover all the Availability Zones in the region.

The following is an example of the option settings you could set when deploying your Elastic Beanstalk application inside a VPC.

```
option_settings:
```



## Create a VPC with a Public and Private Subnet

Complete all of the procedures in [Example: Launching a Load-Balancing, Autoscaling Environment with Public and Private Resources in a VPC](#) (p. 396), including deployment of your application.

When deploying the application, you must specify an Amazon EC2 key pair for the instances so you can connect to them remotely. For more information about how to specify the instance key pair, see [Configuring the EC2 Instances in your Elastic Beanstalk Environment](#) (p. 230).

## Create and Configure the Bastion Host Security Group

Create a security group for the bastion host, and add rules that allow inbound SSH traffic from the Internet, and outbound SSH traffic to the private subnet that contains the Amazon EC2 instances.

1. Create the bastion host security group.

### To create a new security group

1. Open the Amazon VPC console at <https://console.aws.amazon.com/vpc/>.
2. In the navigation pane, choose **Security Groups**.
3. Choose **Create Security Group**.
4. In the **Create Security Group** dialog box, enter the following and choose **Yes, Create**.

#### Name tag (Optional)

Enter a name tag for the security group.

#### Group name

Enter the name of the security group.

#### Description

Enter a description for the security group.

#### VPC

Select your VPC.

The security group is created and appears on the **Security Groups** page. Notice that it has an ID (e.g., `sg-xxxxxxxx`). You might have to turn on the **Group ID** column by clicking **Show/Hide** in the top right corner of the page.

2. Configure the bastion host security group.

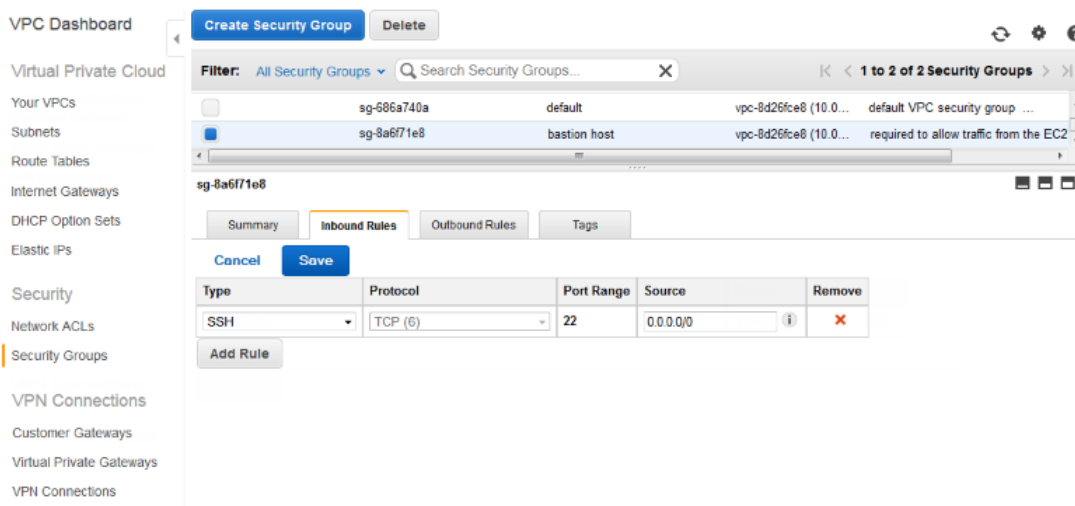
### To update the security group for the bastion host

1. In the list of security groups, select the check box for the security group you just created for your bastion host.
2. On the **Inbound** tab, choose **Edit**.
3. If needed, choose **Add another rule**.
4. If your bastion host is a Linux instance, under **Type**, select **SSH**.

If your bastion host is a Windows instance, under **Type**, select **RDP**.

5. Enter the desired source CIDR range in the **Source** field and choose **Save**.





## Update the Instance Security Group

By default, the security group you created for your instances does not allow incoming traffic. While Elastic Beanstalk will modify the default group for the instances to allow SSH traffic, you must modify your custom instance security group to allow RDP traffic if your instances are Windows instances.

### To update the instance security group for RDP

1. In the list of security groups, select the check box for the instance security group.
2. On the **Inbound** tab, choose **Edit**.
3. If needed, choose **Add another rule**.
4. Enter the following values, and choose **Save**.

**Type**

RDP

**Protocol**

TCP

**Port Range**

3389

**Source**

Enter the ID of the bastion host security group (e.g., `sg-8a6f71e8`) and choose **Save**.

## Create a Bastion Host

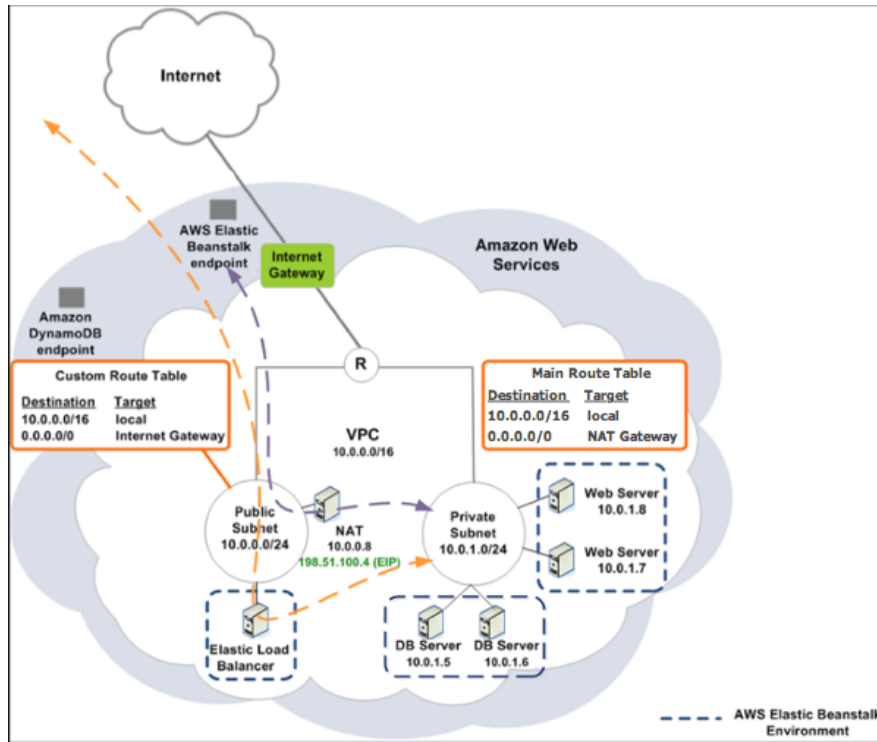
To create a bastion host, you launch an Amazon EC2 instance in your public subnet that will act as the bastion host.

For more information about setting up a bastion host for Windows instances in the private subnet, see [Controlling Network Access to EC2 Instances Using a Bastion Server](#).

For more information about setting up a bastion host for Linux instances in the private subnet, see [Securely connect to Linux instances running in a private Amazon VPC](#).

## Example: Launching an Elastic Beanstalk in a VPC with Amazon RDS

This topic walks you through deploying an Elastic Beanstalk application with Amazon RDS in a VPC using a NAT gateway. Your infrastructure will look similar to the following diagram:



### Note

If you haven't used a DB instance with your application before, try [adding one to a test environment \(p. 243\)](#), and [connecting to an external DB instance \(p. 380\)](#) before adding VPC configuration to the mix.

To deploy an Elastic Beanstalk application with Amazon RDS inside a VPC using a NAT gateway, you need to complete the following:

### Topics

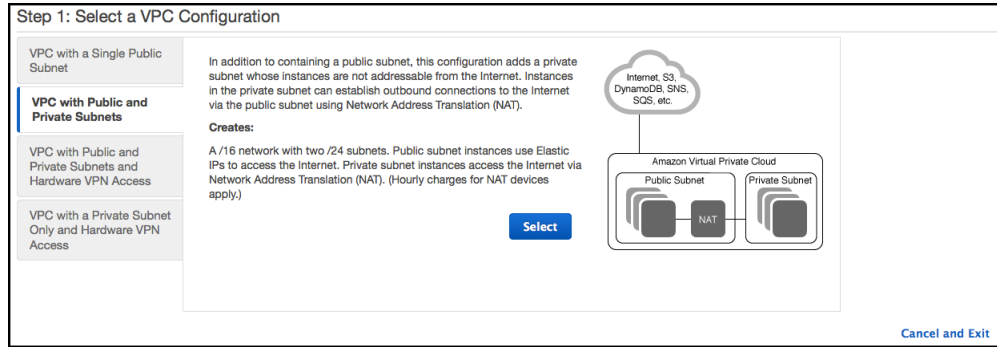
- [Create a VPC with a Public and Private Subnet \(p. 404\)](#)
- [Create a DB Subnet Group \(p. 406\)](#)
- [Deploy to Elastic Beanstalk \(p. 406\)](#)

## Create a VPC with a Public and Private Subnet

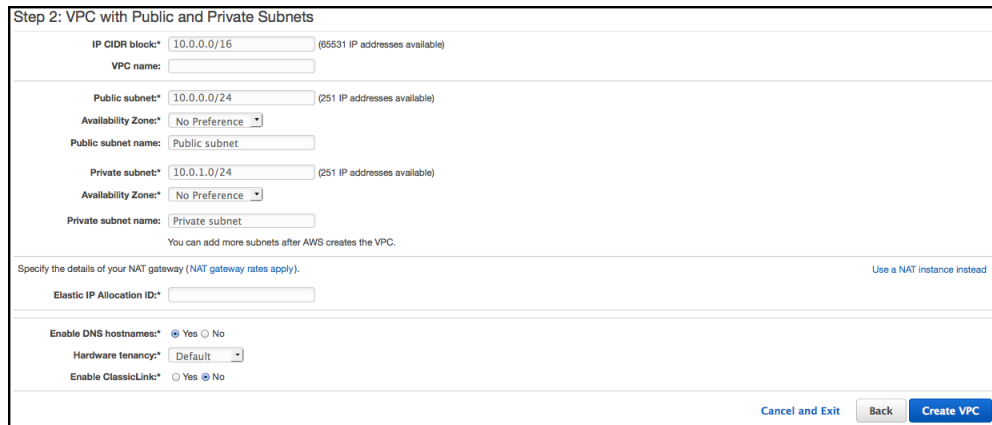
You can use the [Amazon VPC console](#) to create a VPC.

### To create a VPC

1. Sign in to the [Amazon VPC console](#).
2. In the navigation pane, choose **VPC Dashboard**. Then choose **Start VPC Wizard**.
3. Choose **VPC with Public and Private Subnets** and then choose **Select**.



4. Your Elastic Load Balancing load balancer and your Amazon EC2 instances must be in the same Availability Zone so they can communicate with each other. Choose the same Availability Zone from each **Availability Zone** list.



5. Choose an Elastic IP address for your NAT gateway.
6. Choose **Create VPC**.

The wizard begins to create your VPC, subnets, and Internet gateway. It also updates the main route table and creates a custom route table. Finally, the wizard creates a NAT gateway in the public subnet.

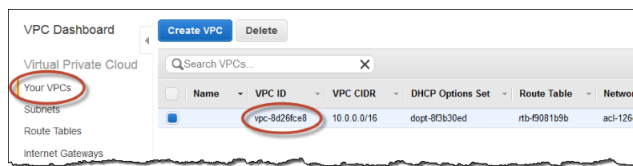
### Note

You can choose to launch a NAT instance in the public subnet instead of a NAT gateway. For more information, see [Scenario 2: VPC with Public and Private Subnets \(NAT\)](#) in the *Amazon VPC User Guide*.

<step>

After the VPC is successfully created, you will get a VPC ID. You will need this for this for the next step. To view your VPC ID, choose **Your VPCs** in the left pane of the Amazon VPC console.

</step>



## Create a DB Subnet Group

A DB Subnet Group for a VPC is a collection of subnets (typically private) that you may want to designate for your back-end RDS DB Instances. Each DB Subnet Group should have at least one subnet for every Availability Zone in a given region.

### Create a DB subnet group

1. Open the Amazon RDS console at <https://console.aws.amazon.com/rds/>.
2. In the navigation pane, click **Subnet Groups**.
3. Click **Create DB Subnet Group**.
4. Click **Name**, and then type the name of your DB Subnet Group.
5. Click **Description**, and then describe your DB Subnet Group.
6. Next to **VPC ID**, select the ID of the VPC that you created.
7. Click the **add all the subnets** link in the **Add Subnet(s) to this Subnet Group** section.

RDS Dashboard

### Create DB Subnet Group

To create a new Subnet Group give it a name, description, and select an existing VPC below. Once you select an existing VPC, you will be able to add subnets related to that VPC.

Name:

Description:

VPC ID:

Add Subnet(s) to this Subnet Group. You may add subnets one at a time below or [add all the subnets](#) related to this VPC. You may make additions/edits after this group is created.

Availability Zone:

Subnet ID:

| Availability Zone | Subnet ID       | CIDR Block  | Action                 |
|-------------------|-----------------|-------------|------------------------|
| sa-east-1b        | subnet-da3408ae | 10.0.1.0/24 | <a href="#">Remove</a> |
| sa-east-1b        | subnet-db3408af | 10.0.0.0/24 | <a href="#">Remove</a> |

8. When you are finished, click **Yes, Create**.
9. In the confirmation window, click **Close**.

Your new DB Subnet Group appears in the DB Subnet Groups list of the RDS console. You can click it to see details, such as all of the subnets associated with this group, in the details pane at the bottom of the window.

## Deploy to Elastic Beanstalk

After you set up your VPC, you can create your environment inside your VPC and deploy your application to Elastic Beanstalk. You can do this using the Elastic Beanstalk console, or you can use the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API. If you use the Elastic Beanstalk console, you just need to upload your `.war` or `.zip` file and select the VPC settings inside the wizard. Elastic Beanstalk then creates your environment inside your VPC and deploys your application. Alternatively, you can use the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API to deploy your application. To do this, you need to define your VPC option settings in a configuration file and deploy this file with your source bundle. This topic provides instructions for both methods.

### Deploying with the Elastic Beanstalk Console

The Elastic Beanstalk console walks you through creating your new environment inside your VPC. You need to provide a `.war` file (for Java applications) or a `.zip` file (for all other applications). In the **VPC Configuration** page of the Elastic Beanstalk environment wizard, you will need to make the following selections:

## VPC

Select your VPC

## VPC security group

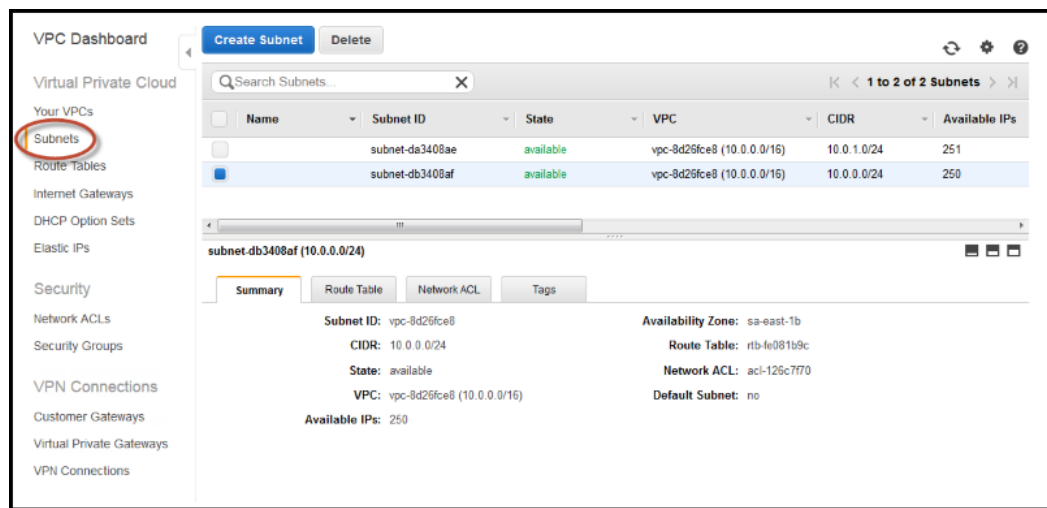
Select the instance security group you created above.

## ELB visibility

Select `External` if your load balancer should be publicly available, or select `Internal` if the load balancer should only be available within your VPC.

Select the subnets for your load balancer and EC2 instances. Make sure you select the public subnet for the load balancer, and the private subnet for your Amazon EC2 instances. By default, the VPC creation wizard creates the public subnet in `10.0.0.0/24` and the private subnet in `10.0.1.0/24`.

You can view your subnet IDs by choosing **Subnets** in the [Amazon VPC console](#).



## Deploying with the AWS Toolkits, Eb, CLI, or API

When deploying your application to Elastic Beanstalk using the AWS toolkits, the EB CLI, the AWS CLI, or API, you can specify your VPC option settings in a file and deploy it with your source bundle. See [Advanced Environment Customization with Configuration Files \(.ebextensions\) \(p. 178\)](#) for more information.

When you update the option settings, you will need to specify at least the following:

- **VPCId**—Contains the ID of the VPC.
- **Subnets**—Contains the ID of the Auto Scaling group subnet. In this example, this is the ID of the private subnet.
- **ELBSubnets**—Contains the ID of the subnet for the elastic load balancer. In this example, this is the ID of the public subnet.
- **SecurityGroups**—Contains the ID of the security groups.
- **DBSubnets**—Contains the ID of the DB subnets.

### Note

When using `DBSubnets`, you need to create additional subnets in your VPC to cover all the Availability Zones in the region.

Optionally, you can also specify the following information:

- **ELBScheme** — Specify `internal` if you want to create an internal load balancer inside your VPC so that your Elastic Beanstalk application cannot be accessed from outside your VPC.

The following is an example of the option settings you could use when deploying your Elastic Beanstalk application inside a VPC. For more information about VPC option settings (including examples for how to specify them, default values, and valid values), see the **aws:ec2:vpc** namespace table in [Configuration Options \(p. 131\)](#).

```
option_settings:
- namespace: aws:autoscaling:launchconfiguration
 option_name: EC2KeyName
 value: ec2keypair

- namespace: aws:ec2:vpc
 option_name: VPCId
 value: vpc-170647c

- namespace: aws:ec2:vpc
 option_name: Subnets
 value: subnet-4f195024

- namespace: aws:ec2:vpc
 option_name: ELBSubnets
 value: subnet-fe064f95

- namespace: aws:ec2:vpc
 option_name: DBSubnets
 value: subnet-fg148g78

- namespace: aws:autoscaling:launchconfiguration
 option_name: InstanceType
 value: m1.small

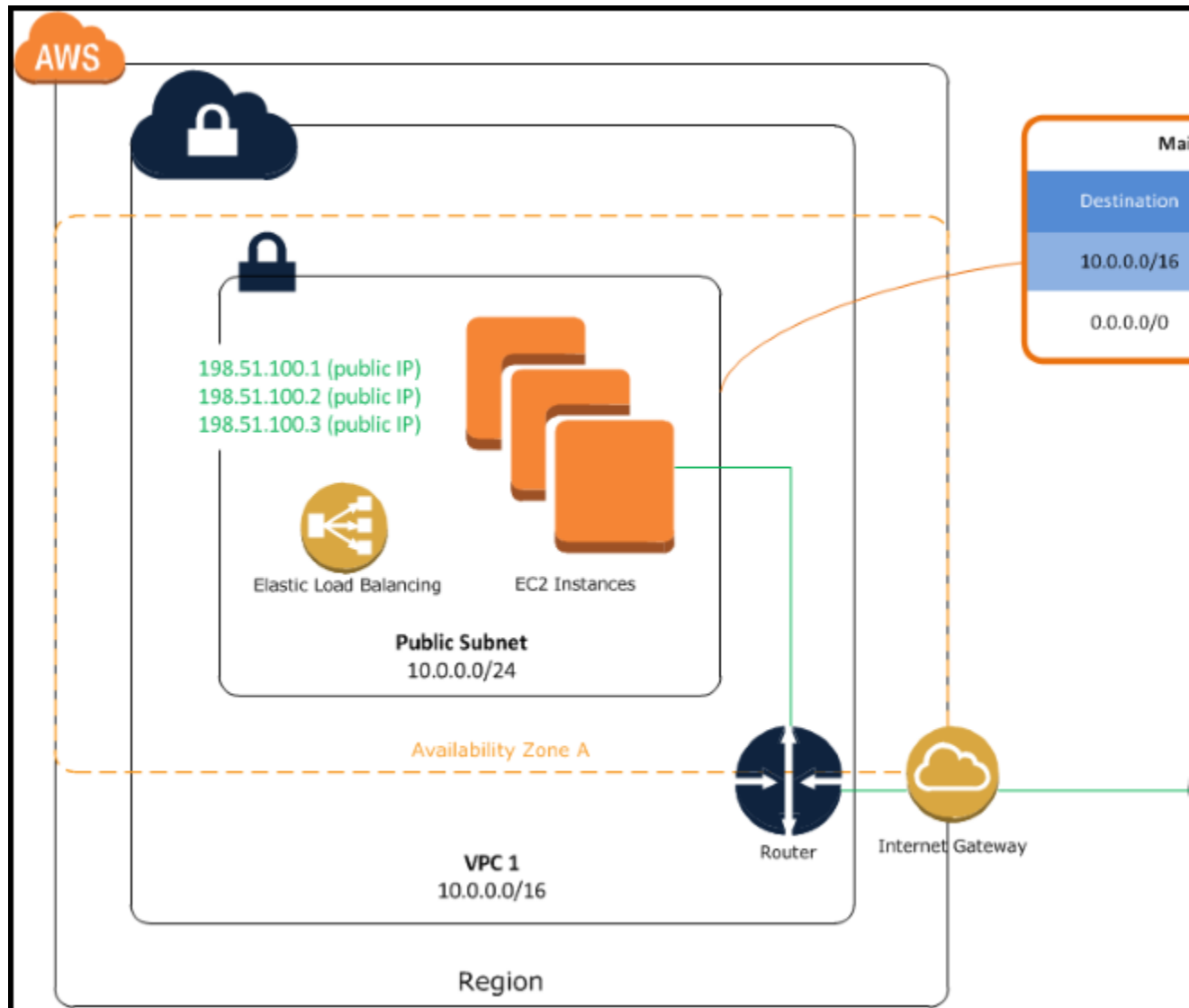
- namespace: aws:autoscaling:launchconfiguration
 option_name: SecurityGroups
 value: sg-7f1ef110
```

**Note**

When using DBSubnets, make sure you have subnets in your VPC to cover all the Availability Zones in the region.

## Example: Launching a Load-Balancing, Autoscaling Environment with Public Instances in a VPC

You can deploy an Elastic Beanstalk application in a load balancing, autoscaling environment in a single public subnet. Use this configuration if you have a single public subnet without any private resources associated with your Amazon EC2 instances. In this configuration, Elastic Beanstalk assigns public IP addresses to the Amazon EC2 instances so that each can directly access the Internet through the VPC Internet gateway. You do not need to create a network address translation (NAT) configuration in your VPC.



To deploy an Elastic Beanstalk application in a load balancing, autoscaling environment in a single public subnet, you need to complete the following:

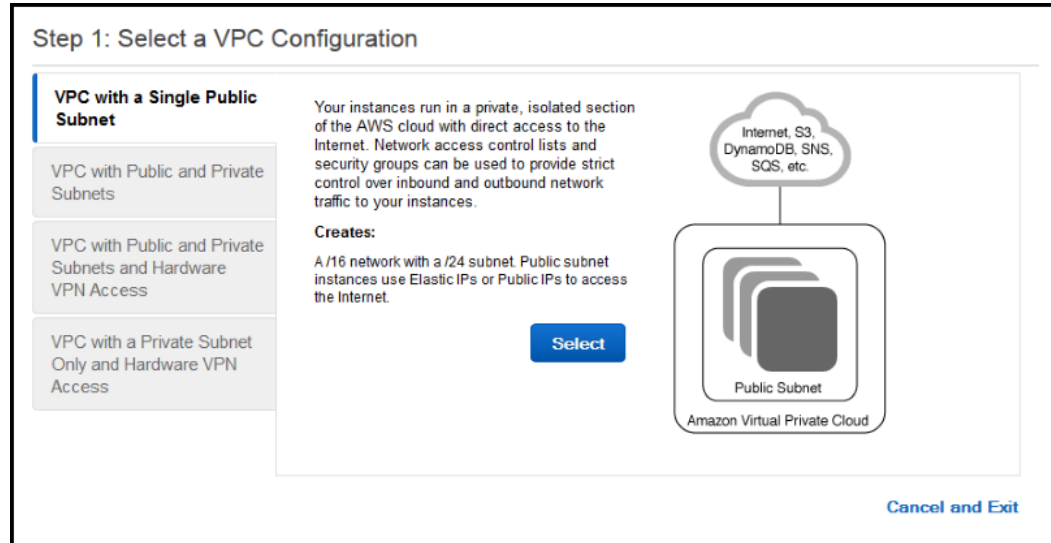
#### Topics

- [Create a VPC with a Public Subnet \(p. 409\)](#)
- [Deploy to Elastic Beanstalk \(p. 411\)](#)

## Create a VPC with a Public Subnet

### To create a VPC

1. Sign in to the AWS Management Console and open the Amazon VPC console at <https://console.aws.amazon.com/vpc/>.
2. In the navigation pane, choose **VPC Dashboard** and then choose **Start VPC Wizard**.
3. Select **VPC with a Single Public Subnet** and then choose **Select**.



A confirmation page shows the CIDR blocks used for the VPC and subnet. The page also shows the subnet and the associated Availability Zone.

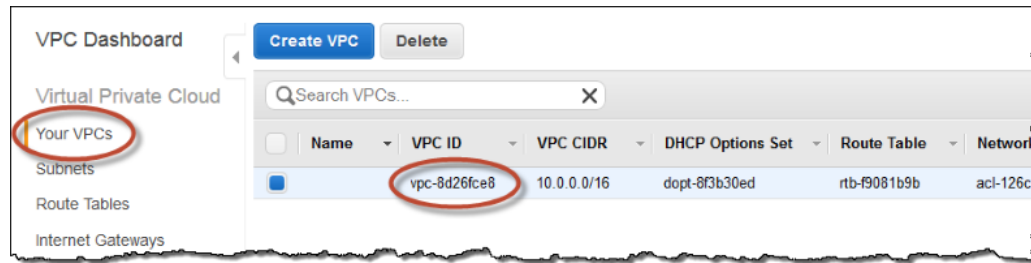


4. Choose **Create VPC**.

AWS creates your VPC, subnet, Internet gateway, and route table. Choose **OK** to exit the wizard.

After AWS successfully creates the VPC, it assigns the VPC a VPC ID. You will need this for this for the next step. To view your VPC ID, choose **Your VPCs** in the left pane of the [Amazon VPC console](#).





## Deploy to Elastic Beanstalk

After you set up your VPC, you can create your environment inside your VPC and deploy your application to Elastic Beanstalk. You can do this using the Elastic Beanstalk console, or you can use the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API. If you use the Elastic Beanstalk console, you just need to upload your `.war` or `.zip` file and select the VPC settings inside the wizard. Elastic Beanstalk then creates your environment inside your VPC and deploys your application. Alternatively, you can use the AWS toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API to deploy your application. To do this, you need to define your VPC option settings in a configuration file and deploy this file with your source bundle. This topic provides instructions for both methods.

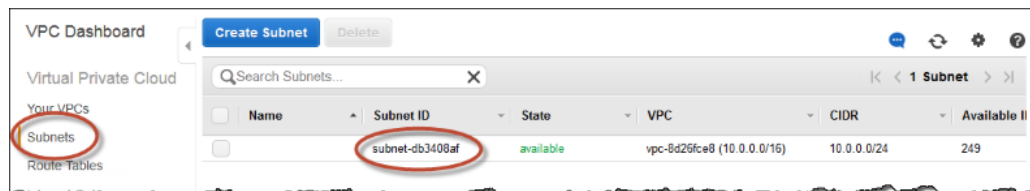
### Topics

- [Deploying with the Elastic Beanstalk Console \(p. 411\)](#)
- [Deploying with the AWS Toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API \(p. 411\)](#)

## Deploying with the Elastic Beanstalk Console

When you create an Elastic Beanstalk application or launch an environment, the Elastic Beanstalk console walks you through creating your environment inside a VPC. For more information, see [Managing and Configuring AWS Elastic Beanstalk Applications \(p. 36\)](#).

You'll need to select the VPC ID and subnet ID for your instance. By default, VPC creates a public subnet using 10.0.0.0/24. You can view your subnet ID by clicking **Subnets** in the [Amazon VPC console](#).



## Deploying with the AWS Toolkits, AWS CLI, EB CLI, or Elastic Beanstalk API

When deploying your application to Elastic Beanstalk using the AWS toolkits, the EB CLI, the AWS CLI, or API, you can specify your VPC option settings in a file and deploy it with your source bundle. See [Advanced Environment Customization with Configuration Files \(.ebextensions\) \(p. 178\)](#) for more information.

When you create your configuration file with your option settings, you need to specify the following configuration options:

**aws:ec2:vpc (p. 155) Namespace:**

**VPCId**

The identifier of your VPC.

**Subnets**

The identifier(s) of the subnet(s) to launch the instances in.

You can specify multiple identifiers by separating them with a comma.

**AssociatePublicIpAddress**

Specifies whether to launch instances in your VPC with public IP addresses. Instances with public IP addresses do not require a NAT device to communicate with the Internet. You must set the value to `true` if you want to include your load balancer and instances in a single public subnet.

The following is an example of the option settings you could set when deploying your Elastic Beanstalk application inside a VPC.

```
option_settings:
 aws:ec2:vpc:
 VPCId: "vpc_id"
 Subnets: "instance_subnet, etc"
 AssociatePublicIpAddress: "true"
```

# Configuring your development environment for use with AWS Elastic Beanstalk

---

## Topics

- [Creating a Project Folder \(p. 413\)](#)
- [Setting Up Source Control \(p. 413\)](#)
- [Configuring a Remote Repository \(p. 414\)](#)
- [Installing the EB CLI \(p. 414\)](#)
- [Installing the AWS CLI \(p. 415\)](#)

## Creating a Project Folder

Create a folder for your project. You can store the folder anywhere on your local disk as long as you have permission to read from and write to it. Creating a folder in your user folder is acceptable. If you plan on working on multiple applications, create your project folders inside another folder named something like `workspace` or `projects` to keep everything organized:

```
workspace/
|-- my-first-app
`-- my-second-app
```

The contents of your project folder will vary depending on the web container or framework that your application uses.

## Setting Up Source Control

Set up source control to protect yourself from accidentally deleting files or code in your project folder, and for a way to revert changes that break your project.

If you don't have a source control system, consider Git, a free and easy-to-use option, and it integrates well with the Elastic Beanstalk Command Line Interface (CLI). Visit the [Git homepage](#) to install Git.

Follow the instructions on the Git website to install and configure Git, and then run `git init` in your project folder to set up a local repository:

```
~/workspace/my-first-app$ git init
Initialized empty Git repository in /home/local/username/workspace/my-first-app/.git/
```

As you add content to your project folder and update content, commit the changes to your Git repository:

```
~/workspace/my-first-app$ git add default.jsp
~/workspace/my-first-app$ git commit -m "add default JSP"
```

Every time you commit, you create a snapshot of your project that you can restore later if anything goes wrong. For much more information on Git commands and workflows, see the [Git documentation](#).

## Configuring a Remote Repository

What if your hard drive crashes, or you want to work on your project on a different computer? To back up your source code online and access it from any computer, configure a remote repository to which you can push your commits.

AWS CodeCommit lets you create a private repository in the AWS cloud, and is free in the [AWS Free Tier](#) for up to five AWS Identity and Access Management (IAM) users in your account. For pricing details, see [AWS CodeCommit Pricing](#).

Visit the [AWS CodeCommit User Guide](#) for instructions on getting set up.

GitHub is another popular option for storing your project code online. It lets you create a public online repository for free and also supports private repositories for a monthly charge. Sign up for GitHub at [github.com](#).

After you've created a remote repository for your project, attach it to your local repository with `git remote add`:

```
~/workspace/my-first-app$ git remote add origin ssh://git-codecommit.us-east-1.amazonaws.com/v1/repos/my-repo
```

## Installing the EB CLI

Use the [EB CLI \(p. 416\)](#) to manage your Elastic Beanstalk environments and monitor health from the command line. See [Install the EB CLI \(p. 417\)](#) for installation instructions.

By default, the EB CLI packages everything in your project folder and uploads it to Elastic Beanstalk as a source bundle. When you use Git and the EB CLI together, you can prevent built class files from being committed to source with `.gitignore` and prevent source files from being deployed with `.ebignore`.

You can also [configure the EB CLI to deploy a build artifact \(p. 428\)](#) (a WAR or ZIP file) instead of the contents of your project folder.

## Installing the AWS CLI

The AWS Command Line Interface (AWS CLI) is a unified client for AWS services that provides commands for all public API operations. These commands are lower level than those provided by the EB CLI, so it often takes more commands to do an operation with the AWS CLI. On the other hand, the AWS CLI allows you to work with any application or environment running in your account without setting up a repository on your local machine. Use the AWS CLI to create scripts that simplify or automate operational tasks.

For more information about supported services and to download the AWS Command Line Interface, see [AWS Command Line Interface](#).

# The Elastic Beanstalk Command Line Interface (EB CLI)

The EB CLI is a command line interface for Elastic Beanstalk that provides interactive commands that simplify creating, updating and monitoring environments from a local repository. Use the EB CLI as part of your everyday development and testing cycle as an alternative to the AWS Management Console.

## Note

The current version of the EB CLI has a different base set of commands than versions prior to version 3.0. See [Eb CLI 2.6 \(deprecated\)](#) (p. 482) if you use an older version.

Once you've installed the EB CLI and configured a repository, you can create environments with a single command:

```
~/my-app$ eb create my-env
```

Previously, Elastic Beanstalk supported a separate CLI that provided direct access to API operations called the [Elastic Beanstalk API CLI](#) (p. 512). This has been replaced with the [AWS CLI](#) (p. 415), which provides the same functionality but for all AWS services' APIs.

With the AWS CLI you have direct access to the Elastic Beanstalk API. The AWS CLI is great for scripting, but is not as easy to use from the command line because of the number of commands that you need to run and the number of parameters on each command. For example, creating an environment requires a series of commands:

```
~$ aws elasticbeanstalk check-dns-availability --cname-prefix my-cname
~$ aws elasticbeanstalk create-application-version --application-name my-
application --version-label v1 --source-bundle S3Bucket=my-bucket,S3Key=php-
proxy-sample.zip
~$ aws elasticbeanstalk create-environment --cname-prefix my-cname --
application-name my-app --version-label v1 --environment-name my-env --
solution-stack-name "64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.2
(Passenger Standalone)"
```

For information about installing the EB CLI, configuring a repository, and working with environments, see the following topics:

## Topics

- [Install the Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 417)
- [Configure the EB CLI](#) (p. 425)

- [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#)
- [Using the EB CLI with Git \(p. 433\)](#)
- [Using the EB CLI with AWS CodeCommit \(p. 434\)](#)
- [Using the EB CLI to Monitor Environment Health \(p. 439\)](#)
- [Managing Multiple AWS Elastic Beanstalk Environments as a Group with the EB CLI \(p. 444\)](#)
- [Troubleshooting issues with the EB CLI \(p. 445\)](#)
- [EB CLI Command Reference \(p. 447\)](#)
- [Eb CLI 2.6 \(deprecated\) \(p. 482\)](#)
- [Elastic Beanstalk API Command Line Interface \(deprecated\) \(p. 512\)](#)

## Install the Elastic Beanstalk Command Line Interface (EB CLI)

The Elastic Beanstalk Command Line Interface (EB CLI) is a command line client that you can use to create, configure, and manage Elastic Beanstalk environments. The EB CLI is developed in Python and requires Python version 2.7, version 3.4, or newer.

### Note

Amazon Linux comes with Python 2.7 and pip starting with version 2015.03.

The primary distribution method for the EB CLI on Linux, Windows, and OS X is pip, a package manager for Python that provides an easy way to install, upgrade, and remove Python packages and their dependencies. For OS X, you can also get the latest version of the EB CLI with Homebrew.

If you already have pip and a supported version of Python, you can install the EB CLI with the following command:

```
$ pip install --upgrade --user awsebcli
```

The `--upgrade` option tells pip to upgrade any requirements that are already installed. The `--user` option tells pip to install the program to a subdirectory of your user directory to avoid modifying libraries used by your operating system.

### Note

If you encounter issues when you attempt to install the EB CLI with pip, you can [install the EB CLI in a virtual environment \(p. 424\)](#) to isolate the tool and its dependencies, or use a different version of Python than you normally do.

After you install the EB CLI, add the path to the executable file to your PATH variable:

**Linux** – `~/local/bin`

**OS X** – `~/Library/Python/3.4/bin`

### To modify your PATH variable (Linux, OS X, or Unix)

1. Find your shell's profile script in your user folder. If you are not sure which shell you have, run `echo $SHELL`.

```
$ ls -a ~
. .. .bash_logout .bash_profile .bashrc Desktop Documents Downloads
```

- **Bash** – `.bash_profile`, `.profile`, or `.bash_login`.

- **Zsh** – `.zshrc`
  - **Tcsh** – `.tcshrc`, `.cshrc` or `.login`.
2. Add an export command to profile script.

```
export PATH=~/.local/bin:$PATH
```

This command adds a path, `~/.local/bin` in this example, to the current PATH variable.

3. Load the profile into your current session.

```
$ source ~/.bash_profile
```

**Windows** – `%USERPROFILE%\AppData\Roaming\Python\Scripts`

### To modify your PATH variable (Windows)

1. Press the Windows key and type **environment variables**.
2. Choose **Edit environment variables for your account**.
3. Choose **PATH** and then choose **Edit**.
4. Add paths to the **Variable value** field, separated by semicolons. For example: `C:\existing\path;C:\new\path`
5. Choose **OK** twice to apply the new settings.
6. Close any running command prompts and re-open.

Verify that the EB CLI installed correctly by running `eb --version`.

```
$ eb --version
EB CLI 3.7.8 (Python 3.4.3)
```

The EB CLI is updated regularly to add functionality that supports [the latest Elastic Beanstalk features](#). To update to the latest version of the EB CLI, run the installation command again.

```
$ pip install --upgrade --user awsebcli
```

If you need to uninstall the EB CLI, use `pip uninstall`.

```
$ pip uninstall awsebcli
```

If you don't have Python and pip, use the procedure for your operating system:

#### Topics

- [Install Python, pip, and the EB CLI on Linux \(p. 418\)](#)
- [Install Python, pip, and the EB CLI on Windows \(p. 421\)](#)
- [Install the EB CLI on OS X \(p. 423\)](#)
- [Install the EB CLI in a Virtual Environment \(p. 424\)](#)

## Install Python, pip, and the EB CLI on Linux

The EB CLI requires Python 2.7 or 3.4+. If your distribution did not come with Python, or came with an older version, install Python before installing pip and the EB CLI.



## To install Python 3.4 on Linux

1. Check to see if Python is already installed:

```
$ python --version
```

### Note

If your Linux distribution came with Python, you may need to install the Python developer package in order to get the headers and libraries required to compile extensions and install the EB CLI. Install the developer package (typically named `python-dev` or `python-devel`) using your package manager.

2. If Python 2.7 or later is not installed, install Python 3.4 with your distribution's package manager. The command and package name varies:

- On Debian derivatives such as Ubuntu, use APT:

```
$ sudo apt-get install python3.4
```

- On Red Hat and derivatives, use yum:

```
$ sudo yum install python34
```

- On SUSE and derivatives, use zypper:

```
$ sudo zypper install python3-3.4.1
```

3. Open a command prompt or shell and run the following command to verify that Python installed correctly:

```
$ python3 --version
Python 3.4.3
```

Install pip by using the script provided by the Python Packaging Authority, and then install the EB CLI.

## To install pip and the EB CLI

1. Download the installation script from [pypa.io](https://bootstrap.pypa.io/get-pip.py):

```
$ curl -O https://bootstrap.pypa.io/get-pip.py
```

The script downloads and installs the latest version of pip and another required package named `setuptools`.

2. Run the script with Python:

```
$ python3 get-pip.py --user
Collecting pip
 Downloading pip-8.1.2-py2.py3-none-any.whl (1.2MB)
Collecting setuptools
 Downloading setuptools-26.1.1-py2.py3-none-any.whl (464kB)
Collecting wheel
 Downloading wheel-0.29.0-py2.py3-none-any.whl (66kB)
Installing collected packages: pip, setuptools, wheel
Successfully installed pip setuptools wheel
```

Invoking version Python 3 directly by using the `python3` command instead of `python` ensures that pip is installed in the proper location, even if an older system version of Python is present on your system.

3. Add the executable path to your PATH variable: `~/local/bin`

### To modify your PATH variable (Linux, OS X, or Unix)

1. Find your shell's profile script in your user folder. If you are not sure which shell you have, run `echo $SHELL`.

```
$ ls -a ~
. .. .bash_logout .bash_profile .bashrc Desktop Documents
Downloads
```

- **Bash** – `.bash_profile`, `.profile`, or `.bash_login`.
- **Zsh** – `.zshrc`
- **Tcsh** – `.tcshrc`, `.cshrc` or `.login`.

2. Add an export command to profile script.

```
export PATH=~/local/bin:$PATH
```

This command adds a path, `~/local/bin` in this example, to the current PATH variable.

3. Load the profile into your current session.

```
$ source ~/.bash_profile
```

4. Verify that pip is installed correctly.

```
$ pip --version
pip 8.1.2 from ~/.local/lib/python3.4/site-packages (python 3.4)
```

5. Finally, use pip to install the EB CLI.

```
$ pip install awsebcli --upgrade --user
Collecting awsebcli
 Downloading awsebcli-3.7.8.tar.gz (176kB)
Collecting pyyaml>=3.11 (from awsebcli)
 Downloading PyYAML-3.12.tar.gz (253kB)
Collecting botocore>=1.0.1 (from awsebcli)
 Downloading botocore-1.4.53-py2.py3-none-any.whl (2.6MB)s
Collecting cement==2.8.2 (from awsebcli)
 Downloading cement-2.8.2.tar.gz (165kB)
Collecting colorama==0.3.7 (from awsebcli)
 Downloading colorama-0.3.7-py2.py3-none-any.whl
Collecting pathspec==0.3.4 (from awsebcli)
 Downloading pathspec-0.3.4.tar.gz
Requirement already satisfied (use --upgrade to upgrade): setuptools>=20.0
in ~/.local/lib/python3.4/site-packages (from awsebcli)
Collecting docopt<0.7,>=0.6.1 (from awsebcli)
 Downloading docopt-0.6.2.tar.gz
Collecting requests<=2.9.1,>=2.6.1 (from awsebcli)
 Downloading requests-2.9.1-py2.py3-none-any.whl (501kB)
Collecting texttable<0.9,>=0.8.1 (from awsebcli)
 Downloading texttable-0.8.4.tar.gz
```

```

Collecting websocket-client<1.0,>=0.11.0 (from awsebcli)
 Downloading websocket_client-0.37.0.tar.gz (194kB)
Collecting docker-py<=1.7.2,>=1.1.0 (from awsebcli)
 Downloading docker-py-1.7.2.tar.gz (68kB)
Collecting dockerpty<=0.4.1,>=0.3.2 (from awsebcli)
 Downloading dockerpty-0.4.1.tar.gz
Collecting semantic_version==2.5.0 (from awsebcli)
 Downloading semantic_version-2.5.0-py3-none-any.whl
Collecting blessed==1.9.5 (from awsebcli)
 Downloading blessed-1.9.5-py2.py3-none-any.whl (77kB)
Collecting docutils>=0.10 (from botocore>=1.0.1->awsebcli)
 Downloading docutils-0.12-py3-none-any.whl (508kB)
Collecting python-dateutil<3.0.0,>=2.1 (from botocore>=1.0.1->awsebcli)
 Downloading python_dateutil-2.5.3-py2.py3-none-any.whl (201kB)
Collecting jmespath<1.0.0,>=0.7.1 (from botocore>=1.0.1->awsebcli)
 Downloading jmespath-0.9.0-py2.py3-none-any.whl
Collecting six (from websocket-client<1.0,>=0.11.0->awsebcli)
 Downloading six-1.10.0-py2.py3-none-any.whl
Collecting wcwidth>=0.1.0 (from blessed==1.9.5->awsebcli)
 Downloading wcwidth-0.1.7-py2.py3-none-any.whl
Building wheels for collected packages: awsebcli, pyyaml, cement,
pathspec, docopt, texttable, websocket-client, docker-py, dockerpty
Running setup.py bdist_wheel for awsebcli ... done
Running setup.py bdist_wheel for pyyaml ... done
Running setup.py bdist_wheel for cement ... done
Running setup.py bdist_wheel for pathspec ... done
Running setup.py bdist_wheel for docopt ... done
Running setup.py bdist_wheel for texttable ... done
Running setup.py bdist_wheel for websocket-client ... done
Running setup.py bdist_wheel for docker-py ... done
Running setup.py bdist_wheel for dockerpty ... done
Successfully built awsebcli pyyaml cement pathspec docopt texttable
websocket-client docker-py dockerpty
Installing collected packages: pyyaml, docutils, six, python-dateutil,
jmespath, botocore, cement, colorama, pathspec, docopt, requests,
texttable, websocket-client, docker-py, dockerpty, semantic-version,
wcwidth, blessed, awsebcli
Successfully installed awsebcli-3.7.8 blessed-1.9.5 botocore-1.4.53
cement-2.8.2 colorama-0.3.7 docker-py-1.7.2 dockerpty-0.4.1 docopt-0.6.2
docutils-0.12 jmespath-0.9.0 pathspec-0.3.4 python-dateutil-2.5.3
pyyaml-3.12 requests-2.9.1 semantic-version-2.5.0 six-1.10.0
texttable-0.8.4 wcwidth-0.1.7 websocket-client-0.37.0

```

6. Verify that the EB CLI installed correctly.

```

$ eb --version
EB CLI 3.7.8 (Python 3.4.3)

```

To upgrade to the latest version, run the installation command again:

```

$ pip install awsebcli --upgrade --user

```

## Install Python, pip, and the EB CLI on Windows

The Python Software Foundation provides installers for Windows that include pip.

### To install Python 3.4 and pip (Windows)

1. Download and install Python 3.4 from the [downloads page](#) of [Python.org](#).
2. Add the Python home and scripts directories to the Windows Path system variable:

```
C:\WINDOWS\system32;C:\WINDOWS;C:\Python34;C:\Python34\Scripts;%USERPROFILE%\AppData\Roaming\Python\Scripts
```

### To modify your PATH variable (Windows)

1. Press the Windows key and type `environment variables`.
2. Choose **Edit environment variables for your account**.
3. Choose **PATH** and then choose **Edit**.
4. Add paths to the **Variable value** field, separated by semicolons. For example: `C:\existing\path;C:\new\path`
5. Choose **OK** twice to apply the new settings.
6. Close any running command prompts and re-open.

### To install the EB CLI with pip (Windows)

1. Open the Windows Command Processor from the Start menu.
2. Verify that Python and pip are both installed correctly with the following commands:

```
C:\Windows\System32> python --version
Python 3.4.3
C:\Windows\System32> pip --version
pip 6.0.8 from C:\Python34\lib\site-packages (python 3.4)
```

3. Install the EB CLI using pip:

```
C:\Windows\System32> pip install --upgrade --user awsebcli
Collecting awsebcli
 Downloading awsebcli-3.2.2.tar.gz (828kB)
Collecting pyyaml>=3.11 (from awsebcli)
 Downloading PyYAML-3.11.tar.gz (248kB)
Collecting cement==2.4 (from awsebcli)
 Downloading cement-2.4.0.tar.gz (129kB)
Collecting python-dateutil<3.0.0,>=2.1 (from awsebcli)
 Downloading python_dateutil-2.4.2-py2.py3-none-any.whl (188kB)
Collecting jmespath>=0.6.1 (from awsebcli)
 Downloading jmespath-0.6.2.tar.gz
Collecting six>=1.5 (from python-dateutil<3.0.0,>=2.1->awsebcli)
 Downloading six-1.9.0-py2.py3-none-any.whl
Installing collected packages: six, jmespath, python-dateutil, cement, pyyaml, awsebcli
 Running setup.py install for jmespath
 Running setup.py install for cement
 Running setup.py install for pyyaml
 checking if libyaml is compilable
 Microsoft Visual C++ 10.0 is required (Unable to find vcvarsall.bat).
 skipping build_ext
 Running setup.py install for awsebcli
 Installing eb-script.py script to C:\Python34\Scripts
 Installing eb.exe script to C:\Python34\Scripts
```

```
Installing eb.exe.manifest script to C:\Python34\Scripts
Successfully installed awsebcli-3.2.2 cement-2.4.0 jmespath-0.6.2 python-
dateutil-2.4.2 pyyaml-3.11 six-1.9.0
```

4. Verify that the EB CLI is installed correctly:

```
C:\Windows\System32> eb --version
EB CLI 3.2.2 (Python 3.4.3)
```

To upgrade to the latest version, run the installation command again:

```
C:\Windows\System32> pip install --user --upgrade awsebcli
```

## Install the EB CLI on OS X

If you use the Homebrew package manager, you can install the EB CLI with the brew command. You can also install Python and pip, and then use pip to install the EB CLI.

### Install the EB CLI with Homebrew

If you have Homebrew, you can use it to install the EB CLI. The latest version of the EB CLI is typically available from Homebrew a couple of days after it appears in pip.

#### To install the EB CLI with Homebrew

1. Run `brew install awsebcli`:

```
$ brew install awsebcli
```

2. Verify that the EB CLI is installed correctly:

```
$ eb --version
EB CLI 3.2.2 (Python 3.4.3)
```

## Install Python, pip, and the EB CLI on OS X

You can install the latest version of Python and pip and then use them to install the EB CLI.

#### To install the EB CLI on OS X

1. Download and install Python 3.4 from the [downloads page](#) of [Python.org](#).
2. Install pip with the script provided by the Python Packaging Authority.

```
$ curl -O https://bootstrap.pypa.io/get-pip.py
$ python3 get-pip.py --user
```

3. Use pip to install the EB CLI.

```
$ pip3 install --user --upgrade awsebcli
```

4. Add the path to the executable (`~/Library/Python/3.4/bin`) to your path variable:

## To modify your PATH variable (Linux, OS X, or Unix)

1. Find your shell's profile script in your user folder. If you are not sure which shell you have, run `echo $SHELL`.

```
$ ls -a ~
. .. .bash_logout .bash_profile .bashrc Desktop Documents
Downloads
```

- **Bash** – `.bash_profile`, `.profile`, or `.bash_login`.
  - **Zsh** – `.zshrc`
  - **Tcsh** – `.tcshrc`, `.cshrc` or `.login`.
2. Add an export command to profile script.

```
export PATH=~/.local/bin:$PATH
```

This command adds a path, `~/.local/bin` in this example, to the current PATH variable.

3. Load the profile into your current session.

```
$ source ~/.bash_profile
```

5. Verify that the EB CLI is installed correctly.

```
$ eb --version
EB CLI 3.7.8 (Python 3.4.1)
```

To upgrade to the latest version, run the installation command again:

```
$ pip3 install --user --upgrade awsebcli
```

## Install the EB CLI in a Virtual Environment

You can avoid requirement version conflicts with other pip packages by installing the EB CLI in a virtual environment.

### To install the EB CLI in a virtual environment

1. Install virtualenv with pip.

```
$ pip install --user virtualenv
```

2. Create a virtual environment.

```
$ virtualenv ~/eb-ve
```

You can use the `-p` option to use a Python executable other than the default.

```
$ virtualenv -p /usr/bin/python3.4 ~/eb-ve
```

3. Activate the virtual environment.

### Linux, OS X, or Unix

```
$ source ~/eb-ve/bin/activate
```

### Windows

```
$ %USERPROFILE%\eb-ve\Scripts\activate
```

4. Install the EB CLI.

```
(eb-ve)~$ pip install --upgrade awsebcli
```

5. Verify that the EB CLI is installed correctly.

```
$ eb --version
EB CLI 3.7.8 (Python 3.4.1)
```

You can use the `deactivate` command to exit the virtual environment. Whenever you start a new session, run the activation command again.

To upgrade to the latest version, run the installation command again:

```
(eb-ve)~$ pip install --upgrade awsebcli
```

## Configure the EB CLI

After [installing the EB CLI \(p. 417\)](#), you are ready to configure your project folder with `eb init`.

Run `eb init` in your application's project directory to configure the EB CLI and your project.

The following example shows the configuration steps when running `eb init` for the first time in a project folder named `eb`:

### To initialize an EB CLI project

1. First, the EB CLI prompts you to select a region. Type the number that corresponds to the region that you would like to use and press **Enter**.

```
~/eb $ eb init
Select a default region
1) us-east-1 : US East (N. Virginia)
2) us-west-1 : US West (N. California)
3) us-west-2 : US West (Oregon)
4) eu-west-1 : EU (Ireland)
5) eu-central-1 : EU (Frankfurt)
6) ap-south-1 : Asia Pacific (Mumbai)
7) ap-southeast-1 : Asia Pacific (Singapore)
8) ap-southeast-2 : Asia Pacific (Sydney)
9) ap-northeast-1 : Asia Pacific (Tokyo)
10) ap-northeast-2 : Asia Pacific (Seoul)
11) sa-east-1 : South America (Sao Paulo)
```

```
12) cn-north-1 : China (Beijing)
13) us-east-2 : US East (Columbus)
(default is 3): 3
```

- Next, provide your access key and secret key so that the EB CLI can manage resources for you. Access keys are created in the AWS Identity and Access Management management console. If you don't have keys, see [How Do I Get Security Credentials?](#) in the Amazon Web Services General Reference.

```
You have not yet set up your credentials or your credentials are incorrect
You must provide your credentials.
(aws-access-id): AKIAJOUAASEXAMPLE
(aws-secret-key): 5ZRIrtTM4ciIAvd4EXAMPLEDtm+PiPSzpoK
```

- An application in Elastic Beanstalk is a resource that contains a set of application versions (source), environments, and saved configurations that are associated with a single web application. Each time you deploy your source code to Elastic Beanstalk using the EB CLI, a new application version is created and added to the list.

```
Select an application to use
1) [Create new Application]
(default is 1): 1
```

- The default application name is the name of the folder in which you run `eb init`. Enter any name that describes your project.

```
Enter Application Name
(default is "eb"): eb
Application eb has been created.
```

- Select a platform that matches the language or framework that your web application is developed in. If you haven't started developing an application yet, choose a platform that you are interested in. You will see how to launch a sample application shortly, and you can always change this setting later.

```
Select a platform.
1) Node.js
2) PHP
3) Python
4) Ruby
5) Tomcat
6) IIS
7) Docker
8) Multi-container Docker
9) GlassFish
10) Go
11) Java
(default is 1): 1
```

- Choose **yes** to assign an SSH key pair to the instances in your Elastic Beanstalk environment, allowing you to connect directly to them for troubleshooting.

```
Do you want to set up SSH for your instances?
(y/n): y
```

- Choose an existing key pair or create a new one. To use **eb init** to create a new key pair, you must have **ssh-keygen** installed on your local machine and available from the command line. The



CLI registers the new key pair with Amazon EC2 for you and stores the private key locally in a folder named `.ssh` in your user directory.

```
Select a keypair.
1) [Create new KeyPair]
(default is 1): 1
```

Your EB CLI installation is now configured and ready to use. See [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#) for instructions on creating and working with an Elastic Beanstalk environment.

#### Advanced Configuration

- [Ignoring files with .ebignore \(p. 427\)](#)
- [Using Named Profiles \(p. 427\)](#)
- [Deploying an Artifact Instead of the Project Folder \(p. 428\)](#)
- [Configuration Settings and Precedence \(p. 428\)](#)
- [Instance Metadata \(p. 428\)](#)

## Ignoring files with .ebignore

You can tell the EB CLI to ignore certain files in your project directory with a `.ebignore` file. This file works like a `.gitignore`. When you deploy your project directory to Elastic Beanstalk and create a new application version, the EB CLI will not include files specified by the `.ebignore` in the source bundle that it creates.

If no `.ebignore` is present, but a `.gitignore` is, the EB CLI will ignore files specified in the `.gitignore`. If an `.ebignore` file is present, the EB CLI will not read the `.gitignore`.

#### Note

In Windows, adding an `.ebignore` file causes the EB CLI to follow symbolic links and include the linked file when creating a source bundle. This is a known issue and will be fixed in a future update.

## Using Named Profiles

If you store your credentials as a named profile in a `credentials` or `config` file, you can use the `--profile` (p. 448) option to explicitly specify a profile. For example, the following command creates a new application using the `user2` profile.

```
$ eb init --profile user2
```

You can also change the default profile by setting the `AWS_EB_PROFILE` environment variable. When this variable is set, the EB CLI will read credentials from the specified profile instead of `default` or `eb-cli`.

#### Linux, OS X, or Unix

```
$ export AWS_EB_PROFILE=user2
```

#### Windows

```
> set AWS_EB_PROFILE=user2
```

## Deploying an Artifact Instead of the Project Folder

You can tell the EB CLI to deploy a ZIP or WAR file that you generate as part of a separate build process by adding the following lines to `.elasticbeanstalk/config.yml` in your project folder.

```
deploy:
 artifact: path/to/buildartifact.zip
```

If you configure the EB CLI in your [Git repository \(p. 433\)](#), and you don't commit the artifact to source, use the `--staged` option to deploy the latest build:

```
~/eb$ eb deploy --staged
```

## Configuration Settings and Precedence

The EB CLI uses a *provider chain* to look for AWS credentials in a number of different places, including system or user environment variables and local AWS configuration files.

The AWS CLI looks for credentials and configuration settings in the following order:

1. **Command Line Options** – a named profile can be specified with `--profile` to override default settings.
2. **Environment Variables** – `AWS_ACCESS_KEY_ID` and `AWS_SECRET_ACCESS_KEY`
3. **The AWS credentials file** – located at `~/.aws/credentials` on Linux and OS X systems or at `C:\Users\USERNAME\.aws\credentials` on Windows systems. This file can contain multiple named profiles in addition to a default profile.
4. **The AWS CLI configuration file** – located at `~/.aws/config` on Linux and OS X systems or `C:\Users\USERNAME\.aws\config` on Windows systems. This file can contain a default profile, [named profiles](#), and AWS CLI specific configuration parameters for each.
5. **Legacy EB CLI configuration file** – located at `~/.elasticbeanstalk/config` on Linux and OS X systems or `C:\Users\USERNAME\.elasticbeanstalk/config` on Windows systems.
6. **Instance profile credentials** – these credentials can be used on EC2 instances with an assigned instance role, and are delivered through the Amazon EC2 metadata service. The [instance profile \(p. 18\)](#) must have permission to use Elastic Beanstalk.

If the credentials file contains a named profile with the name "eb-cli", the EB CLI will prefer that profile over the default profile. If no profiles are found, or a profile is found but does not have permission to use Elastic Beanstalk, the EB CLI prompts you to enter keys.

## Instance Metadata

To use the EB CLI from an EC2 instance, create a role that has access to the resources needed and assign that role to the instance when it is launched. Launch the instance and install the EB CLI with `pip`:

```
~$ sudo pip install awsebcli
```

`pip` comes pre-installed on Amazon Linux.

The EB CLI will read credentials from the instance metadata. For more information, see [Granting Applications that Run on Amazon EC2 Instances Access to AWS Resources](#) in *IAM User Guide*.

# Managing Elastic Beanstalk Environments with the EB CLI

After [installing the EB CLI \(p. 417\)](#) and [configuring your project directory \(p. 425\)](#), you are ready to create an Elastic Beanstalk environment using the EB CLI, deploy source and configuration updates, and pull logs and events.

## Note

Creating environments with the EB CLI requires a [service role \(p. 17\)](#). You can create a service role by creating an environment in the Elastic Beanstalk Management Console. If you don't have a service role, the EB CLI will attempt to create one when you run `eb create`.

The following examples use an empty project folder named `eb` that was initialized with the EB CLI for use with a sample Docker application.

## Basic Commands

- [eb create \(p. 429\)](#)
- [eb status \(p. 430\)](#)
- [eb health \(p. 430\)](#)
- [eb events \(p. 431\)](#)
- [eb logs \(p. 431\)](#)
- [eb open \(p. 431\)](#)
- [eb deploy \(p. 431\)](#)
- [eb config \(p. 432\)](#)
- [eb terminate \(p. 433\)](#)

## eb create

To create your first environment, run [eb create \(p. 455\)](#) and follow the prompts. If your project directory has source code in it, the EB CLI will bundle it up and deploy it to your environment. Otherwise, a sample application will be used.

```
~/eb$ eb create
Enter Environment Name
(default is eb-dev): eb-dev
Enter DNS CNAME prefix
(default is eb-dev): eb-dev
WARNING: The current directory does not contain any source code. Elastic
Beanstalk is launching the sample application instead.
Environment details for: elasticBeanstalkExa-env
 Application name: elastic-beanstalk-example
 Region: us-west-2
 Deployed Version: Sample Application
 Environment ID: e-j3pmc8tscn
 Platform: 64bit Amazon Linux 2015.03 v1.4.3 running Docker 1.6.2
 Tier: WebServer-Standard
 CNAME: eb-dev.elasticbeanstalk.com
 Updated: 2015-06-27 01:02:24.813000+00:00
Printing Status:
INFO: createEnvironment is starting.
-- Events -- (safe to Ctrl+C) Use "eb abort" to cancel the command.
```

Your environment can take several minutes to become ready. Press **Ctrl+C** to return to the command line while the environment is created.

## eb status

Run **eb status** to see the current status of your environment. When the status is `ready`, the sample application is available at `elasticbeanstalk.com` and the environment is ready to be updated.

```
~/eb$ eb status
Environment details for: elasticBeanstalkExa-env
Application name: elastic-beanstalk-example
Region: us-west-2
Deployed Version: Sample Application
Environment ID: e-gbzqc3jcra
Platform: 64bit Amazon Linux 2015.03 v1.4.3 running Docker 1.6.2
Tier: WebServer-Standard
CNAME: elasticbeanstalkexa-env.elasticbeanstalk.com
Updated: 2015-06-30 01:47:45.589000+00:00
Status: Ready
Health: Green
```

## eb health

Use the `eb health` command to view [health information \(p. 291\)](#) about the instances in your environment and the state of your environment overall. Use the `--refresh` option to view health in an interactive view that updates every 10 seconds.

```
~/eb$ eb health
api Ok 2016-09-15
18:39:04
WebServer Java
8
total ok warning degraded severe info pending unknown
3 3 0 0 0 0 0 0

instance-id status cause
health
Overall Ok
i-0ef05ec54918bf567 Ok
i-001880c1187493460 Ok
i-04703409d90d7c353 Ok

instance-id r/sec %2xx %3xx %4xx %5xx p99 p90
p75 p50 p10
Overall 8.6 100.0 0.0 0.0 0.0 0.083* 0.065
0.053 0.040 0.019
i-0ef05ec54918bf567 2.9 29 0 0 0 0.069* 0.066
0.057 0.050 0.023
i-001880c1187493460 2.9 29 0 0 0 0.087* 0.069
0.056 0.050 0.034
i-04703409d90d7c353 2.8 28 0 0 0 0.051* 0.027
0.024 0.021 0.015

instance-id type az running load 1 load 5 user%
nice% system% idle% iowait%
i-0ef05ec54918bf567 t2.micro 1c 23 mins 0.19 0.05 3.0
0.0 0.3 96.7 0.0
```

|                     |             |      |                        |         |     |     |
|---------------------|-------------|------|------------------------|---------|-----|-----|
| i-001880c1187493460 | t2.micro    | 1a   | 23 mins                | 0.0     | 0.0 | 3.2 |
| 0.0                 | 0.3         | 96.5 | 0.0                    |         |     |     |
| i-04703409d90d7c353 | t2.micro    | 1b   | 1 day                  | 0.0     | 0.0 | 3.6 |
| 0.0                 | 0.2         | 96.2 | 0.0                    |         |     |     |
| instance-id         | status      | id   | version                | ago     |     |     |
|                     | deployments |      |                        |         |     |     |
| i-0ef05ec54918bf567 | Deployed    | 28   | app-bc1b-160915_181041 | 20 mins |     |     |
| i-001880c1187493460 | Deployed    | 28   | app-bc1b-160915_181041 | 20 mins |     |     |
| i-04703409d90d7c353 | Deployed    | 28   | app-bc1b-160915_181041 | 27 mins |     |     |

## eb events

Use **eb events** to see a list of events output by Elastic Beanstalk.

```
~/eb$ eb events
2015-06-29 23:21:09 INFO createEnvironment is starting.
2015-06-29 23:21:10 INFO Using elasticbeanstalk-us-west-2-EXAMPLE as
Amazon S3 storage bucket for environment data.
2015-06-29 23:21:23 INFO Created load balancer named: awseb-e-g-
AWSEBLoa-EXAMPLE
2015-06-29 23:21:42 INFO Created security group named: awseb-e-
gbzqc3jcra-stack-AWSEBSecurityGroup-EXAMPLE
2015-06-29 23:21:45 INFO Created Auto Scaling launch configuration
named: awseb-e-gbzqc3jcra-stack-AWSEBAutoScalingLaunchConfiguration-EXAMPLE
...
```

## eb logs

Use **eb logs** to pull logs from an instance in your environment. By default, **eb logs** pull logs from the first instance launched and displays them in standard output. You can specify an instance ID with the **--instance** option to get logs from a specific instance.

The **--all** option pulls logs from all instances and saves them to subdirectories under `.elasticbeanstalk/logs`.

```
~/eb$ eb logs --all
Retrieving logs...
Logs were saved to /home/local/ANT/mwunderl/ebcli/environments/
test/.elasticbeanstalk/logs/150630_201410
Updated symlink at /home/local/ANT/mwunderl/ebcli/environments/
test/.elasticbeanstalk/logs/latest
```

## eb open

To open your environment's website in a browser, use **eb open**:

```
~/eb$ eb open
```

In a windowed environment, your default browser will open in a new window. In a terminal environment, a command line browser (e.g. `w3m`) will be used if available.

## eb deploy

Once the environment is up and ready, you can update it using **eb deploy**.

This command works better with some source code to bundle up and deploy, so for this example we've created a `Dockerfile` in the project directory with the following content:

**~/eb/Dockerfile**

```
FROM ubuntu:12.04

RUN apt-get update
RUN apt-get install -y nginx zip curl

RUN echo "daemon off;" >> /etc/nginx/nginx.conf
RUN curl -o /usr/share/nginx/www/master.zip -L https://codeload.github.com/gabrielecirulli/2048/zip/master
RUN cd /usr/share/nginx/www/ && unzip master.zip && mv 2048-master/* . && rm -rf 2048-master master.zip

EXPOSE 80

CMD ["/usr/sbin/nginx", "-c", "/etc/nginx/nginx.conf"]
```

This `Dockerfile` deploys an image of Ubuntu 12.04 and installs the game 2048. Run **eb deploy** to upload the application to your environment:

```
~/eb$ eb deploy
Creating application version archive "app-150630_014338".
Uploading elastic-beanstalk-example/app-150630_014338.zip to S3. This may
take a while.
Upload Complete.
INFO: Environment update is starting.
-- Events -- (safe to Ctrl+C) Use "eb abort" to cancel the command.
```

When you run **eb deploy**, the EB CLI bundles up the contents of your project directory and deploys it to your environment.

**Note**

If you have initialized a git repository in your project folder, the EB CLI will always deploy the latest commit, even if you have pending changes. Commit your changes prior to running **eb deploy** to deploy them to your environment.

## eb config

Take a look at the configuration options available for your running environment with the **eb config** command:

```
~/eb$ eb config
ApplicationName: elastic-beanstalk-example
DateUpdated: 2015-06-30 02:12:03+00:00
EnvironmentName: elasticBeanstalkExa-env
SolutionStackName: 64bit Amazon Linux 2015.03 v1.4.3 running Docker 1.6.2
settings:
 AWSEBAutoScalingScaleDownPolicy.aws:autoscaling:trigger:
 LowerBreachScaleIncrement: '-1'
 AWSEBAutoScalingScaleUpPolicy.aws:autoscaling:trigger:
 UpperBreachScaleIncrement: '1'
 AWSEBCloudwatchAlarmHigh.aws:autoscaling:trigger:
 UpperThreshold: '6000000'
```

...

This command populates a list of available configuration options in a text editor. Many of the options shown have a `null` value, these are not set by default but can be modified to update the resources in your environment. See [Configuration Options \(p. 131\)](#) for more information about these options.

## eb terminate

If you are done using the environment for now, use **eb terminate** to terminate it.

```
~/eb$ eb terminate
The environment "eb-dev" and all associated instances will be terminated.
To confirm, type the environment name: eb-dev
INFO: terminateEnvironment is starting.
INFO: Deleted CloudWatch alarm named: awseb-e-jc8t3pmscn-stack-
AWSEBCloudwatchAlarmHigh-1XLMU7DNCBV6Y
INFO: Deleted CloudWatch alarm named: awseb-e-jc8t3pmscn-stack-
AWSEBCloudwatchAlarmLow-8IVI04W2SCXS
INFO: Deleted Auto Scaling group policy named: arn:aws:autoscaling:us-
west-2:210774411744:scalingPolicy:1753d43e-ae87-4df6-
a405-11d31f4c8f97:autoScalingGroupName/awseb-e-jc8t3pmscn-stack-
AWSEBAutoScalingGroup-90TTS2ZL4MXV:policyName/awseb-e-jc8t3pmscn-stack-
AWSEBAutoScalingScaleUpPolicy-A070H1BMUQAJ
INFO: Deleted Auto Scaling group policy named: arn:aws:autoscaling:us-
west-2:210774411744:scalingPolicy:1fd24ea4-3d6f-4373-
affc-4912012092ba:autoScalingGroupName/awseb-e-jc8t3pmscn-stack-
AWSEBAutoScalingGroup-90TTS2ZL4MXV:policyName/awseb-e-jc8t3pmscn-stack-
AWSEBAutoScalingScaleDownPolicy-LSWFUMZ46H1V
INFO: Waiting for EC2 instances to terminate. This may take a few minutes.
-- Events -- (safe to Ctrl+C)
```

For a full list of available EB CLI commands, check out the [EB CLI Command Reference \(p. 447\)](#).

## Using the EB CLI with Git

The EB CLI provides integration with Git. This section provides an overview of how to use Git with the EB CLI.

### To install Git and initialize your Git repository

1. Download the most recent version of Git by going to <http://git-scm.com>
2. Initialize your Git repository by typing the following:

```
~/eb$ git init
```

EB CLI will now recognize that your application is set up with Git.

3. If you haven't already run **eb init**, do that now:

```
~/eb$ eb init
```

### To use different Git branches

You can associate your environment with different branches of your code so that when you work in a new branch, your default environment also uses that branch. For example, you can type the following to associate the running environment with your master and develop branches:

```
~/eb$ git checkout master
~/eb$ eb use prod
~/eb$ git checkout develop
~/eb$ eb use dev
```

By default, the EB CLI deploys the latest commit in the current branch, using the commit ID and message as the application version label and description, respectively. If you want to deploy to your environment without committing, you can use the `--staged` option to deploy changes that have been added to the staging area.

### To deploy changes without committing

1. Add new and changed files to the staging area:

```
~/eb$ git add .
```

2. Deploy the staged changes with `eb deploy`:

```
~/eb$ eb deploy --staged
```

If you have configured the EB CLI to [deploy an artifact \(p. 428\)](#), and you don't commit the artifact to your git repository, use the `--staged` option to deploy the latest build.

### To assign Git tags to your application version

You can use a Git tag as your version label to identify what application version is running in your environment. For example, type the following:

```
~/eb$ git tag -a v1.0 -m "My version 1.0"
```

## Using the EB CLI with AWS CodeCommit

You can use the EB CLI to deploy your application directly from your AWS CodeCommit repository. With AWS CodeCommit, you can upload only your changes to the repository when you deploy, instead of uploading your entire project. This can save you time and bandwidth if you have a large project or limited Internet connectivity. The EB CLI pushes your local commits and uses them to create application versions when you use `eb create` or `eb deploy`.

To deploy your changes, AWS CodeCommit integration requires you to commit changes first. However, as you develop or debug, you might not want to push changes that you haven't confirmed are working. You can avoid committing your changes by staging them and using `eb deploy --staged` (which performs a standard deployment). Or commit your changes to a development or testing branch first, and merge to your master branch only when your code is ready. With `eb use`, you can configure the EB CLI to deploy to one environment from your development branch, and to a different environment from your master branch.

### Sections

- [Prerequisites \(p. 435\)](#)
- [Creating an AWS CodeCommit Repository with the EB CLI \(p. 435\)](#)



- [Deploying from Your AWS CodeCommit Repository](#) (p. 436)
- [Configuring Additional Branches and Environments](#) (p. 437)
- [Using an Existing AWS CodeCommit Repository](#) (p. 438)

## Prerequisites

To use AWS CodeCommit with AWS Elastic Beanstalk, you need a local Git repository (either one you have already or a new one you create) with at least one commit, [permission to use AWS CodeCommit](#), and an Elastic Beanstalk environment in a region that AWS CodeCommit supports. Your environment and repository must be in the same region.

### To initialize a Git repository

1. Run `git init` in your project folder.

```
~/my-app$ git init
```

2. Stage your project files with `git add`.

```
~/my-app$ git add .
```

3. Commit changes with `git commit`.

```
~/my-app$ git commit -m "Elastic Beanstalk application"
```

## Creating an AWS CodeCommit Repository with the EB CLI

To get started with AWS CodeCommit, run `eb init` (p. 464). During repository configuration, the EB CLI prompts you to use AWS CodeCommit to store your code and speed up deployments. Even if you previously configured your project with `eb init`, you can run it again to configure AWS CodeCommit.

### To create an AWS CodeCommit repository with the EB CLI

1. Run `eb init` in your project folder. During configuration, the EB CLI asks if you want to use AWS CodeCommit to store your code and speed up deployments. If you previously configured your project with `eb init`, you can still run it again to configure AWS CodeCommit. Type `y` at the prompt to set up AWS CodeCommit.

```
~/my-app$ eb init
Note: Elastic Beanstalk now supports AWS CodeCommit; a fully-managed
 source control service. To learn more, see Docs: https://aws.amazon.com/
 codecommit/
Do you wish to continue with CodeCommit? (y/n)(default is n): y
```

2. Choose **Create new Repository**.

```
Select a repository
1) my-repo
2) [Create new Repository]
(default is 2): 2
```

3. Type a repository name or press **Enter** to accept the default name.

```
Enter Repository Name
(default is "codecommit-origin"): my-app
Successfully created repository: my-app
```

4. Choose an existing branch for your commits, or use the EB CLI to create a new branch.

```
Enter Branch Name
***** Must have at least one commit to create a new branch with CodeCommit

(default is "master"): ENTER
Successfully created branch: master
```

## Deploying from Your AWS CodeCommit Repository

When you configure AWS CodeCommit with your EB CLI repository, the EB CLI uses the contents of the repository to create source bundles. When you run `eb deploy` or `eb create`, the EB CLI pushes new commits and uses the HEAD revision of your branch to create the archive that it deploys to the EC2 instances in your environment.

### To use AWS CodeCommit integration with the EB CLI

1. Create a new environment with `eb create`.

```
~/my-app$ eb create my-app-env
Starting environment deployment via CodeCommit
--- Waiting for application versions to be pre-processed ---
Finished processing application version app-aclea-161010_201918
Setting up default branch
Environment details for: my-app-env
 Application name: my-app
 Region: us-east-1
 Deployed Version: app-aclea-161010_201918
 Environment ID: e-pm5mvvkfnd
 Platform: 64bit Amazon Linux 2016.03 v2.1.6 running Java 8
 Tier: WebServer-Standard
 CNAME: UNKNOWN
 Updated: 2016-10-10 20:20:29.725000+00:00
Printing Status:
INFO: createEnvironment is starting.
...
```

The EB CLI uses the latest commit in the tracked branch to create the application version that is deployed to the environment.

2. When you have new local commits, use `eb deploy` to push the commits and deploy to your environment.

```
~/my-app$ eb deploy
Starting environment deployment via CodeCommit
INFO: Environment update is starting.
INFO: Deploying new version to instance(s).
INFO: New application version was deployed to running EC2 instances.
INFO: Environment update completed successfully.
```

3. To test changes before you commit them, use the `--staged` option to deploy changes that you added to the staging area with `git add`.

```
~/my-app$ git add new-file
~/my-app$ eb deploy --staged
```

Deploying with the `--staged` option performs a standard deployment, bypassing AWS CodeCommit.

## Configuring Additional Branches and Environments

AWS CodeCommit configuration applies to a single branch. You can use `eb use` and `eb codesource` to configure additional branches or modify the current branch's configuration.

### To configure AWS CodeCommit integration with the EB CLI

1. To change the remote branch, use the `eb use` (p. 481) command's `--source` option.

```
~/my-app$ eb use test-env --source my-app/test
```

2. To create a new branch and environment, check out a new branch, push it to AWS CodeCommit, create the environment, and then use `eb use` to connect the local branch, remote branch, and environment.

```
~/my-app$ git checkout -b production
~/my-app$ git push --set-upstream production
~/my-app$ eb create production-env
~/my-app$ eb use --source my-app/production production-env
```

3. To configure AWS CodeCommit interactively, use `eb codesource codecommit` (p. 451).

```
~/my-app$ eb codesource codecommit
Current CodeCommit setup:
 Repository: my-app
 Branch: test
Do you wish to continue (y/n): y

Select a repository
1) my-repo
2) my-app
3) [Create new Repository]
(default is 2): 2

Select a branch
1) master
2) test
3) [Create new Branch with local HEAD]
(default is 1): 1
```

4. To disable AWS CodeCommit integration, use `eb codesource local` (p. 451).

```
~/my-app$ eb codesource local
Current CodeCommit setup:
 Repository: my-app
 Branch: master
```

```
Default set to use local sources
```

## Using an Existing AWS CodeCommit Repository

If you already have an AWS CodeCommit repository and want to use it with Elastic Beanstalk, run `eb init` at the root of your local Git repository.

### To use an existing AWS CodeCommit repository with the EB CLI

1. Clone your AWS CodeCommit repository.

```
~$ git clone ssh://git-codecommit.us-east-1.amazonaws.com/v1/repos/my-app
```

2. Check out and push a branch to use for your Elastic Beanstalk environment.

```
~/my-app$ git checkout -b dev-env
~/my-app$ git push --set-upstream origin dev-env
```

3. Run `eb init`. Choose the same region, repository, and branch name that you are currently using.

```
~/my-app$ eb init
Select a default region
1) us-east-1 : US East (N. Virginia)
2) us-west-1 : US West (N. California)
3) us-west-2 : US West (Oregon)
4) eu-west-1 : EU (Ireland)
5) eu-central-1 : EU (Frankfurt)
6) ap-south-1 : Asia Pacific (Mumbai)
7) ap-southeast-1 : Asia Pacific (Singapore)
8) ap-southeast-2 : Asia Pacific (Sydney)
9) ap-northeast-1 : Asia Pacific (Tokyo)
10) ap-northeast-2 : Asia Pacific (Seoul)
11) sa-east-1 : South America (Sao Paulo)
12) cn-north-1 : China (Beijing)
13) us-east-2 : US East (Columbus)
(default is 3): 1
...
Note: Elastic Beanstalk now supports AWS CodeCommit; a fully-managed
source control service. To learn more, see Docs: https://aws.amazon.com/codecommit/
Do you wish to continue with CodeCommit? (y/n)(default is n): y

Select a repository
1) my-app
2) [Create new Repository]
(default is 1): 1

Select a branch
1) master
2) dev-env
3) [Create new Branch with local HEAD]
(default is 2): 2
```

For more information about using `eb init`, see [Configure the EB CLI \(p. 425\)](#).

## Using the EB CLI to Monitor Environment Health

The [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) is a command line tool for managing AWS Elastic Beanstalk environments. You also can use the EB CLI to monitor your environment's health in real time and with more granularity than is currently available in the AWS Management Console

After [installing \(p. 417\)](#) and [configuring \(p. 425\)](#) the EB CLI, you can [launch a new environment \(p. 429\)](#) and deploy your code to it with the `eb create` command. If you already have an environment that you created in the AWS Management Console, you can attach the EB CLI to it by running `eb init` in a project folder and following the prompts (the project folder can be empty).

### Important

Ensure that you are using the latest version of the EB CLI by running `pip install` with the `--upgrade` option:

```
$ sudo pip install --upgrade awsebcli
```

For complete EB CLI installation instructions, see [Install the Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 417\)](#).

To use the EB CLI to monitor your environment's health, you must first configure a local project folder by running `eb init` and following the prompts. For complete instructions, see [Configure the EB CLI \(p. 425\)](#).

If you already have an environment running in Elastic Beanstalk and want to use the EB CLI to monitor its health, attach it to use the existing environment by following these steps.

### To attach the EB CLI to an existing environment

1. Open a command line terminal and navigate to your user folder.
2. Create and open a new folder for your environment.
3. Run the `eb init` command, and then choose the application and environment whose health you want to monitor. If you have only one environment running the application you choose, the EB CLI will select it automatically and you will not need to choose the environment, as shown in the following example:

```
~/project$ eb init
Select an application to use
1) elastic-beanstalk-example
2) [Create new Application]
(default is 2): 1
Select the default environment.
You can change this later by typing "eb use [environment_name]".
1) elasticBeanstalkEx2-env
2) elasticBeanstalkExa-env
(default is 1): 1
```

### To monitor health by using the EB CLI

1. Open a command line and navigate to your project folder.
2. Run the `eb health` command to display the health status of the instances in your environment. In this example, there are five instances running in the environment:

```
~/project $ eb health
```

```

elasticBeanstalkExa-env Ok
2015-07-08 23:13:20
WebServer
 Ruby 2.1 (Puma)
 total ok warning degraded severe info pending unknown
 5 5 0 0 0 0 0 0

 instance-id status cause
 Overall Ok
 i-d581497d Ok
 i-d481497c Ok
 i-136e00c0 Ok
 i-126e00c1 Ok
 i-8b2cf575 Ok

 instance-id r/sec %2xx %3xx %4xx %5xx p99 p90
 p75 p50 p10
 Overall 671.8 100.0 0.0 0.0 0.0 0.003 0.002
 0.001 0.001 0.000
 i-d581497d 143.0 1430 0 0 0 0.003 0.002
 0.001 0.001 0.000
 i-d481497c 128.8 1288 0 0 0 0.003 0.002
 0.001 0.001 0.000
 i-136e00c0 125.4 1254 0 0 0 0.004 0.002
 0.001 0.001 0.000
 i-126e00c1 133.4 1334 0 0 0 0.003 0.002
 0.001 0.001 0.000
 i-8b2cf575 141.2 1412 0 0 0 0.003 0.002
 0.001 0.001 0.000

 instance-id type az running load 1 load 5 user%
 nice% system% idle% iowait%
 i-d581497d t2.micro 1a 12 mins 0.0 0.04 6.2
 0.0 1.0 92.5 0.1
 i-d481497c t2.micro 1a 12 mins 0.01 0.09 5.9
 0.0 1.6 92.4 0.1
 i-136e00c0 t2.micro 1b 12 mins 0.15 0.07 5.5
 0.0 0.9 93.2 0.0
 i-126e00c1 t2.micro 1b 12 mins 0.17 0.14 5.7
 0.0 1.4 92.7 0.1
 i-8b2cf575 t2.micro 1c 1 hour 0.19 0.08 6.5
 0.0 1.2 92.1 0.1

 instance-id status id version ago
 deployments
 i-d581497d Deployed 1 Sample Application 12 mins
 i-d481497c Deployed 1 Sample Application 12 mins
 i-136e00c0 Deployed 1 Sample Application 12 mins
 i-126e00c1 Deployed 1 Sample Application 12 mins
 i-8b2cf575 Deployed 1 Sample Application 1 hour

```

## Reading the Output

The output displays the name of the environment, the environment's overall health, and the current date at the top of the screen:

```
elasticBeanstalkExa-env Ok
2015-07-08 23:13:20
```

The next three lines display the type of environment ("WebServer" in this case), the configuration (Ruby 2.1 with Puma), and a breakdown of how many instances are in each of the seven states:

```
WebServer
 Ruby 2.1 (Puma)
total ok warning degraded severe info pending unknown
 5 5 0 0 0 0 0 0
```

The rest of the output is split into four sections. The first displays the *status* and the *cause* of the status for the environment overall, and then for each instance. The following example shows two instances in the environment with a status of `Info` and a cause indicating that a deployment has started:

```
id status cause
Overall Ok
i-d581497d Info Performing application deployment (running for 3
seconds)
i-d481497c Info Performing application deployment (running for 3
seconds)
i-136e00c0 Ok
i-126e00c1 Ok
i-8b2cf575 Ok
```

For information about health statuses and colors, see [Health Colors and Statuses \(p. 298\)](#).

The **requests** section displays information from the web server logs on each instance. In this example, each instance is taking requests normally and there are no errors:

```
id r/sec %2xx %3xx %4xx %5xx p99 p90
p75 p50 p10
Overall 13.7 100.0 0.0 0.0 0.0 1.403 0.970
0.710 0.413 0.079
i-d581497d 2.4 100.0 0.0 0.0 0.0 1.102* 0.865
0.601 0.413 0.091
i-d481497c 2.7 100.0 0.0 0.0 0.0 0.842* 0.788
0.480 0.305 0.062
i-136e00c0 4.1 100.0 0.0 0.0 0.0 1.520* 1.088
0.883 0.524 0.104
i-126e00c1 2.2 100.0 0.0 0.0 0.0 1.334* 0.791
0.760 0.344 0.197
i-8b2cf575 2.3 100.0 0.0 0.0 0.0 1.162* 0.867
0.698 0.477 0.076
```

The **cpu** section shows operating system metrics for each instance:

```
instance-id type az running load 1 load 5 user% nice%
system% idle% iowait%
i-d581497d t2.micro 1a 12 mins 0.0 0.03 0.2 0.0
0.0 99.7 0.1
i-d481497c t2.micro 1a 12 mins 0.0 0.03 0.3 0.0
0.0 99.7 0.0
i-136e00c0 t2.micro 1b 12 mins 0.0 0.04 0.1 0.0
0.0 99.9 0.0
```

|            |          |     |         |      |      |     |     |
|------------|----------|-----|---------|------|------|-----|-----|
| i-126e00c1 | t2.micro | 1b  | 12 mins | 0.01 | 0.04 | 0.2 | 0.0 |
| 0.0        | 99.7     | 0.1 |         |      |      |     |     |
| i-8b2cf575 | t2.micro | 1c  | 1 hour  | 0.0  | 0.01 | 0.2 | 0.0 |
| 0.1        | 99.6     | 0.1 |         |      |      |     |     |

For information about the server and operating system metrics shown, see [Instance Metrics \(p. 299\)](#).

The final section, **deployments**, shows the deployment status of each instance. If a rolling deployment fails, you can use the deployment ID, status and version label shown to identify instances in your environment that are running the wrong version.

| instance-id | status   | id | version            | ago     |
|-------------|----------|----|--------------------|---------|
| deployments |          |    |                    |         |
| i-d581497d  | Deployed | 1  | Sample Application | 12 mins |
| i-d481497c  | Deployed | 1  | Sample Application | 12 mins |
| i-136e00c0  | Deployed | 1  | Sample Application | 12 mins |
| i-126e00c1  | Deployed | 1  | Sample Application | 12 mins |
| i-8b2cf575  | Deployed | 1  | Sample Application | 1 hour  |

## Interactive Health View

The `eb health` command displays a snapshot of your environment's health. To refresh the displayed information every 10 seconds, use the `--refresh` option:

```
$ eb health --refresh
elasticBeanstalkExa-env Ok
 2015-07-09 22:10:04 (1 secs)
WebServer
 Ruby 2.1 (Puma)
 total ok warning degraded severe info pending unknown
 5 5 0 0 0 0 0 0
 id status cause
 Overall Ok
 i-bb65c145 Ok Application deployment completed 35 seconds ago
and took 26 seconds
 i-ba65c144 Ok Application deployment completed 17 seconds ago
and took 25 seconds
 i-f6a2d525 Ok Application deployment completed 53 seconds ago
and took 26 seconds
 i-e8a2d53b Ok Application deployment completed 32 seconds ago
and took 31 seconds
 i-e81cca40 Ok
 id r/sec %2xx %3xx %4xx %5xx p99 p90
p75 p50 p10
 Overall 671.8 100.0 0.0 0.0 0.0 0.003 0.002
0.001 0.001 0.000
 i-bb65c145 143.0 1430 0 0 0 0.003 0.002
0.001 0.001 0.000
 i-ba65c144 128.8 1288 0 0 0 0.003 0.002
0.001 0.001 0.000
 i-f6a2d525 125.4 1254 0 0 0 0.004 0.002
0.001 0.001 0.000
 i-e8a2d53b 133.4 1334 0 0 0 0.003 0.002
0.001 0.001 0.000
```



```

i-e81cca40 141.2 1412 0 0 0 0.003 0.002
0.001 0.001 0.000

instance-id type az running load 1 load 5 user% nice%
system% idle% iowait%
i-bb65c145 t2.micro 1a 12 mins 0.0 0.03 0.2 0.0
0.0 99.7 0.1
i-ba65c144 t2.micro 1a 12 mins 0.0 0.03 0.3 0.0
0.0 99.7 0.0
i-f6a2d525 t2.micro 1b 12 mins 0.0 0.04 0.1 0.0
0.0 99.9 0.0
i-e8a2d53b t2.micro 1b 12 mins 0.01 0.04 0.2 0.0
0.0 99.7 0.1
i-e81cca40 t2.micro 1c 1 hour 0.0 0.01 0.2 0.0
0.1 99.6 0.1

instance-id status id version ago
deployments
i-bb65c145 Deployed 1 Sample Application 12 mins
i-ba65c144 Deployed 1 Sample Application 12 mins
i-f6a2d525 Deployed 1 Sample Application 12 mins
i-e8a2d53b Deployed 1 Sample Application 12 mins
i-e81cca40 Deployed 1 Sample Application 1 hour

(Commands: Help,Quit, # # # #)

```

This example shows an environment that has recently been scaled up from one to five instances. The scaling operation succeeded, and all instances are now passing health checks and are ready to take requests. In interactive mode, the health status updates every 10 seconds. In the upper right corner, a timer ticks down to the next update.

In the lower left corner, the report displays a list of options. To exit interactive mode, press **Q**. To scroll, press the arrow keys. To see a list of additional commands, press **H**.

## Interactive Health View Options

When viewing environment health interactively, you can use keyboard keys to adjust the view and tell Elastic Beanstalk to replace or reboot individual instances. To see a list of available commands while viewing the health report in interactive mode, press **H** :

```

up,down,home,end Scroll vertically
left,right Scroll horizontally
F Freeze/unfreeze data
X Replace instance
B Reboot instance
<,> Move sort column left/right
-,+ Sort order descending/ascending
P Save health snapshot data file
Z Toggle color/mono mode

Views
1 All tables/split view
2 Status Table
3 Request Summary Table
4 CPU%/Load Table
H This help menu

```

## Managing Multiple AWS Elastic Beanstalk Environments as a Group with the EB CLI

You can use the EB CLI to create groups of environments, each running a separate component of a service-oriented architecture application by using the `Compose Environments` API.

Organize your application components into the following folder structure:

```
~/project-name
|-- component-a
| |-- env.yaml
|-- component-b
| |-- env.yaml
```

Each subfolder contains the source code for an independent component of an application that will run in its own environment and an environment definition file named `env.yaml`. For details on the `env.yaml` format, see [Environment Manifest \(env.yaml\)](#) (p. 219).

To use the `Compose Environments` API, first run `eb init` from the project folder, specifying each component by the name of the folder that contains it with the `--modules` option:

```
~/workspace/project-name$ eb init --modules component-a component-b
```

The EB CLI prompts you to [configure each component](#) (p. 425), and then creates the `.elasticbeanstalk` directory in each component folder. EB CLI doesn't create configuration files in the parent directory.

```
~/project-name
|-- component-a
| |-- .elasticbeanstalk
| |-- env.yaml
|-- component-b
| |-- .elasticbeanstalk
| |-- env.yaml
```

Next, run the `eb create` command with a list of environments to create, one for each component:

```
~/workspace/project-name$ eb create --modules component-a component-b --env-
group-suffix group-name
```

This command creates an environment for each component. The names of the environments are created by concatenating the `EnvironmentName` specified in the `env.yaml` file with the group name, separated by a hyphen. The total length of these two options and the hyphen must not exceed the maximum allowed environment name length of 23 characters.

To update the environment, use the `eb deploy` command:

```
~/workspace/project-name$ eb deploy --modules component-a component-b
```

You can update each component individually or you can update them as a group. Specify the components that you want to update with the `--modules` option.

The EB CLI stores the group name that you used with `eb create` in the `branch-defaults` section of the EB CLI configuration file under `/.elasticbeanstalk/config.yml`. To deploy your application to a different group, use the `--env-group-suffix` option when you run `eb deploy`. If the group does not already exist, the EB CLI will create a new group of environments:

```
~/workspace/project-name$ eb deploy --modules component-a component-b --env-
group-suffix group-2-name
```

To terminate environments, run `eb terminate` in the folder for each module. By default, the EB CLI will show an error if you try to terminate an environment that another running environment is dependent on. Terminate the dependent environment first, or use the `--ignore-links` option to override the default behavior:

```
~/workspace/project-name/component-b$ eb terminate --ignore-links
```

## Troubleshooting issues with the EB CLI

This topic lists common error messages encountered when using the EB CLI and possible solutions. If you encounter an error message not shown here, use the *Feedback* links to let us know about it.

**ERROR: An error occurred while handling git command. Error code: 128 Error: fatal: Not a valid object name HEAD**

**Cause:** This error message is shown when you have initialized a Git repository but have not yet committed. The EB CLI looks for the HEAD revision when your project folder contains a Git repository.

**Solution:** Add the files in your project folder to the staging area and commit:

```
~/my-app$ git add .
~/my-app$ git commit -m "First commit"
```

**ERROR: This branch does not have a default environment. You must either specify an environment by typing "eb status my-env-name" or set a default environment by typing "eb use my-env-name".**

**Cause:** When you create a new branch in git, it is not attached to an Elastic Beanstalk environment by default.

**Solution:** Run `eb list` to see a list of available environments. Then run `eb use env-name` to use one of the available environments.

**ERROR: 2.0+ Platforms require a service role. You can provide one with --service-role option**

**Cause:** If you specify an environment name with `eb create` (for example, `eb create my-env`), the EB CLI will not attempt to create a service role for you. If you don't have the default service role, the above error is shown.

**Solution:** Run `eb create` without an environment name and follow the prompts to create the default service role.

## Troubleshooting deployments

If your Elastic Beanstalk deployment didn't go quite as smoothly as planned, you may get a 404 (if your application failed to launch) or 500 (if your application fails during runtime) response, instead

of seeing your website. To troubleshoot many common issues, you can use the EB CLI to check the status of your deployment, view its logs, gain access to your EC2 instance with SSH, or to open the AWS Management Console page for your application environment.

### To use the EB CLI to help troubleshoot your deployment

1. Run `eb status` to see the status of your current deployment and health of your EC2 hosts. For example:

```
$ eb status --verbose

Environment details for: python_eb_app
Application name: python_eb_app
Region: us-west-2
Deployed Version: app-150206_035343
Environment ID: e-wa8u6rrmqy
Platform: 64bit Amazon Linux 2014.09 v1.1.0 running Python 2.7
Tier: WebServer-Standard-
CNAME: python_eb_app.elasticbeanstalk.com
Updated: 2015-02-06 12:00:08.557000+00:00
Status: Ready
Health: Green
Running instances: 1
 i-8000528c: InService
```

#### Note

Using the `--verbose` switch provides information about the status of your running instances. Without it, `eb status` will print only general information about your environment.

2. Run `eb health` to view health information about your environment:

```
$ eb health --refresh
elasticBeanstalkExa-env Degraded
 2016-03-28 23:13:20
WebServer
 Ruby 2.1 (Puma)
total ok warning degraded severe info pending unknown
 5 2 0 2 1 0 0 0

instance-id status cause
Overall Degraded Incorrect application version found on 3 out of
5 instances. Expected version "Sample Application" (deployment 1).
i-d581497d Degraded Incorrect application version "v2" (deployment
2). Expected version "Sample Application" (deployment 1).
i-d481497c Degraded Incorrect application version "v2" (deployment
2). Expected version "Sample Application" (deployment 1).
i-136e00c0 Severe Instance ELB health has not been available for 5
minutes.
i-126e00c1 Ok
i-8b2cf575 Ok

instance-id r/sec %2xx %3xx %4xx %5xx p99 p90
p75 p50 p10
Overall 646.7 100.0 0.0 0.0 0.0 0.003 0.002
0.001 0.001 0.000
i-dac3f859 167.5 1675 0 0 0 0.003 0.002
0.001 0.001 0.000
```

```

i-05013a81 161.2 1612 0 0 0 0.003 0.002
0.001 0.001 0.000
i-04013a80 0.0 - - - - - -
- - -
i-3ab524a1 155.9 1559 0 0 0 0.003 0.002
0.001 0.001 0.000
i-bf300d3c 162.1 1621 0 0 0 0.003 0.002
0.001 0.001 0.000

instance-id type az running load 1 load 5 user%
nice% system% idle% iowait%
i-d581497d t2.micro 1a 25 mins 0.16 0.1 7.0
0.0 1.7 91.0 0.1
i-d481497c t2.micro 1a 25 mins 0.14 0.1 7.2
0.0 1.6 91.1 0.0
i-136e00c0 t2.micro 1b 25 mins 0.0 0.01 0.0
0.0 0.0 99.9 0.1
i-126e00c1 t2.micro 1b 25 mins 0.03 0.08 6.9
0.0 2.1 90.7 0.1
i-8b2cf575 t2.micro 1c 1 hour 0.05 0.41 6.9
0.0 2.0 90.9 0.0

instance-id status id version ago
deployments
i-d581497d Deployed 2 v2 9 mins
i-d481497c Deployed 2 v2 7 mins
i-136e00c0 Failed 2 v2 5 mins
i-126e00c1 Deployed 1 Sample Application 25 mins
i-8b2cf575 Deployed 1 Sample Application 1 hour

```

The above example shows an environment with five instances where the deployment of version "v2" failed on the third instance. After a failed deployment, the expected version is reset to the last version that succeeded, which in this case is "Sample Application" from the first deployment. See [Using the EB CLI to Monitor Environment Health \(p. 439\)](#) for more information.

3. Run `eb logs` to download and view the logs associated with your application deployment.

```
$ eb logs
```

4. Run `eb ssh` to connect with the EC2 instance that's running your application and examine it directly. On the instance, your deployed application can be found in the `/opt/python/current/app` directory, and your Python environment will be found in `/opt/python/run/venv/`.
5. Run `eb console` to view your application environment on the [AWS Management Console](#). You can use the web interface to easily examine various aspects of your deployment, including your application's configuration, status, events, logs. You can also download the current or past application versions that you've deployed to the server.

## EB CLI Command Reference

You can use the Elastic Beanstalk Command Line Interface (EB CLI) to perform a variety of operations to deploy and manage your Elastic Beanstalk applications and environments. EB CLI integrates with Git if you want to deploy application source code that is under Git source control. For more information, see [The Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 416\)](#) and [Using the EB CLI with Git \(p. 433\)](#).

## Common Options

The following options can be used with all EB CLI commands.

| Name                         | Description                                                                                       |
|------------------------------|---------------------------------------------------------------------------------------------------|
| <code>--debug</code>         | Print information for debugging.                                                                  |
| <code>-h, --help</code>      | Show the Help message.<br><br>Type: String<br>Default: None                                       |
| <code>--no-verify-ssl</code> | Skip SSL certificate verification. Use this option if you have issues using the CLI with a proxy. |
| <code>--profile</code>       | Use a specific profile from your AWS credentials file.                                            |
| <code>--quiet</code>         | Suppress all output from the command.                                                             |
| <code>--region</code>        | Use the specified region.                                                                         |
| <code>-v, --verbose</code>   | Display verbose information.                                                                      |

### Commands

- [eb abort](#) (p. 449)
- [eb clone](#) (p. 449)
- [eb codesource](#) (p. 451)
- [eb config](#) (p. 452)
- [eb console](#) (p. 454)
- [eb create](#) (p. 455)
- [eb deploy](#) (p. 460)
- [eb events](#) (p. 462)
- [eb health](#) (p. 463)
- [eb init](#) (p. 464)
- [eb labs](#) (p. 466)
- [eb list](#) (p. 467)
- [eb local](#) (p. 468)
- [eb logs](#) (p. 470)
- [eb open](#) (p. 471)
- [eb platform](#) (p. 471)
- [eb printenv](#) (p. 473)
- [eb scale](#) (p. 473)
- [eb setenv](#) (p. 474)
- [eb ssh](#) (p. 475)
- [eb status](#) (p. 477)
- [eb swap](#) (p. 478)
- [eb terminate](#) (p. 479)
- [eb upgrade](#) (p. 480)
- [eb use](#) (p. 481)

eb abort

## Description

Cancels an upgrade when environment configuration changes to instances are still in progress.

### Note

If you have more than two environments that are undergoing a update, you are prompted to select the name of the environment for which you want to roll back changes.

## Syntax

eb abort

eb abort *environment\_name*

## Options

| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

## Output

The command shows a list of environments currently being updated and prompts you to choose the update that you want to abort. If only one environment is currently being updated, you do not need to specify the environment name. If successful, the command reverts environment configuration changes. The rollback process continues until all instances in the environment have the previous environment configuration or until the rollback process fails.

## Example

The following example cancels the platform upgrade.

```
$ eb abort
Aborting update to environment "tmp-dev".
<list of events>
```

eb clone

## Description

Clones an environment to a new environment so that both have identical environment settings.

### Note

By default, regardless of the solution stack version of the environment from which you create the clone, the `eb clone` command creates the clone environment with the most recent solution stack. You can suppress this by including the `--exact` option when you run the command.

## Syntax

eb clone

eb clone *environment\_name*

## Options

| Name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -n <i>string</i><br>or<br>--clone_name <i>string</i> | Desired name for the cloned environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -c <i>string</i><br>or<br>--cname <i>string</i>      | Desired CNAME prefix for the cloned environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| --envvars                                            | Environment properties in a comma-separated list with the format <i>name=value</i> .<br><br>Type: String<br><br>Constraints: <ul style="list-style-type: none"> <li>• Key-value pairs must be separated by commas.</li> <li>• Keys and values can contain any alphabetic character in any language, any numeric character, white space, invisible separator, and the following symbols: <code>_ . : / + \ - @</code></li> <li>• Keys can contain up to 128 characters. Values can contain up to 256 characters.</li> <li>• Keys and values are case sensitive.</li> <li>• Values cannot match the environment name.</li> <li>• Values cannot include either <code>aws:</code> or <code>elasticbeanstalk:</code>.</li> <li>• The combined size of all environment properties cannot exceed 4096 bytes.</li> </ul> |
| --exact                                              | Prevents Elastic Beanstalk from updating the solution stack version for the new clone environment to the most recent version available (for the original environment's platform).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| --scale <i>number</i>                                | The number of instances to run in the clone environment when it is launched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| --tags <i>name=value</i>                             | <a href="#">Tags (p. 111)</a> for the resources in your environment in a comma-separated list with the format <i>name=value</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| --timeout                                            | The number of minutes before the command times out.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <a href="#">Common options (p. 448)</a>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## Output

If successful, the command creates an environment that has the same settings as the original environment or with modifications to the environment as specified by any `eb clone` options.

## Example

The following example clones the specified environment.



```
$ eb clone
Enter name for Environment Clone
(default is tmp-dev-clone):
Enter DNS CNAME prefix
(default is tmp-dev-clone):
Environment details for: tmp-dev-clone
 Application name: tmp
 Region: us-west-2
 Deployed Version: app-141029_144740
 Environment ID: e-vjvrqnn5pv
 Platform: 64bit Amazon Linux 2014.09 v1.0.9 running PHP 5.5
 Tier: WebServer-Standard-1.0
 CNAME: tmp-dev-clone.elasticbeanstalk.com
 Updated: 2014-10-29 22:00:23.008000+00:00
Printing Status:
INFO: createEnvironment is starting.
INFO: Using elasticbeanstalk-us-west-2-888214631909 as Amazon S3 storage
bucket for environment data.
INFO: Created load balancer named: awseb-e-v-AWSEBLoa-4X0VL5UVQ353
INFO: Created security group named: awseb-e-vjvrqnn5pv-stack-
AWSEBSecurityGroup-18AV9FGCH2HZM
INFO: Created Auto Scaling launch configuration named: awseb-e-vjvrqnn5pv-
stack-AWSEBAutoScalingLaunchConfiguration-FDUWRSZZ6L3Z
INFO: Waiting for EC2 instances to launch. This may take a few minutes.
INFO: Created Auto Scaling group named: awseb-e-vjvrqnn5pv-stack-
AWSEBAutoScalingGroup-69DN6PO5TISM
INFO: Created Auto Scaling group policy named: arn:aws:autoscaling:us-
west-2:11122223333:scalingPolicy:addb18d0-7088-402f-90ae-43be7c8d40cb:autoScalingGroupName/
awseb-e-vjvrqnn5pv-stack-AWSEBAutoScalingGroup-69DN6PO5TISM:policyName/awseb-
e-vjvrqnn5pv-stack-AWSEBAutoScalingScaleDownPolicy-I8GFGQ8T8MOV
INFO: Created Auto Scaling group policy named: arn:aws:autoscaling:us-
west-2:11122223333:scalingPolicy:fdcee817-e687-4fce-
adc3-376995b3fef5:autoScalingGroupName/awseb-e-vjvrqnn5pv-stack-
AWSEBAutoScalingGroup-69DN6PO5TISM:policyName/awseb-e-vjvrqnn5pv-stack-
AWSEBAutoScalingScaleUpPolicy-1R312293DFY24
INFO: Created CloudWatch alarm named: awseb-e-vjvrqnn5pv-stack-
AWSEBCloudwatchAlarmLow-1M67HXZH1U9K3
INFO: Created CloudWatch alarm named: awseb-e-vjvrqnn5pv-stack-
AWSEBCloudwatchAlarmHigh-1K5CI7RVGV8ZJ
INFO: Added EC2 instance 'i-cf30e1c5' to Auto Scaling Group 'awseb-e-
vjvrqnn5pv-stack-AWSEBAutoScalingGroup-69DN6PO5TISM'.
INFO: Successfully launched environment: tmp-dev-clone
```

[eb codesource](#)

## Description

Configures the EB CLI to [deploy from an AWS CodeCommit repository \(p. 434\)](#), or disables AWS CodeCommit integration and uploads the source bundle from your local machine.

## Syntax

```
eb codesource
```

```
eb codesource codecommit
```

```
eb codesource local
```

## Options

| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

## Output

`eb codesource` prompts you to choose between AWS CodeCommit integration and standard deployments.

`eb codesource codecommit` initiates interactive repository configuration for AWS CodeCommit integration.

`eb codesource local` shows the original configuration and disables AWS CodeCommit integration.

## Examples

Use `eb codesource codecommit` to configure AWS CodeCommit integration for the current branch.

```
~/my-app$ eb codesource codecommit
Select a repository
1) my-repo
2) my-app
3) [Create new Repository]
(default is 1): 1

Select a branch
1) master
2) test
3) [Create new Branch with local HEAD]
(default is 1): 1
```

Use `eb codesource local` to disable AWS CodeCommit integration for the current branch.

```
~/my-app$ eb codesource local
Current CodeCommit setup:
 Repository: my-app
 Branch: master
Default set to use local sources
```

`eb config`

## Description

Changes the environment configuration settings. This command saves the environment configuration settings as well as uploads, downloads, or lists saved configurations.

## Syntax

```
eb config
```

```
eb config environment_name
```

The following describes the syntax for using the `eb config` command to work with saved configurations. For examples, see the [Examples \(p. 453\)](#) section later in this topic.

- `eb config delete filename` – Deletes the named saved configuration.
- `eb config get filename` – Downloads the named saved configuration.
- `eb config list` – Lists the saved configurations that you have in Amazon S3.
- `eb config put filename` – Uploads the named saved configuration to an Amazon S3 bucket. The `filename` must have the file extension `.cfg.yml`. To specify the file name without a path, you can save the file to the `.elasticbeanstalk` folder or to the `.elasticbeanstalk/saved_configs/` folder before you run the command. Alternatively, you can specify the `filename` by providing the full path.
- `eb config save` – Saves the environment configuration settings for the current running environment to `.elasticbeanstalk/saved_configs/` with the filename `[configuration-name].cfg.yml`. By default, the EB CLI saves the configuration settings with a `configuration-name` based on the environment name. You can specify a different configuration name by including the `--cfg` option with your desired configuration name when you run the command.

## Options

| Name                                    | Description                                                                                                                            |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <code>--cfg config-name</code>          | The name to use for a saved configuration (which you can later specify to create or update an environment from a saved configuration). |
| <code>--timeout timeout</code>          | The number of minutes before the command times out.                                                                                    |
| <a href="#">Common options (p. 448)</a> |                                                                                                                                        |

## Output

If the command runs successfully with no parameters, the command displays your current option settings in the text editor that you configured as the `EDITOR` environment variable. (If you have not configured an `EDITOR` environment variable, then EB CLI displays your option settings in your computer's default editor for YAML files.) When you save changes to the file and close the editor, the environment is updated with the option settings in the file.

If the command runs successfully with the `get` parameter, the command displays the location of the local copy that you downloaded.

If the command runs successfully with the `save` parameter, the command displays the location of the saved file.

## Examples

This section describes how to change the text editor that you use to view and edit your option settings file.

For Linux/UNIX, the following example changes the editor to vim:

```
$ export EDITOR=vim
```

For Linux/UNIX, the following example changes the editor to what is installed at `/usr/bin/kate`.

```
$ export EDITOR=/usr/bin/kate
```

For Windows, the following example changes the editor to Notepad++.

```
> set EDITOR="C:\Program Files\Notepad++\Notepad++.exe"
```

This section provides examples for the `eb config` command when it is run with parameters.

The following example deletes the saved configuration named `app-tmp`.

```
$ eb config delete app-tmp
```

The following example downloads the saved configuration with the name `app-tmp` from your Amazon S3 bucket.

```
$ eb config get app-tmp
```

The following example lists the names of saved configurations that are stored in your Amazon S3 bucket.

```
$ eb config list
```

The following example uploads the local copy of the saved configuration named `app-tmp` to your Amazon S3 bucket.

```
$ eb config put app-tmp
```

The following example saves configuration settings from the current running environment. If you do not provide a name to use for the saved configuration, then Elastic Beanstalk names the configuration file according to the environment name. For example, an environment named `tmp-dev` would be called `tmp-dev.cfg.yml`. Elastic Beanstalk saves the file to the folder `/.elasticbeanstalk/saved_configs/`.

```
$ eb config save
```

The following example shows how to use the `--cfg` option to save the configuration settings from the environment `tmp-dev` to a file called `v1-app-tmp.cfg.yml`. Elastic Beanstalk saves the file to the folder `/.elasticbeanstalk/saved_configs/`. If you do not specify an environment name, Elastic Beanstalk saves configuration settings from the current running environment.

```
$ eb config save tmp-dev --cfg v1-app-tmp
```

[eb console](#)

## Description

Opens a browser to display the environment configuration dashboard in the Elastic Beanstalk Management Console.

## Syntax

```
eb console
```

```
eb console environment_name
```

## Options

| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

eb create

## Description

Create a new environment.

### Note

To use **create** on a .NET application, you must create a deployment package as described in [Creating a Source Bundle for a .NET Application \(p. 49\)](#), then set up the CLI configuration to deploy the package as an artifact as described in [Deploying an Artifact Instead of the Project Folder \(p. 428\)](#).

### Note

Creating environments with the EB CLI requires a [service role \(p. 17\)](#). You can create a service role by creating an environment in the Elastic Beanstalk Management Console. If you don't have a service role, the EB CLI will attempt to create one when you run `eb create`.

## Syntax

eb create

eb create *environment-name*

eb create *environment-name-1 environment-name-2* (see [Compose Environments \(p. 444\)](#))

Environment names must be between 4 and 40 characters long and can only contain letters, numbers, and hyphens. Environment names can't begin or end with a hyphen.

If you include an environment name in the command, the EB CLI does not prompt you to make any selections or create a service role.

## Options

None of these options are required. If you run `eb create` without any options, you are prompted to enter or select a value for each setting.

| Name                           | Description                                                                                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -d<br>or<br>--branch_default   | Set the environment as the default environment for the current repository.                                                                                                                                                           |
| --cfg <i>config-name</i>       | <a href="#">Use platform settings from a saved configuration (p. 137)</a> in <code>.elasticbeanstalk/saved_configs/</code> or your Amazon S3 bucket. Specify the name of the file only, without the <code>.cfg.yml</code> extension. |
| -c <i>subdomain-name</i><br>or | The subdomain name to prefix the CNAME DNS entry that routes to your web site.                                                                                                                                                       |

| Name                                                                                                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--cname <i>subdomain-name</i></code>                                                                        | Type: String<br><br>Default: The environment name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <code>-db</code><br>or<br><code>--database</code>                                                                 | Attaches a database to the environment. If you run <code>eb create</code> with the <code>--database</code> option, but without the <code>--database.username</code> and <code>--database.password</code> options, then EB CLI prompts you for the master database user name and password.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <code>-db.engine <i>engine</i></code><br>or<br><code>--database.engine <i>engine</i></code>                       | The database engine type. If you run <code>eb create</code> with this option, then EB CLI launches the environment with a database attached even if you didn't run the command with the <code>--database</code> option.<br><br>Type: String<br><br>Valid values: <code>mysql</code> , <code>oracle-sel</code> , <code>postgres</code> , <code>sqlserver-ex</code> , <code>sqlserver-web</code> , <code>sqlserver-se</code>                                                                                                                                                                                                                                                                                        |
| <code>-db.i <i>instance_type</i></code><br>or<br><code>--database.instance <i>instance_type</i></code>            | The type of Amazon EC2 instance to use for the database. If you run <code>eb create</code> with this option, then EB CLI launches the environment with a database attached even if you didn't run the command with the <code>--database</code> option.<br><br>Type: String<br><br>Valid values: See <a href="#">Option Values</a> .                                                                                                                                                                                                                                                                                                                                                                               |
| <code>-db.pass <i>password</i></code><br>or<br><code>--database.password <i>password</i></code>                   | The password for the database. If you run <code>eb create</code> with this option, then EB CLI launches the environment with a database attached even if you didn't run the command with the <code>--database</code> option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <code>-db.size <i>number_of_gigabytes</i></code><br>or<br><code>--database.size <i>number_of_gigabytes</i></code> | The number of gigabytes (GB) to allocate for database storage. If you run <code>eb create</code> with this option, then EB CLI launches the environment with a database attached even if you didn't run the command with the <code>--database</code> option.<br><br>Type: Number<br><br>Valid values:<br><ul style="list-style-type: none"> <li>• <b>MySQL</b> – 5 to 1024. The default is 5.</li> <li>• <b>Postgres</b> – 5 to 1024. The default is 5.</li> <li>• <b>Oracle</b> – 10 to 1024. The default is 10.</li> <li>• <b>Microsoft SQL Server Express Edition</b> – 30.</li> <li>• <b>Microsoft SQL Server Web Edition</b> – 30.</li> <li>• <b>Microsoft SQL Server Standard Edition</b> – 200.</li> </ul> |

| Name                                                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -db.user <i>username</i><br>or<br>--database.username<br><i>username</i>   | The user name for the database. If you run <code>eb create</code> with this option, then EB CLI launches the environment with a database attached even if you didn't run the command with the <code>--database</code> option. If you run <code>eb create</code> with the <code>--database</code> option, but without the <code>--database.username</code> and <code>--database.password</code> options, then EB CLI prompts you for the master database user name and password.                                                                                                                                                                                                                                                                                                                |
| -db.version <i>version</i><br>or<br>--database.version<br><i>version</i>   | Allows you to specify the database engine version. If this flag is present, the environment will launch with a database with the specified version number, even if the <code>--database</code> flag is not present.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| --elb-type <i>type</i>                                                     | Set the <a href="#">load balancer type (p. 236)</a> to <code>classic</code> or <code>application</code> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| --env-group-suffix<br><i>groupname</i>                                     | Group name to append to the environment name. Only for use with <a href="#">Compose Environments (p. 444)</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| --envvars                                                                  | Environment properties in a comma-separated list with the format <i>name=value</i> .<br><br>Constraints: <ul style="list-style-type: none"> <li>• Key-value pairs must be separated by commas.</li> <li>• Keys and values can contain any alphabetic character in any language, any numeric character, white space, invisible separator, and the following symbols: <code>_ . : / = + \ - @</code></li> <li>• Keys can contain up to 128 characters. Values can contain up to 256 characters.</li> <li>• Keys and values are case sensitive.</li> <li>• Values cannot match the environment name.</li> <li>• Values cannot include either <code>aws:</code> or <code>elasticbeanstalk:</code>.</li> <li>• The combined size of all environment properties cannot exceed 4096 bytes.</li> </ul> |
| -ip <i>profile_name</i><br>or<br>--instance_profile<br><i>profile_name</i> | The instance profile with the IAM role with the temporary security credentials that your application needs to access AWS resources.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| -i<br>or<br>--instance_type                                                | The type of Amazon EC2 instance to use in the environment.<br><br>Valid values: See <a href="#">Option Values</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Name                                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -k <i>key_name</i><br>or<br>--keyname <i>key_name</i>                              | The name of the Amazon EC2 key pair to use with the Secure Shell (SSH) client to securely log in to the Amazon EC2 instances running your Elastic Beanstalk application. If you include this option with the <code>eb create</code> command, the value you provide overwrites any key name that you might have specified with <code>eb init</code> .<br><br>Valid values: An existing key name that is registered with Amazon EC2                                                                                              |
| --modules <i>component-a</i><br><i>component-b</i>                                 | List of component environments to create. Only for use with <a href="#">Compose Environments (p. 444)</a> .                                                                                                                                                                                                                                                                                                                                                                                                                    |
| -p <i>platform-configuration</i><br>or<br>--platform <i>platform-configuration</i> | The <a href="#">platform configuration (p. 24)</a> to use. You can specify a platform, platform configuration, or solution stack name. For example: <ul style="list-style-type: none"> <li>• <code>php</code> - the latest available PHP configuration</li> <li>• <code>php-5.5</code> - the latest PHP 5.5 configuration</li> <li>• <code>"64bit Amazon Linux 2016.03 v2.1.5 running PHP 7.0"</code> - PHP 7.0 version 2.1.5</li> </ul> Use <code>eb platform list (p. 471)</code> to get a list of available configurations. |
| -r <i>region</i><br>or<br>--region <i>region</i>                                   | The AWS region in which you want to deploy the application.<br><br>For the list of values you can specify for this option, see <a href="#">AWS Elastic Beanstalk</a> in the <a href="#">Regions and Endpoints</a> topic in the <i>Amazon Web Services General Reference</i> .                                                                                                                                                                                                                                                  |
| --sample                                                                           | Deploy the sample application to the new environment instead of the code in your repository.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| --scale <i>number-of-instances</i>                                                 | Launch with the specified number of instances                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| --service-role <i>servicerole</i>                                                  | Assign a non-default service role to the environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| --single                                                                           | Create the environment without a load balancer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| --tags <i>name=value</i>                                                           | <a href="#">Tag (p. 111)</a> the resources in your environment. Separate multiple tags with a comma.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| -t <i>worker</i><br>or<br>--tier <i>worker</i>                                     | Create a worker environment. Omit this option to create a web server environment.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| --timeout <i>minutes</i>                                                           | Set number of minutes before the command times out.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



| Name                                                                   | Description                                                                                                                                                                                                                       |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--version <i>version_label</i></code>                            | Specifies the application version that you want deployed to the environment instead of the application source code in the local project directory.<br><br>Type: String<br><br>Valid values: An existing application version label |
| <code>--vpc</code>                                                     | Configure a VPC for your environment. When you include this option, the EB CLI prompts you to enter all required settings prior to launching the environment.                                                                     |
| <code>--vpc.dbsubnets <i>subnet1,subnet2</i></code>                    | Specifies subnets for database instances in a VPC. Required when <code>--vpc.id</code> is specified.                                                                                                                              |
| <code>--vpc.ec2subnets <i>subnet1,subnet2</i></code>                   | Specifies subnets for Amazon EC2 instances in a VPC. Required when <code>--vpc.id</code> is specified.                                                                                                                            |
| <code>--vpc.elbpublic</code>                                           | Launches your Elastic Load Balancing load balancer in a public subnet in your VPC.                                                                                                                                                |
| <code>--vpc.elbsubnets <i>subnet1,subnet2</i></code>                   | Specifies subnets for the Elastic Load Balancing load balancer in a VPC.                                                                                                                                                          |
| <code>--vpc.id <i>ID</i></code>                                        | Launches your environment in the specified VPC.                                                                                                                                                                                   |
| <code>--vpc.publicip</code>                                            | Launches your Amazon EC2 instances in a public subnet in your VPC.                                                                                                                                                                |
| <code>--vpc.securitygroups <i>securitygroup1,securitygroup2</i></code> | Specifies the security group ID or security group name. Required when <code>--vpc.id</code> is specified.                                                                                                                         |
| <a href="#">Common options (p. 448)</a>                                |                                                                                                                                                                                                                                   |

## Output

If successful, the command prompts you with questions and then returns the status of the create operation. If there were problems during the launch, you can use the `eb events` (p. 462) operation to get more details.

## Examples

The following example creates an environment in interactive mode.

```
$ eb create
Enter Environment Name
(default is tmp-dev): ENTER
Enter DNS CNAME prefix
(default is tmp-dev): ENTER
Select a load balancer type
1) classic
2) application
(default is 1): ENTER
Environment details for: tmp-dev
 Application name: tmp
 Region: us-west-2
```

```
Deployed Version: app-141029_145448
Environment ID: e-um3yfrzq22
Platform: 64bit Amazon Linux 2014.09 v1.0.9 running PHP 5.5
Tier: WebServer-Standard-1.0
CNAME: tmp-dev.elasticbeanstalk.com
Updated: 2014-10-29 21:54:51.063000+00:00
Printing Status:
...
```

The following command creates an environment without displaying any prompts:

```
$ eb create dev-env
Creating application version archive "app-160312_014028".
Uploading test/app-160312_014028.zip to S3. This may take a while.
Upload Complete.
Application test has been created.
Environment details for: dev-env
 Application name: test
 Region: us-east-1
 Deployed Version: app-160312_014028
 Environment ID: e-6fgpkjxyyi
 Platform: 64bit Amazon Linux 2015.09 v2.0.8 running PHP 5.6
 Tier: WebServer-Standard
 CNAME: UNKNOWN
 Updated: 2016-03-12 01:40:33.614000+00:00
Printing Status:
...
```

The following command creates an environment in a custom VPC:

```
$ eb create dev-vpc --vpc.id vpc-0ce8dd99 --vpc.elbsubnets subnet-
b356d7c6,subnet-02f74b0c --vpc.ec2subnets subnet-0bb7f0cd,subnet-3b6697c1 --
vpc.securitygroup sg-70cff265
Creating application version archive "app-160312_014309".
Uploading test/app-160312_014309.zip to S3. This may take a while.
Upload Complete.
Environment details for: dev-vpc
 Application name: test
 Region: us-east-1
 Deployed Version: app-160312_014309
 Environment ID: e-pqkqip3mns
 Platform: 64bit Amazon Linux 2015.09 v2.0.8 running Java 8
 Tier: WebServer-Standard
 CNAME: UNKNOWN
 Updated: 2016-03-12 01:43:14.057000+00:00
Printing Status:
...
```

[eb deploy](#)

## Description

Deploys the application source bundle from the initialized project directory to the running application.

If `git` is installed, EB CLI uses the `git archive` command to create a `.zip` file from the contents of the most recent `git commit` command.

**Note**

You can configure the EB CLI to deploy an artifact from your build process instead of creating a ZIP file of your project folder. See [Deploying an Artifact Instead of the Project Folder \(p. 428\)](#) for details.

## Syntax

eb deploy

eb deploy *environment\_name*

## Options

| Name                                                                                | Description                                                                                                                                                |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -l <i>version_label</i><br>or<br>--label <i>version_label</i>                       | The version label for the application version that EB CLI deploys. If the version label includes spaces, surround it in double quotes.<br><br>Type: String |
| --env-group-suffix <i>groupname</i>                                                 | Group name to append to the environment name. Only for use with <a href="#">Compose Environments (p. 444)</a> .                                            |
| -m " <i>version_description</i> "<br>or<br>--message " <i>version_description</i> " | The description for the application version, enclosed in double quotation marks.<br><br>Type: String                                                       |
| --modules <i>component-a component-b</i>                                            | List of components to update. Only for use with <a href="#">Compose Environments (p. 444)</a> .                                                            |
| --source <i>repository-name/branch-name</i>                                         | AWS CodeCommit repository and branch. See <a href="#">Using the EB CLI with AWS CodeCommit (p. 434)</a> .                                                  |
| --staged                                                                            | Deploy files staged in the git index instead of the HEAD commit.                                                                                           |
| --timeout <i>minutes</i>                                                            | The number of minutes before the command times out.                                                                                                        |
| --version <i>version_label</i>                                                      | An existing application version to deploy.<br><br>Type: String                                                                                             |
| <a href="#">Common options (p. 448)</a>                                             |                                                                                                                                                            |

## Output

If successful, the command returns the status of the `deploy` operation.

## Example

The following example deploys the current application.

```
$ eb deploy
INFO: Environment update is starting.
INFO: Deploying new version to instance(s).
```

```
INFO: New application version was deployed to running EC2 instances.
INFO: Environment update completed successfully.
```

eb events

## Description

Returns the most recent events for the environment.

## Syntax

eb events

eb events *environment\_name*

## Options

| Name     | Description                              |
|----------|------------------------------------------|
| -f       | Streams events. To cancel, press CTRL+C. |
| or       |                                          |
| --follow |                                          |

## Output

If successful, the command returns recent events.

## Example

The following example returns the most recent events.

```
$ eb events
2014-10-29 21:55:39 INFO createEnvironment is starting.
2014-10-29 21:55:40 INFO Using elasticbeanstalk-us-west-2-169465803350
as Amazon S3 storage bucket for environment data.
2014-10-29 21:55:57 INFO Created load balancer named: awseb-e-r-
AWSEBLoa-NSKUOK5X6Z9J
2014-10-29 21:56:16 INFO Created security group named: awseb-e-
rxgrhjr9bx-stack-AWSEBSecurityGroup-1UUHU5LZ20ZY7
2014-10-29 21:56:20 INFO Created Auto Scaling launch configuration
named:awseb-e-rxgrhjr9bx-stack-AWSEBAutoScalingLaunchConfiguration-
AG68JQHE9NWO
2014-10-29 21:57:18 INFO Waiting for EC2 instances to launch. This may
take a few minutes.
2014-10-29 21:57:18 INFO Created Auto Scaling group named: awseb-e-
rxgrhjr9bx-stack-AWSEBAutoScalingGroup-1TE320ZCJ9RPD
2014-10-29 21:57:22 INFO Created Auto Scaling group policy named:
arn:aws:autoscaling:us-west-2:1112223333:scalingPolicy:2cced9e6-859b-421a-
be63-8ab34771155a:autoScalingGroupName/awseb-e-rxgrhjr9bx-stack-
AWSEBAutoScalingGroup-1TE320ZCJ9RPD:policyName/awseb-e-rxgrhjr9bx-stack-
AWSEBAutoScalingScaleUpPolicy-1I2ZSNVU4APRY
2014-10-29 21:57:22 INFO Created Auto Scaling group policy named:
arn:aws:autoscaling:us-west-2:1112223333:scalingPolicy:1f08b863-
bf65-415a-b584-b7fa3a69a0d5:autoScalingGroupName/awseb-e-rxgrhjr9bx-stack-
```

```

AWSEBAutoScalingGroup-1TE320ZCJ9RPD:policyName/awseb-e-rxgrhjr9bx-stack-
AWSEBAutoScalingScaleDownPolicy-1E3G7PZKZPSOG
2014-10-29 21:57:25 INFO Created CloudWatch alarm named: awseb-e-
rxgrhjr9bx-stack-AWSEBCloudwatchAlarmLow-VF5EJ549FZBL
2014-10-29 21:57:25 INFO Created CloudWatch alarm named: awseb-e-
rxgrhjr9bx-stack-AWSEBCloudwatchAlarmHigh-LA9YEW3O6WJO
2014-10-29 21:58:50 INFO Added EC2 instance 'i-c7ee492d' to Auto
ScalingGroup 'awseb-e-rxgrhjr9bx-stack-AWSEBAutoScalingGroup-1TE320ZCJ9RPD'.
2014-10-29 21:58:53 INFO Successfully launched environment: tmp-dev
2014-10-29 21:59:14 INFO Environment health has been set to GREEN
2014-10-29 21:59:43 INFO Adding instance 'i-c7ee492d' to your
environment.

```

eb health

## Description

Returns the most recent health for the environment.

## Syntax

eb health

eb health *environment\_name*

## Options

| Name                  | Description                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------------------|
| -r<br>or<br>--refresh | Show health information interactively and update every ten seconds as new information is reported. |
| --mono                | Don't display color in output.                                                                     |

## Output

If successful, the command returns recent health.

## Example

The following example returns the most recent health.

```

$ eb health
elasticBeanstalkExa-env Ok
 2015-07-08 23:13:20
WebServer
 Ruby 2.1 (Puma)
total ok warning degraded severe info pending unknown
5 5 0 0 0 0 0 0

id status cause
Overall Ok
i-d581497d Ok

```

```

i-d481497c Ok
i-136e00c0 Ok
i-126e00c1 Ok
i-8b2cf575 Ok

id r/sec %2xx %3xx %4xx %5xx p99 p90
p75 p50 p10
Overall 0.0 - - - - - -
- - -
i-d581497d 0.0 - - - - - -
- -
i-d481497c 0.0 - - - - - -
- -
i-136e00c0 0.0 - - - - - -
- -
i-126e00c1 0.0 - - - - - -
- -
i-8b2cf575 0.0 - - - - - -
- -

instance-id type az running load 1 load 5 user% nice%
system% idle% iowait%
i-d581497d t2.micro 1a 12 mins 0.0 0.03 0.2 0.0
0.0 99.7 0.1
i-d481497c t2.micro 1a 12 mins 0.0 0.03 0.3 0.0
0.0 99.7 0.0
i-136e00c0 t2.micro 1b 12 mins 0.0 0.04 0.1 0.0
0.0 99.9 0.0
i-126e00c1 t2.micro 1b 12 mins 0.01 0.04 0.2 0.0
0.0 99.7 0.1
i-8b2cf575 t2.micro 1c 1 hour 0.0 0.01 0.2 0.0
0.1 99.6 0.1

instance-id status id version ago
deployments
i-d581497d Deployed 1 Sample Application 12 mins
i-d481497c Deployed 1 Sample Application 12 mins
i-136e00c0 Deployed 1 Sample Application 12 mins
i-126e00c1 Deployed 1 Sample Application 12 mins
i-8b2cf575 Deployed 1 Sample Application 1 hour

```

eb init

## Description

Sets default values for Elastic Beanstalk applications created with EB CLI by prompting you with a series of questions.

### Note

The values you set with `init` apply only to the current directory and repository.

## Syntax

eb init

eb init *application-name*

## Options

If you run `eb init` without specifying any options, the EB CLI prompts you to enter a value for each setting.

### Note

To use `eb init` to create a new key pair, you must have `ssh-keygen` installed on your local machine and available from the command line.

| Name                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-i</code><br><code>--interactive</code>                                        | <p>Forces EB CLI to prompt you to provide a value for every <code>eb init</code> command option.</p> <p><b>Note</b><br/>           The <code>init</code> command prompts you to provide values for <code>eb init</code> command options that do not have a (default) value. After the first time you run the <code>eb init</code> command in a directory, EB CLI might not prompt you about any command options. Therefore, use the <code>--interactive</code> option when you want to change a setting that you previously set.</p>                                                                                                                                                                                                                                                                                       |
| <code>-k <i>keyname</i></code><br><code>--keyname <i>keyname</i></code>              | <p>The name of the Amazon EC2 key pair to use with the Secure Shell (SSH) client to securely log in to the Amazon EC2 instances running your Elastic Beanstalk application.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <code>--modules <i>folder-1</i></code><br><code><i>folder-2</i></code>               | <p>List of child directories to initialize. Only for use with <a href="#">Compose Environments (p. 444)</a>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <code>-p <i>platform-name</i></code><br><code>--platform <i>platform-name</i></code> | <p>Specify the <a href="#">platform (p. 24)</a> to skip interactive configuration. The platform name can include a version if the platform supports multiple configurations. If you do not specify a configuration version, EB CLI uses the most recent configuration. Use <code>eb platform list</code> to see a list of available platforms.</p> <p>For example: <code>php</code>, <code>PHP</code>, <code>php5.5</code>, <code>"PHP 5.5"</code>, <code>node.js</code>, <code>"64bit Amazon Linux 2014.03 v1.0.7 running PHP 5.5"</code></p> <p><b>Note</b><br/>           When you specify this option, then EB CLI does not prompt you for values for any other options. Instead, it assumes default values for each option. You can specify options for anything for which you do not want to use default values.</p> |
| <code>-source <i>repository-name/branch-name</i></code>                              | <p>AWS CodeCommit repository and branch. See <a href="#">Using the EB CLI with AWS CodeCommit (p. 434)</a>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <a href="#">Common options (p. 448)</a>                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Output

If successful, the command guides you through setting up a new Elastic Beanstalk application through a series of prompts.

## Example

The following example request initializes EB CLI and prompts you to enter information about your application. Replace the red placeholder text with your own values.

```
$ eb init -i
Select a default region
1) us-east-1 : US East (N. Virginia)
2) us-west-1 : US West (N. California)
3) us-west-2 : US West (Oregon)
4) eu-west-1 : EU (Ireland)
5) eu-central-1 : EU (Frankfurt)
6) ap-south-1 : Asia Pacific (Mumbai)
7) ap-southeast-1 : Asia Pacific (Singapore)
8) ap-southeast-2 : Asia Pacific (Sydney)
9) ap-northeast-1 : Asia Pacific (Tokyo)
10) ap-northeast-2 : Asia Pacific (Seoul)
11) sa-east-1 : South America (Sao Paulo)
12) cn-north-1 : China (Beijing)
13) us-east-2 : US East (Columbus)
(default is 3): 3

Select an application to use
1) HelloWorldApp
2) NewApp
3) [Create new Application]
(default is 3): 3

Enter Application Name
(default is "tmp"):
Application tmp has been created.

It appears you are using PHP. Is this correct?
(y/n): y

Select a platform version.
1) PHP 5.5
2) PHP 5.4
3) PHP 5.3
(default is 1): 1
Do you want to set up SSH for your instances?
(y/n): y

Select a keypair.
1) aws-eb
2) [Create new KeyPair]
(default is 2): 1
```

[eb labs](#)

## Description

Subcommands of `eb labs` support work-in-progress or experimental functionality. These commands may be removed or reworked in future versions of the EB CLI and are not guaranteed to be forward compatible.

For a list of available subcommands and descriptions, run `eb labs --help`.



eb list

## Description

Lists all environments in the current application or all environments in all applications, as specified by the `--all` option.

## Syntax

eb list

## Options

| Name                                            | Description                                                                     |
|-------------------------------------------------|---------------------------------------------------------------------------------|
| <code>-a</code><br>or<br><code>--all</code>     | Lists all environments from all applications.                                   |
| <code>-v</code><br>or<br><code>--verbose</code> | Provides more detailed information about all environments, including instances. |
| <a href="#">Common options (p. 448)</a>         |                                                                                 |

## Output

If successful, the command returns a list of environment names in which your current environment is marked with an asterisk (\*).

## Example 1

The following example lists your environments and indicates that tmp-dev is your default environment.

```
$ eb list
* tmp-dev
```

## Example 2

The following example lists your environments with additional details.

```
$ eb list --verbose
Region: us-west-2
Application: tmp
 Environments: 1
 * tmp-dev : ['i-c7ee492d']
```

eb local

## Description

Use `eb local run` to run your application's containers locally in Docker. Check the application's container status with `eb local status`. Open the application in a web browser with `eb local open`. Retrieve the location of the application's logs with `eb local logs`.

`eb local setenv` and `eb local printenv` let you set and view environment variables that are provided to the Docker containers that you run locally with `eb local run`.

You must run all `eb local` commands in the project directory of a Docker application that has been initialized as an EB CLI repository by using `eb init`.

## Syntax

`eb local run`

`eb local status`

`eb local open`

`eb local logs`

`eb local setenv`

`eb local printenv`

## Options

`eb local run`

| Name                                                     | Description                                                                                                                                                                                                                 |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--envvars</code><br><i>key1=value1,key2=value2</i> | Sets environment variables that the EB CLI will pass to the local Docker containers. In multicontainer environments, all variables are passed to all containers.                                                            |
| <code>--port</code> <i>hostport</i>                      | Maps a port on the host to the exposed port on the container. If you don't specify this option, the EB CLI uses the same port on both host and container.<br><br>This option works only with single container applications. |
| <a href="#">Common options (p. 448)</a>                  |                                                                                                                                                                                                                             |

`eb local status`

`eb local open`

`eb local logs`

`eb local setenv`

`eb local printenv`

| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

## Output

`eb local run`

Status messages from Docker. Remains active as long as application is running. Press **Ctrl+C** to stop the application.

`eb local status`

The status of each container used by the application, running or not.

`eb local open`

Opens the application in a web browser and exits.

`eb local logs`

The location of the logs generated in your project directory by applications running locally under `eb local run`.

`eb local setenv`

None

`eb local printenv`

The name and values of environment variables set with `eb local setenv`.

## Examples

`eb local run`

```
~/project$ eb local run
Creating elasticbeanstalk_phpapp_1...
Creating elasticbeanstalk_nginxproxy_1...
Attaching to elasticbeanstalk_phpapp_1, elasticbeanstalk_nginxproxy_1
phpapp_1 | [23-Apr-2015 23:24:25] NOTICE: fpm is running, pid 1
phpapp_1 | [23-Apr-2015 23:24:25] NOTICE: ready to handle connections
```

`eb local status`

View the status of your local containers:

```
~/project$ eb local status
Platform: 64bit Amazon Linux 2014.09 v1.2.1 running Multi-container Docker
1.3.3 (Generic)
Container name: elasticbeanstalk_nginxproxy_1
Container ip: 127.0.0.1
Container running: True
Exposed host port(s): 80
Full local URL(s): 127.0.0.1:80

Container name: elasticbeanstalk_phpapp_1
Container ip: 127.0.0.1
Container running: True
Exposed host port(s): None
Full local URL(s): None
```

`eb local logs`

View the log path for the current project:

```
~/project$ eb local logs
Elastic Beanstalk will write logs locally to /home/user/
project/.elasticbeanstalk/logs/local.
Logs were most recently created 3 minutes ago and written to /home/user/
project/.elasticbeanstalk/logs/local/150420_234011665784.
```

`eb local setenv`

Set environment variables for use with `eb local run`.

```
~/project$ eb local setenv PARAM1=value
```

Print environment variables set with `eb local setenv`.

```
~/project$ eb local printenv
Environment Variables:
PARAM1=value
```

`eb logs`

## Description

Returns logs for the specified or default environment. Relevant logs vary by container type.

## Syntax

`eb logs`

`eb logs environment_name`

## Options

| Name                                        | Description                                                                                                                                      |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-a</code><br>or<br><code>--all</code> | Retrieves all logs and saves them to the <code>.elasticbeanstalk/logs</code> directory.                                                          |
| <code>--instance <i>instance-id</i></code>  | Retrieve logs for the specified instance only.                                                                                                   |
| <code>--zip</code>                          | Retrieves all logs, compresses them into a <code>.zip</code> file, and then saves the file to the <code>.elasticbeanstalk/logs</code> directory. |
| <a href="#">Common options (p. 448)</a>     |                                                                                                                                                  |

## Output

Shows the logs directly in the terminal by default (press `q` to close). `--all` and `--zip` options save the logs locally and output the location of the file(s).

## Example

```
$ eb logs --zip
Retrieving logs...
Logs were saved to /home/workspace/environment/.elasticbeanstalk/
logs/150622_173444.zip
```

```
eb open
```

## Description

Opens the public URL of your website in the default browser.

## Syntax

```
eb open
```

```
eb open environment_name
```

## Options

| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

## Output

The command `eb open` does not have output. Instead, it opens the application in a browser window.

```
eb platform
```

## Description

Lists supported platforms and enables you to set the default platform and platform version to use when you launch an environment. Use `eb platform list` to view a list of all supported platforms. Use `eb platform select` to change the platform for your project. Use `eb platform show` to view your project's selected platform.

## Syntax

```
eb platform list
```

```
eb platform select
```

```
eb platform show
```

## Options

| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

## Example 1

The following example provides the full name of containers for all platforms that Elastic Beanstalk currently supports.

```
$ eb platform list
docker-1.5.0
glassfish-4.0-java-7-(preconfigured-docker)
glassfish-4.1-java-8-(preconfigured-docker)
go-1.3-(preconfigured-docker)
go-1.4-(preconfigured-docker)
iis-7.5
iis-8
iis-8.5
multi-container-docker-1.3.3-(generic)
node.js
php-5.3
php-5.4
php-5.5
python
python-2.7
python-3.4
python-3.4-(preconfigured-docker)
ruby-1.9.3
ruby-2.0-(passenger-standalone)
ruby-2.0-(puma)
ruby-2.1-(passenger-standalone)
ruby-2.1-(puma)
ruby-2.2-(passenger-standalone)
ruby-2.2-(puma)
tomcat-6
tomcat-7
tomcat-7-java-6
tomcat-7-java-7
tomcat-8-java-8
```

## Example 2

The following example prompts you to choose from a list of platforms and the version that you want to deploy for the specified platform.

```
$ eb platform select
Select a platform.
1) PHP
2) Node.js
3) IIS
4) Tomcat
5) Python
6) Ruby
7) Docker
8) Multi-container Docker
9) GlassFish
10) Go
(default is 1): 5

Select a platform version.
1) Python 2.7
```

- 2) Python
- 3) Python 3.4 (Preconfigured - Docker)

## Example 3

The following example lists your current default platform and the default platform that Elastic Beanstalk will launch by default for environments that you create later.

```
$ eb platform show
Current default platform: Python 2.7
New environments will be running: 64bit Amazon Linux 2014.09 v1.2.0 running
Python 2.7

Platform info for environment "tmp-dev":
Current: 64bit Amazon Linux 2014.09 v1.2.0 running Python
Latest: 64bit Amazon Linux 2014.09 v1.2.0 running Python
```

`eb printenv`

## Description

Prints all the environment properties in the command window.

## Syntax

`eb printenv`

`eb printenv environment_name`

## Options

| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

## Output

If successful, the command returns the status of the `printenv` operation.

## Example

The following example prints environment properties for the specified environment.

```
$ eb printenv
Environment Variables:
 PARAM1 = Value1
```

`eb scale`

## Description

Scales the environment to always run on a specified number of instances, setting both the minimum and maximum number of instances to the specified number.

## Syntax

```
eb scale scale
```

```
eb scale scale environment_name
```

## Options

| Name                                    | Description                                         |
|-----------------------------------------|-----------------------------------------------------|
| --timeout                               | The number of minutes before the command times out. |
| <a href="#">Common options (p. 448)</a> |                                                     |

## Output

If successful, the command updates the number of minimum and maximum instances to run to the specified number.

## Example

The following example sets the number of instances to 2.

```
$ eb scale 2
INFO: Environment update is starting.
INFO: Updating environment tmp-dev's configuration settings.
INFO: Added EC2 instance 'i-5fce3d53' to Auto Scaling Group 'awseb-
e-2cpfjbra9a-stack-AWSEBAutoScalingGroup-7AXY7U13ZQ6E'.
INFO: Successfully deployed new configuration to environment.
INFO: Environment update completed successfully.
```

```
eb setenv
```

## Description

Sets environment properties for the default environment.

This command sets environment properties in the [aws:elasticbeanstalk:application:environment namespace \(p. 156\)](#). Environment properties set with `eb setenv` are available to your application after a short update process.

## Syntax

```
eb setenv key=value
```

You can include as many properties as you want, but the total size of all properties cannot exceed 4096 bytes. You can delete a variable by leaving the value blank.

## Options

| Name      | Description                                         |
|-----------|-----------------------------------------------------|
| --timeout | The number of minutes before the command times out. |



| Name                                    | Description |
|-----------------------------------------|-------------|
| <a href="#">Common options (p. 448)</a> |             |

## Output

If successful, the command displays that the environment update succeeded.

## Example

The following example sets the environment variable `ExampleVar`.

```
$ eb setenv ExampleVar=ExampleValue
INFO: Environment update is starting.
INFO: Updating environment tmp-dev's configuration settings.
INFO: Successfully deployed new configuration to environment.
INFO: Environment update completed successfully.
```

The following command sets multiple environment properties. It adds the environment property named `foo` and sets its value to `bar`, changes the value of the `JDBC_CONNECTION_STRING` property, and deletes the `PARAM4` and `PARAM5` properties.

```
$ eb setenv foo=bar JDBC_CONNECTION_STRING=hello PARAM4= PARAM5=
```

`eb ssh`

## Description

### Note

This command does not work with environments running Windows Server instances.

Connect to a Linux Amazon EC2 instance in your environment using Secure Shell (SSH). If an environment has multiple running instances, EB CLI prompts you to specify which instance you want to connect to. To use this command, SSH must be installed on your local machine and available from the command line. Private key files must be located in a folder named `.ssh` under your user directory, and the EC2 instances in your environment must have public IP addresses.

### SSH Keys

If you have not previously configured SSH, you can use the EB CLI to create a key when running `eb init`. If you have already run `eb init`, run it again with the `--interactive` option and select **Yes** and **Create New Keypair** when prompted to set up SSH. Keys created during this process will be stored in the proper folder by the EB CLI.

This command temporarily opens port 22 in your environment's security group for incoming traffic from 0.0.0.0/0 (all IP addresses) if no rules for port 22 are already in place. If you have configured your environment's security group to open port 22 to a restricted CIDR range for increased security, the EB CLI will respect that setting and forgo any changes to the security group. To override this behavior and force the EB CLI to open port 22 to all incoming traffic, use the `--force` option.

See [Security Groups \(p. 233\)](#) for information on configuring your environment's security group.

## Syntax

```
eb ssh
```

```
eb ssh environment_name
```

## Options

| Name                                    | Description                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -i<br>or<br>--instance                  | Specifies the instance ID of the instance to which you connect. We recommend that you use this option.                                                                                                                                                                                                                                        |
| -n<br>or<br>--number                    | Specify the instance to connect to by number.                                                                                                                                                                                                                                                                                                 |
| -o<br>or<br>--keep_open                 | Leave port 22 open on the security group after the SSH session ends.                                                                                                                                                                                                                                                                          |
| --command                               | Execute a shell command on the specified instance instead of starting an SSH session.                                                                                                                                                                                                                                                         |
| --custom                                | Specify an SSH command to use instead of 'ssh -i keyfile'. Do not include the remote user and hostname.                                                                                                                                                                                                                                       |
| --setup                                 | Change the key pair assigned to the environment's instances (requires instances to be replaced).                                                                                                                                                                                                                                              |
| --force                                 | Open port 22 to incoming traffic from 0.0.0.0/0 in the environment's security group, even if the security group is already configured for SSH.<br><br>Use this option if your environment's security group is configured to open port 22 to a restricted CIDR range that does not include the IP address that you are trying to connect from. |
| <a href="#">Common options (p. 448)</a> |                                                                                                                                                                                                                                                                                                                                               |

## Output

If successful, the command opens an SSH connection to the instance.

## Example

The following example connects you to the specified environment.

```
$ eb ssh
Select an instance to ssh into
1) i-96133799
2) i-5931e053
(default is 1): 1
INFO: Attempting to open port 22.
INFO: SSH port 22 open.
The authenticity of host '54.191.45.125 (54.191.45.125)' can't be
established.
```

```
RSA key fingerprint is ee:69:62:df:90:f7:63:af:52:7c:80:60:1b:3b:51:a9.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '54.191.45.125' (RSA) to the list of known hosts.
```

```
 _ | _ | _)
 _ | (/ Amazon Linux AMI
__ | __ | __ |
```

```
https://aws.amazon.com/amazon-linux-ami/2014.09-release-notes/
No packages needed for security; 1 packages available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-8-185 ~]$ ls
[ec2-user@ip-172-31-8-185 ~]$ exit
logout
Connection to 54.191.45.125 closed.
INFO: Closed port 22 on ec2 instance security group
```

`eb status`

## Description

Provides information about the status of the environment.

## Syntax

`eb status`

`eb status environment_name`

## Options

| Name                                            | Description                                                                                                               |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <code>-v</code><br>or<br><code>--verbose</code> | Provides more information about individual instances, such as their status with the Elastic Load Balancing load balancer. |
| <a href="#">Common options (p. 448)</a>         |                                                                                                                           |

## Output

If successful, the command returns the following information about the environment:

- Environment name
- Application name
- Deployed application version
- Environment ID
- Platform
- Environment tier
- CNAME
- Time the environment was last updated
- Status

- Health

If you use verbose mode, EB CLI also provides you with the number of running Amazon EC2 instances.

## Example

The following example shows the status for the environment tmp-dev.

```
$ eb status
Environment details for: tmp-dev
 Application name: tmp
 Region: us-west-2
 Deployed Version: None
 Environment ID: e-2cpfjbra9a
 Platform: 64bit Amazon Linux 2014.09 v1.0.9 running PHP 5.5
 Tier: WebServer-Standard-1.0
 CNAME: tmp-dev.elasticbeanstalk.com
 Updated: 2014-10-29 21:37:19.050000+00:00
 Status: Launching
 Health: Grey
```

[eb swap](#)

## Description

Swaps the environment's CNAME with the CNAME of another environment (for example, to avoid downtime when you update your application version).

### Note

If you have more than two environments, you are prompted to select the name of the environment that is currently using your desired CNAME from a list of environments. To suppress this, you can specify the name of the environment to use by including the `-n` option when you run the command.

## Syntax

`eb swap`

`eb swap environment_name`

### Note

The *environment\_name* is the environment for which you want a different CNAME. If you don't specify *environment\_name* as a command line parameter when you run `eb swap`, EB CLI updates the CNAME of the default environment.

## Options

| Name                                                     | Description                                                                                                                                                                                        |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-n</code><br>or<br><code>--destination_name</code> | Specifies the name of the environment with which you want to swap CNAMEs. If you run <code>eb swap</code> without this option, then EB CLI prompts you to choose from a list of your environments. |
| <a href="#">Common options (p. 448)</a>                  |                                                                                                                                                                                                    |

## Output

If successful, the command returns the status of the `swap` operation.

## Examples

The following example swaps the environment `tmp-dev` with `live-env`.

```
$ eb swap
Select an environment to swap with.
1) staging-dev
2) live-env
(default is 1): 2
INFO: swapEnvironmentCNAMEs is starting.
INFO: Swapping CNAMEs for environments 'tmp-dev' and 'live-env'.
INFO: 'tmp-dev.elasticbeanstalk.com' now points to 'awseb-e-j-AWSEBLoa-
M7U21VXNLWHN-487871449.us-west-2.elb.amazonaws.com'.
INFO: Completed swapping CNAMEs for environments 'tmp-dev' and 'live-env'.
```

The following example swaps the environment `tmp-dev` with the environment `live-env` but does not prompt you to enter or select a value for any settings.

```
$ eb swap tmp-dev --destination_name live-env
INFO: swapEnvironmentCNAMEs is starting.
INFO: Swapping CNAMEs for environments 'tmp-dev' and 'live-env'.
INFO: 'tmp-dev.elasticbeanstalk.com' now points to 'awseb-e-j-AWSEBLoa-
M7U21VXNLWHN-487871449.us-west-2.elb.amazonaws.com'.
INFO: Completed swapping CNAMEs for environments 'tmp-dev' and 'live-env'.
```

`eb terminate`

## Description

Terminates the running environment so that you do not incur charges for unused AWS resources.

### Note

You can always launch a new environment using the same version later. If you have data from an environment that you would like to preserve, create a snapshot of your current database instance before you terminate the environment. You can later use it as the basis for new DB instance when you create a new environment. For more information, see [Creating a DB Snapshot](#) in the *Amazon Relational Database Service User Guide*.

## Syntax

```
eb terminate
```

```
eb terminate environment_name
```

## Options

| Name               | Description                                                 |
|--------------------|-------------------------------------------------------------|
| <code>--all</code> | Terminates the environment, application, and all resources. |

| Name                        | Description                                                                                                                             |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <code>--force</code>        | Terminate the environment without prompting for confirmation.                                                                           |
| <code>--ignore-links</code> | Terminate the environment even if there are dependent environments with links to it. See <a href="#">Compose Environments</a> (p. 444). |
| <code>--timeout</code>      | The number of minutes before the command times out.                                                                                     |

## Output

If successful, the command returns the status of the `terminate` operation.

## Example

The following example request terminates the environment `tmp-dev`.

```
$ eb terminate
The environment "tmp-dev" and all associated instances will be terminated.
To confirm, type the environment name: tmp-dev
INFO: terminateEnvironment is starting.
INFO: Deleted CloudWatch alarm named: awseb-e-2cpfjbra9a-stack-
AWSEBCloudwatchAlarmHigh-16V08YOF2KQ7U
INFO: Deleted CloudWatch alarm named: awseb-e-2cpfjbra9a-stack-
AWSEBCloudwatchAlarmLow-6ZAWH9F20P7C
INFO: Deleted Auto Scaling group policy named: arn:aws:autoscaling:us-
west-2:11122223333:scalingPolicy:5d7d3e6b-d59b-47c5-
b102-3e11fe3047be:autoScalingGroupName/awseb-e-2cpfjbra9a-stack-
AWSEBAutoScalingGroup-7AXY7U13ZQ6E:policyName/awseb-e-2cpfjbra9a-stack-
AWSEBAutoSca
lingScaleUpPolicy-1876U27JEC34J
INFO: Deleted Auto Scaling group policy named: arn:aws:autoscaling:us-
west-2:11122223333:scalingPolicy:29c6e7c7-7ac8-46fc-91f5-
cfabb65b985b:autoScalingGroupName/awseb-e-2cpfjbra9a-stack-
AWSEBAutoScalingGroup-7AXY7U13ZQ6E:policyName/awseb-e-2cpfjbra9a-stack-
AWSEBAutoSca
lingScaleDownPolicy-SL4LHODMOMU
INFO: Waiting for EC2 instances to terminate. This may take a few minutes.
INFO: Deleted Auto Scaling group named: awseb-e-2cpfjbra9a-stack-
AWSEBAutoScalingGroup-7AXY7U13ZQ6E
INFO: Deleted Auto Scaling launch configuration named: awseb-e-2cpfjbra9a-
stack-AWSEBAutoScalingLaunchConfiguration-19UFHYGYWORZ
INFO: Deleted security group named: awseb-e-2cpfjbra9a-stack-
AWSEBSecurityGroup-XT4YYGFL7I99
INFO: Deleted load balancer named: awseb-e-2-AWSEBLoa-AK6RRYFQVV3S
INFO: Deleting SNS topic for environment tmp-dev.
INFO: terminateEnvironment completed successfully.
```

[eb upgrade](#)

## Description

Upgrades the platform of your environment to the most recent version of the platform that it is currently running.

## Syntax

```
eb upgrade
```

```
eb upgrade environment_name
```

## Options

| Name                                    | Description                                                                                               |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <code>--force</code>                    | Upgrades without requiring you to confirm the environment name before starting the upgrade process.       |
| <code>--noroll</code>                   | Updates all instances without using rolling updates to keep some instances in service during the upgrade. |
| <a href="#">Common options (p. 448)</a> |                                                                                                           |

## Output

The command shows an overview of the change and prompts you to confirm the upgrade by typing the environment name. If successful, your environment is updated and then launched with the most recent version of the platform.

## Example

The following example upgrades the current platform version of the specified environment to the most recently available platform version.

```
$ eb upgrade
Current platform: 64bit Amazon Linux 2014.09 v1.0.9 running Python 2.7
Latest platform: 64bit Amazon Linux 2014.09 v1.2.0 running Python 2.7

WARNING: This operation replaces your instances with minimal or zero
downtime. You may cancel the upgrade after it has started by typing "eb
abort".
You can also change your platform version by typing "eb clone" and then "eb
swap".

To continue, type the environment name:
```

```
eb use
```

## Description

Sets the specified environment as the default environment.

When using Git, `eb use` sets the default environment for the current branch. Run this command once in each branch that you want to deploy to Elastic Beanstalk.

## Syntax

```
eb use environment_name
```

## Options

| Name                                                   | Description                                                                                               |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <code>-source repository-name/branch-name</code>       | AWS CodeCommit repository and branch. See <a href="#">Using the EB CLI with AWS CodeCommit (p. 434)</a> . |
| <code>-r region</code><br><code>--region region</code> | Change the region in which you create environments.                                                       |
| <a href="#">Common options (p. 448)</a>                |                                                                                                           |

## Eb CLI 2.6 (deprecated)

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 416\)](#).

This section describes how to set up eb 2.6 and how to create a sample application using eb. This section also includes a command reference for eb 2.6.

### Topics

- [Differences from version 3 of the EB CLI \(p. 482\)](#)
- [Getting Started with Eb \(p. 483\)](#)
- [Deploying a Git Branch to a Specific Environment \(p. 488\)](#)
- [Eb Common Options \(p. 491\)](#)
- [EB CLI 2 Commands \(p. 491\)](#)

## Differences from version 3 of the EB CLI

EB and Eb are command line interface (CLI) tools for Elastic Beanstalk that you can use to deploy applications quickly and more easily. The most recent tool that Elastic Beanstalk supports is EB CLI 3. Elastic Beanstalk also supports eb 2.6 for customers who previously installed and continue to use it. You can use EB CLI 3 to manage environments that you launched using eb 2.6 or earlier versions of eb. EB CLI will automatically retrieve settings from an environment created using eb if the environment is running. Unlike eb, EB CLI does not store option settings locally.

EB CLI introduces the commands `eb create`, `eb deploy`, `eb open`, `eb console`, `eb scale`, `eb setenv`, `eb config`, `eb terminate`, `eb clone`, `eb list`, `eb use`, `eb printenv`, and `eb ssh`. In EB CLI 3.1 or later, you can also use the `eb swap` command. In EB CLI 3.2 only, you can use the `eb abort`, `eb platform`, and `eb upgrade` commands. In addition to these new commands, EB CLI 3 commands differ from eb 2.6 commands in several cases:

- **eb init** – You use `eb init` to create an `.elasticbeanstalk` directory in an existing project directory and create a new Elastic Beanstalk application for the project. Unlike with eb, running `eb init` with EB CLI does not prompt you to create an environment.



- **eb start** – EB CLI does not include the command `eb start`. Instead, you use `eb create` to create an environment.
- **eb stop** – EB CLI does not include the command `eb stop`. Instead, you use `eb terminate` to completely terminate an environment and clean up.
- **eb push** and **git aws.push** – EB CLI does not include the commands `eb push` or `git aws.push`. The commands have been replaced with the command `eb deploy`.
- **eb update** – EB CLI does not include the command `eb update`. You use the command `eb config` to update an environment.
- **eb branch** – EB CLI does not include the command `eb branch`.

For more information about using EB CLI 3 commands to create and manage an application, go to [EB CLI Command Reference \(p. 447\)](#). For a command reference for eb 2.6, see [EB CLI 2 Commands \(p. 491\)](#). For a walkthrough of how to deploy a sample application using EB CLI 3, see [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#). For a walkthrough of how to deploy a sample application using eb 2.6, see [Getting Started with Eb \(p. 483\)](#). For a walkthrough of how to use eb 2.6 to map a Git branch to a specific environment, see [Deploying a Git Branch to a Specific Environment \(p. 488\)](#).

## Getting Started with Eb

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 416\)](#).

Eb is a command line interface (CLI) tool that asks you a series of questions and uses your answers to deploy and manage Elastic Beanstalk applications. This section provides an end-to-end walkthrough using eb to launch a sample application, view it, update it, and then delete it.

To complete this walkthrough, you will need to download the command line tools at the [AWS Sample Code & Libraries](#) website. For a complete CLI reference for more advanced scenarios, see [Operations \(p. 517\)](#), and see [Getting Set Up \(p. 514\)](#) for instructions on how to get set up.

## Step 1: Initialize Your Git Repository

Eb is a command line interface that you can use with Git to deploy applications quickly and more easily. Eb is available as part of the Elastic Beanstalk command line tools package. Follow the steps below to install eb and initialize your Git repository.

### To install eb, its prerequisite software, and initialize your Git repository

1. Install the following software onto your local computer:
  - a. Linux/Unix/Mac
    - Download and unzip the Elastic Beanstalk command line tools package at the [AWS Sample Code & Libraries](#) website.
    - Git 1.6.6 or later. To download Git, go to <http://git-scm.com/>.
    - Python 2.7 or 3.0.
  - b. Windows

- Download and unzip the Elastic Beanstalk command line tools package at the [AWS Sample Code & Libraries](#) website.
- Git 1.6.6 or later. To download Git, go to <http://git-scm.com/>.
- PowerShell 2.0.

**Note**

Windows 7 and Windows Server 2008 R2 come with PowerShell 2.0. If you are running an earlier version of Windows, you can download PowerShell 2.0. Visit <http://technet.microsoft.com/en-us/scriptcenter/dd742419.aspx> for more details.

2. Initialize your Git repository.

```
git init .
```

## Step 2: Configure Elastic Beanstalk

Elastic Beanstalk needs the following information to deploy an application:

- AWS access key ID
- AWS secret key
- Service region
- Application name
- Environment name
- Solution stack

When you use the `init` command, Elastic Beanstalk will prompt you to enter this information. If a default value or current setting is available, and you want to use it, press `Enter`.

Before you use `eb`, set your `PATH` to the location of `eb`. The following table shows an example for Linux/UNIX and Windows.

| In Linux and UNIX                                                                                                                                                                                               | In Windows                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <pre>\$ export PATH=\$PATH:&lt;path to unzipped eb CLI package&gt;/eb/linux/python2.7/</pre> <p>If you are using Python 3.0, the path will include <code>python3</code> rather than <code>python2.7</code>.</p> | <pre>C:\&gt; set PATH=%PATH%;&lt;path to unzipped eb CLI package&gt;\eb\windows\</pre> |

### To configure Elastic Beanstalk

**Note**

The EB CLI stores your credentials in a file named `credentials` in a folder named `.aws` in your user directory.

1. From the directory where you created your local repository, type the following command:

```
eb init
```

2. When you are prompted for the access key ID, type your access key ID. To get your access key ID, see [How Do I Get Security Credentials?](#) in the *AWS General Reference*.

```
Enter your AWS Access Key ID (current value is "AKIAIOSFODNN7EXAMPLE"):
```

3. When you are prompted for the secret access key, type your secret access key. To get your secret access key, see [How Do I Get Security Credentials?](#) in the *AWS General Reference*.

```
Enter your AWS Secret Access Key (current value is "wJalrXUtnFEMI/K7MDENG/
bPxRfiCYEXAMPLEKEY"):
```

4. When you are prompted for the Elastic Beanstalk region, type the number of the region. For information about this product's regions, go to [Regions and Endpoints](#) in the Amazon Web Services General Reference. For this example, we'll use **US West (Oregon)**.
5. When you are prompted for the Elastic Beanstalk application name, type the name of the application. Elastic Beanstalk generates an application name based on the current directory name if an application name has not been previously configured. In this example, we use HelloWorld.

```
Enter an AWS Elastic Beanstalk application name (auto-generated value is
"windows"): HelloWorld
```

#### Note

If you have a space in your application name, make sure you do not use quotation marks.

6. When you are prompted for the Elastic Beanstalk environment name, type the name of the environment. Elastic Beanstalk automatically creates an environment name based on your application name. If you want to accept the default, press **Enter**.

```
Enter an AWS Elastic Beanstalk environment name (current value is
"HelloWorld-env"):
```

#### Note

If you have a space in your application name, make sure you do not have a space in your environment name.

7. When you are prompted, choose an environment tier. For more information about environment tiers, see [Architectural Overview](#) (p. 14). For this example, we'll use 1.

```
Available environment tiers are:
1) WebServer::Standard::1.0
2) Worker::SQS/HTTP::1.0
```

8. When you are prompted for the solution stack, type the number of the solution stack you want. For more information about solution stacks, see [Supported Platforms](#) (p. 24). For this example, we'll use **64bit Amazon Linux running PHP 5.4**.
9. When you are prompted, choose an environment type. For this example, use 2.

```
Available environment types are:
1) LoadBalanced
2) SingleInstance
```

10. When you are prompted to create an Amazon RDS DB instance, type **y** or **n**. For more information about using Amazon RDS, see [Using Elastic Beanstalk with Amazon RDS](#) (p. 380). For this example, we'll type **y**.

```
Create an Amazon RDS DB Instance? [y/n]:
```

11. When you are prompted to create the database from scratch or a snapshot, type your selection. For this example, we'll use **No snapshot**.
12. When you are prompted to enter your RDS user master password, type your password containing 8 to 16 printable ASCII characters (excluding /, \, and @).

```
Enter an Amazon RDS DB master password:
```

```
Retype password to confirm:
```

13. When you are prompted to create a snapshot if you delete the Amazon RDS DB instance, type `y` or `n`. For this example, we'll type `n`. If you type `n`, then your RDS DB instance will be deleted and your data will be lost if you terminate your environment.

By default, eb sets the following default values for Amazon RDS.

- **Database engine** — MySQL
  - **Default version:** — 5.5
  - **Database name:** — ebdb
  - **Allocated storage** — 5GB
  - **Instance class** — db.t1.micro
  - **Deletion policy** — delete
  - **Master username** — ebroot
14. When you are prompted to enter your instance profile name, you can choose to create a default instance profile or use an existing instance profile. Using an instance profile enables IAM users and AWS services to gain access to temporary security credentials to make AWS API calls. Using instance profiles prevents you from having to store long-term security credentials on the EC2 instance. For more information about instance profiles, see [Service Roles, Instance Profiles, and User Policies \(p. 17\)](#). For this example, we'll use `Create a default instance profile`.

You should see a confirmation that your AWS Credential file was successfully updated.

After configuring Elastic Beanstalk, you are ready to deploy a sample application.

If you want to update your Elastic Beanstalk configuration, you can use the `init` command again. When prompted, you can update your configuration options. If you want to keep any previous settings, press the **Enter** key. If you want to update your Amazon RDS DB configuration settings, you can update your `optionsettings` file in the `.elasticbeanstalk` directory, and then use the `eb update` command to update your Elastic Beanstalk environment.

#### Note

You can set up multiple directories for use with eb—each with its own Elastic Beanstalk configuration—by repeating the preceding two steps in each directory: first initialize a Git repository, and then use `init` to configure eb.

## Step 3: Create the Application

Next, you need to create and deploy a sample application. For this step, you use a sample application that is already prepared. Elastic Beanstalk uses the configuration information you specified in the previous step to do the following:

- Create an application using the application name you specified.
- Launch an environment using the environment name you specified that provisions the AWS resources to host the application.
- Deploy the application into the newly created environment.

Use the `start` command to create and deploy a sample application.

### To create the application

- From the directory where you created your local repository, type the following command:

```
eb start
```

It may take several minutes to complete this process. Elastic Beanstalk provides status updates during the process. If at any time you want to stop polling for status updates, press **Ctrl+C**. When the environment status is Green, Elastic Beanstalk outputs a URL for the application.

## Step 4: View the Application

In the previous step, you created an application and deployed it to Elastic Beanstalk. After the environment is ready and its status is Green, Elastic Beanstalk provides a URL to view the application. In this step, you can check the status of the environment to make sure it is set to Green and then copy and paste the URL to view the application.

Use the `status` command to check the environment status, and then use the URL to view the application.

### To view the application

- From the directory where you created your local repository, type the following command:

```
eb status --verbose
```

Elastic Beanstalk displays the environment status. If the environment is set to Green, Elastic Beanstalk displays the URL for the application. If you attached an Amazon RDS DB instance to your environment, your Amazon RDS DB information is displayed.

- Copy and paste the URL into your web browser to view your application.

## Step 5: Update the Application

After you have deployed a sample application, you can update the sample application with your own application. In this step, we'll update the sample PHP application with a simple HelloWorld application.

### To update the sample application

- Create a simple PHP file that displays "Hello World" and name it `index.php`.

```
<html>
 <head>
 <title>PHP Test</title>
 </head>
 <body>
 <?php echo '<p>Hello World</p>'; ?>
 </body>
</html>
```

Next, add your new program to your local Git repository, and then commit your change.

```
git add index.php
git commit -m "initial check-in"
```

**Note**

For information about Git commands, go to [Git - Fast Version Control System](#).

2. Deploy to Elastic Beanstalk.

```
eb push
```

3. View your updated application. Copy and paste the same URL in your web browser as you did in [Step 4: View the Application \(p. 487\)](#).

## Step 6: Clean Up

If you no longer want to run your application, you can clean up by terminating your environment and deleting your application.

Use the `stop` command to terminate your environment and the `delete` command to delete your application.

### To terminate your environment and delete the application

1. From the directory where you created your local repository, type the following command:

```
eb stop
```

This process may take a few minutes. Elastic Beanstalk displays a message once the environment has been successfully terminated.

**Note**

If you attached an Amazon RDS DB instance to your environment, your Amazon RDS DB will be deleted, and you will lose your data. To save your data, create a snapshot before you delete the application. For instructions on how to create a snapshot, go to [Creating a DB Snapshot](#) in the *Amazon Relational Database Service User Guide*.

2. From the directory where you installed the command line interface, type the following command:

```
eb delete
```

Elastic Beanstalk displays a message once it has successfully deleted the application.

## Deploying a Git Branch to a Specific Environment

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 416\)](#).

Developers often use branching in a project to manage code intended for different target environments. For example, you might have a test branch where you perform component or integration testing and a prod branch where you manage the code for your live or production code. With version 2.3 and later of the `eb` command line interface and AWS DevTools, you can use the `eb init` command to configure the `eb push` command to push your current git branch to a specific Elastic Beanstalk environment.

## To set up a Git branch to deploy to a specific environment

1. Make sure you have version 2.3 of the Elastic Beanstalk command line tools installed.

To check what version you have installed, use the following command:

```
eb --version
```

To download the command line tools, go to [Elastic Beanstalk Command Line Tool](#) page and follow the instructions in the README.txt file in the .zip file.

2. From a command prompt, change directories to the location of the local repository containing the code you want to deploy.

If you have not set up a Git repository, you need to create one to continue. For information about how to use Git, see the [Git documentation](#).

3. Make sure that the current branch for your local repository is the one you want to map to an Elastic Beanstalk environment.

To switch to a branch, you use the `git checkout` command. For example, you would use the following command to switch to the prod branch.

```
git checkout prod
```

For more information about creating and managing branches in Git, see the [Git documentation](#).

4. If you have not done so already, use the `eb init` command to configure eb to use Elastic Beanstalk with a specific settings for credentials, application, region, environment, and solution stack. The values set with `eb init` will be used as defaults for the environments that you create for your branches. For detailed instructions, see [Step 2: Configure Elastic Beanstalk \(p. 484\)](#).
5. Use the `eb branch` command to map the current branch to a specific environment.

1. Type the following command.

```
eb branch
```

2. When prompted for an environment name, enter the name of the environment that you want to map to the current branch.

The `eb` command will suggest a name in parentheses and you can accept that name by pressing the **Enter** key or type the name that you want.

```
The current branch is "myotherbranch".
 Enter an Elastic Beanstalk environment name (auto-generated value is
 "test-myotherbranch-en"):
```

You'll notice that `eb` displays the current branch in your Git repository so you know which branch you're working with. You can specify an existing environment or a new one. If you specify a new one, you'll need to create it with the `eb start` command.

3. When prompted about using the settings from the default environment, type **y** unless you explicitly don't want to use the `optionsettings` file from the default environment for the environment for this branch.

```
Do you want to copy the settings from the default environment "main-env"
for the new branch? [y/n]: y
```

6. If you specified a new environment for your branch, use the `eb start` command to create and start the environment.

When this command is successful, you're ready for the next step.

7. Use the `eb push` command to deploy the changes in the current branch to the environment that you mapped to the branch.



## Eb Common Options

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

This section describes options common to all eb operations.

Name	Description
-f, --force	Skip the confirmation prompt.
-h, --help	Show the Help message. Type: String Default: None
--verbose	Display verbose information.
--version	Show the program's version number and exit.

## EB CLI 2 Commands

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

You can use the EB command line interface to perform a wide variety of operations.

#### Topics

- [branch](#) (p. 493)
- [delete](#) (p. 495)
- [events](#) (p. 497)
- [init](#) (p. 499)
- [logs](#) (p. 502)
- [push](#) (p. 503)
- [start](#) (p. 505)
- [status](#) (p. 507)
- [stop](#) (p. 509)
- [update](#) (p. 511)

Eb stores environment settings in the `.elasticbeanstalk/optionsettings` file for the repository. It is designed to read only from local files. When you run `eb start` or `eb update`, Elastic Beanstalk

reads the `.elasticbeanstalk/optionsettings` file and provides its contents as parameters to the `CreateEnvironment` or `UpdateEnvironment` API actions.

You can use a configuration file in an `.ebextensions/*.conf` directory to configure some of the same settings that are in an `.elasticbeanstalk/optionsettings` file. However, the values for the settings in `.elasticbeanstalk/optionsettings` will take precedence over anything in `.ebextensions/*.conf` if the settings are configured in both. Additionally, any option setting that is specified using the API, including through `eb`, cannot later be changed in an environment using `.ebextensions` configuration files.

When you run `eb branch`, Elastic Beanstalk will either add a section to the values in `.elasticbeanstalk/optionsettings` or create a new one for a new environment. The command does not affect any running environments.

To view your current settings, run `eb status --verbose`. You might also want to use `eb` in conjunction with the Elastic Beanstalk console to get a complete picture of your applications and environments.

## branch

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Maps a Git branch to a new or existing Elastic Beanstalk environment and configures the mapped environment through a series of prompts. You must first create the Git branch. If no branches exist in the Git repository, eb displays a message that prompts you to run the `branch` command. Eb then attempts to start the application specified in the default settings in the `optionsettings` file.

To map a Git branch, first run `git checkout <branch>`, specifying the name of the Git branch you want to map. Then run `eb branch`. If the branch has never been mapped to an Elastic Beanstalk environment, you'll have the option to copy the most current environment settings to the new environment.

Consider the following additional information about using `branch`:

- If you run `eb init` on an existing repository and change the application name, region, or solution stack, the command resets all existing branch mappings. Run `branch` again to map each branch to an environment.
- You can map different Git branches to the same Elastic Beanstalk environment but in most cases maintain one-to-one relationships between branches and environments.

For a tutorial that describes how to use `eb` to deploy a Git branch to Elastic Beanstalk, see [Deploying a Git Branch to a Specific Environment](#) (p. 488).

### Syntax

`eb branch`

### Options

Name	Description	Required
<code>-e</code> or <code>--environment name</code> <code>ENVIRONMENT_NAME</code>	The environment to which you want to map the current Git branch. If you do not use this option, you'll be prompted to accept the autogenerated environment name or enter a new one.  Type: String  Default: <code>&lt;Git-branch-name&gt;-env</code>	No
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

### Output

None

## Example

The following example maps the Git branch `master` to a new environment called `MyApp-env-test`, using the same settings as a previously created environment called `Myapp-env`. Replace the red placeholder text with your own values.

```
PROMPT> eb branch

The current branch is "master".
Enter an AWS Elastic Beanstalk environment name (auto-generated value is
"MyApp-master-env"): MyApp-env-test
Do you want to copy the settings from environment "MyApp-env" for the new
branch? [y/n]: y
PROMPT> eb status
Environment "MyApp-env-test" is not running.
```

## delete

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Deletes the current application, or an application you specify, along with all associated environments, versions, and configurations. For a tutorial that includes a description of how to use `eb delete` to delete an application, see [Getting Started with Eb](#) (p. 483).

### Note

The `delete` operation applies to an application and all of its environments. To stop only a single environment rather than an entire application, use `eb stop` (p. 509).

### Syntax

`eb delete`

### Options

Name	Description	Required
<code>-a</code> or <code>--application-name</code> <code>APPLICATION_NAME</code>	The application that you want to delete. If you do not use this option, <code>eb</code> will delete the application currently specified in <code>.elasticbeanstalk/optionsettings</code> . To verify your current settings, run <code>eb init</code> (the current values will be displayed; press Enter at each prompt to keep the current value).  Type: String  Default: <i>Current setting</i>	No
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

### Output

If successful, the command returns confirmation that the application was deleted.

### Example

The following example request deletes the specified application and all of its environments. Replace the red placeholder text with your own values.

```
PROMPT> delete -a MyApp
```

```
Delete application? [y/n]: y
Deleted application "MyApp".
```

## events

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Returns the most recent events for the environment.

### Syntax

**eb events**

### Options

Name	Description	Required
<code>[<i>number</i>]</code> <i>NUMBER</i>	The number of events to return. Valid values range from 1 to 1000.  Type: Integer  Default: 10	Yes

### Output

If successful, the command returns the specified number of recent events.

### Example

The following example returns the 15 most recent events.

```
PROMPT> eb events 15

2014-05-19 08:44:51 INFO terminateEnvironment completed successfully.
2014-05-19 08:44:50 INFO Deleting SNS topic for environment MyApp-
test-env.
2014-05-19 08:44:38 INFO Deleted security group named: awseb-e-
fEXAMPLEere-stack-AWSEBSecurityGroup-1DEXAMPLEKI
2014-05-19 08:44:32 INFO Deleted RDS database named: aalk8EXAMPLEdxl
2014-05-19 08:38:33 INFO Deleted EIP: xx.xx.xxx.xx
2014-05-19 08:37:04 INFO Waiting for EC2 instances to terminate. This
may take a few minutes.
2014-05-19 08:36:45 INFO terminateEnvironment is starting.
2014-05-19 08:27:54 INFO Adding instance 'i-fEXAMPLE7' to your
environment.
2014-05-19 08:27:50 INFO Successfully launched environment: MyApp-
test-env
2014-05-19 08:27:50 INFO Application available at MyApp-test-
envEXAMPLEst.elasticbeanstalk.com.
2014-05-19 08:24:04 INFO Waiting for EC2 instances to launch. This
may take a few minutes.
```

```
2014-05-19 08:23:21 INFO Created RDS database named: aalk8EXAMPLEdxl
2014-05-19 08:17:07 INFO Creating RDS database named:
aalk8EXAMPLEdxl. This may take a few minutes.
2014-05-19 08:16:58 INFO Created security group named: awseb-e-
fEXAMPLEere-stack-AWSEBSecurityGroup-1D6HEXAMPLEKI
2014-05-19 08:16:54 INFO Created EIP: 50.18.181.66
```



## init

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Sets various default values for AWS Elastic Beanstalk environments created with `eb`, including your AWS credentials and region. The values you set with `init` apply only to the current directory and repository. You can override some defaults with operation options (for example, use `-e` or `--environment-name` to target [branch](#) (p. 493) to a specific environment).

#### Note

Until you run the `init` command, the current running environment is unchanged. Each time you run the `init` command, new settings get appended to the `config` file.

For a tutorial that shows you how to use `eb init` to deploy a sample application, see [Getting Started with Eb](#) (p. 483).

### Syntax

`eb init`

### Options

None of these options are required. If you run `eb init` without any options, you will be prompted to enter or select a value for each setting.

Name	Description	Required
<code>-a</code> or <code>--application-name</code> <i>APPLICATION_NAME</i>	The application managed by the current repository.  Type: String  Default: None	No
<code>--aws-credential-file</code> <i>FILE_PATH_NAME</i>	The file location where your AWS credentials are saved. (You can use the environment variable <code>AWS_CREDENTIAL_FILE</code> to set the file location.)  Type: String  Default: None	No
<code>-e</code> or <code>--environment-name</code> <i>ENVIRONMENT_NAME</i>	The environment on which you want to perform operations.  Type: String  Default: <code>&lt;application-name&gt;-env</code>	No

Name	Description	Required
-I or --access-key-id <i>ACCESS_KEY_ID</i>	Your AWS access key ID.  Type: String  Default: None	No
-S or --secret-key <i>SECRET_ACCESS_KEY</i>	Your AWS secret access key.  Type: String  Default: None	No
-s or --solution-stack <i>SOLUTION_STACK_LABEL</i>	The solution stack used as the application container type. If you run <code>eb init</code> without this option, you will be prompted to choose from a list of supported solution stacks. Solution stack names change when AMIs are updated.  Type: String  Default: None	No
Common options	For more information, see <a href="#">Eb Common Options (p. 491)</a> .	No

## Output

If successful, the command guides you through setting up a new AWS Elastic Beanstalk application through a series of prompts.

## Example

The following example request initializes `eb` and prompts you to enter information about your application. Replace the red placeholder text with your own values.

```
PROMPT> eb init

C:\>eb init
Enter your AWS Access Key ID (current value is "AKIAI*****5ZB7Q"):
Enter your AWS Secret Access Key (current value is "DHSai*****xKPo6"):
Select an AWS Elastic Beanstalk service region (current value is "US East (N.
Virginia)").
Available service regions are:
1) US East (Virginia)
2) US West (Oregon)
3) US West (North California)
4) EU West (Ireland)
5) Asia Pacific (Singapore)
6) Asia Pacific (Tokyo)
7) Asia Pacific (Sydney)
8) South America (Sao Paulo)
Select (1 to 8): 2
Enter an AWS Elastic Beanstalk application name (current value is
"MyApp"): MyApp
Enter an AWS Elastic Beanstalk environment name (current value is "MyApp-
env"): MyApp-env
```

```
Select a solution stack (current value is "64bit Amazon Linux running
Python").
Available solution stacks are:
1) 32bit Amazon Linux running PHP 5.4
2) 64bit Amazon Linux running PHP 5.4
3) 32bit Amazon Linux running PHP 5.3
4) 64bit Amazon Linux running PHP 5.3
5) 32bit Amazon Linux running Node.js
6) 64bit Amazon Linux running Node.js
7) 64bit Windows Server 2008 R2 running IIS 7.5
8) 64bit Windows Server 2012 running IIS 8
9) 32bit Amazon Linux running Tomcat 7
10) 64bit Amazon Linux running Tomcat 7
11) 32bit Amazon Linux running Tomcat 6
12) 64bit Amazon Linux running Tomcat 6
13) 32bit Amazon Linux running Python
14) 64bit Amazon Linux running Python
15) 32bit Amazon Linux running Ruby 1.8.7
16) 64bit Amazon Linux running Ruby 1.8.7
17) 32bit Amazon Linux running Ruby 1.9.3
18) 64bit Amazon Linux running Ruby 1.9.3
[...]
Select (1 to 70): 60
Select an environment type (current value is "LoadBalanced").
Available environment types are:
1) LoadBalanced
2) SingleInstance
Select (1 to 2): 1
Create an RDS DB Instance? [y/n] (current value is "Yes"): y
Create an RDS BD Instance from (current value is "[No snapshot]"):
1) [No snapshot]
2) [Other snapshot]
Select (1 to 2): 1
Enter an RDS DB master password (current value is "*****"):
Retype password to confirm:
If you terminate your environment, your RDS DB Instance will be deleted and
you will lose your data.
Create snapshot? [y/n] (current value is "Yes"): y
Attach an instance profile (current value is "aws-elasticbeanstalk-ec2-
role"):
1) [Create a default instance profile]
2) AppServer-AppServerInstanceProfile-TK2exampleHP
3) AppServer-AppServerInstanceProfile-1G2exampleK8
4) aws-opsworks-ec2-role
5) aws-elasticbeanstalk-ec2-role
6) [Other instance profile]
Select (1 to 6): 5
Updated AWS Credential file at "C:\Users\YourName\.elasticbeanstalk
\aws_credential_file".
```

## logs

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Returns logs for the environment. Relevant logs vary by container type.

### Syntax

```
eb logs
```

### Options

Name	Description	Required
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

### Output

If successful, the command returns environment logs.

## push

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Deploys the current application to the AWS Elastic Beanstalk environment from the Git repository.

#### Note

- The `eb push` operation does not push to your remote repository, if any. Use a standard `git push` or similar command to update your remote repository.
- The `-e` or `--environment-name` options are not valid for `eb push`. To push to a different environment from the current one (based on either the `eb init` default settings or the Git branch that is currently checked out), run `eb branch` before running `eb push`.

### Syntax

`eb push`

### Options

Name	Description	Required
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

### Output

If successful, the command returns the status of the `push` operation.

### Example

The following example deploys the current application.

```
PROMPT> eb push
Pushing to environment: MyApp-env
remote:
To https://
AKIAXXXXXXXX5ZB7Q:2013092XXXXXXXXXXXXf502a780888b0a49899798aa6cbeaef690c0b
525d0f090c7338cbead589bf14f@git.elasticbeanstalk.us-west-2.amazonaws.com/v1/
repos/417
0705XXXXXXXX23632303133/
commitid/336264353663396262306463326563663763393EXAMPLExxxxx5
3165643137343939EXAMPLExx036/
environment/417070536570743236323031332d6d6173EXAMPLEx65
2013-09-26 17:35:37 INFO Adding instance 'i-5EXAMPLE' to your
environment.
2013-09-26 17:36:12 INFO Deploying new version to instance(s).
2013-09-26 17:36:20 INFO New application version was deployed to
running EC2 instances.
```

```
2013-09-26 17:36:20 INFO Environment update completed successfully.
Update of environment "MyApp-env" has completed.
```

## start

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

## Description

Creates and deploys the current application into the specified environment. For a tutorial that includes a description of how to deploy a sample application using `eb start`, see [Getting Started with Eb](#) (p. 483).

## Syntax

`eb start`

## Options

Name	Description	Required
<code>-e</code> or <code>--environment-name</code> <i>ENVIRONMENT_NAME</i>	The environment into which you want to create or start the current application.  Type: String Default: Current setting	No
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

## Output

If successful, the command returns the status of the start operation. If there were issues during the launch, you can use the [events](#) (p. 497) operation to get more details.

## Example 1

The following example starts the environment.

```
PROMPT> start

Starting application "MyApp".
Waiting for environment "MyApp-env" to launch.
2014-05-13 07:25:33 INFO createEnvironment is starting.
2014-05-13 07:25:39 INFO Using elasticbeanstalk-us-west-2-8EXAMPLE3 as Amazon
S3 storage bucket for environment data.
2014-05-13 07:26:07 INFO Created EIP: xx.xx.xxx.xx
2014-05-13 07:26:09 INFO Created security group named: awseb-e-vEXAMPLEerp-
stack-
AWSEBSecurityGroup-1GCEXAMPLEG0
2014-05-13 07:26:17 INFO Creating RDS database named: aavcEXAMPLE5y. This may
take a few minutes.
2014-05-13 07:32:36 INFO Created RDS database named: aavcEXAMPLE5y
```

```
2014-05-13 07:34:08 INFO Waiting for EC2 instances to launch. This may take a few minutes.
2014-05-13 07:36:24 INFO Application available at MyApp-env-z4vsuuxh36.elasticbeanstalk.com.
2014-05-13 07:36:24 INFO Successfully launched environment: MyApp-env
Application is available at "MyApp-env-z4EXAMPLE6.elasticbeanstalk.com"
```

## Example 2

The following example starts the current application into an environment called *MyApp-test-env*.

```
PROMPT> start -e MyApp-test-env

Starting application "MyApp".
Waiting for environment "MyApp-test-env" to launch.
2014-05-13 07:25:33 INFO createEnvironment is starting.
2014-05-13 07:25:39 INFO Using elasticbeanstalk-us-west-2-8EXAMPLE3 as Amazon S3 storage bucket for environment data.
2014-05-13 07:26:07 INFO Created EIP: xx.xx.xxx.xx
2014-05-13 07:26:09 INFO Created security group named: awseb-e-vEXAMPLEerp-stack-
AWSEBSecurityGroup-1GCEXAMPLEG0
2014-05-13 07:26:17 INFO Creating RDS database named: aavcEXAMPLE5y. This may take a few minutes.
2014-05-13 07:32:36 INFO Created RDS database named: aavcEXAMPLE5y
2014-05-13 07:34:08 INFO Waiting for EC2 instances to launch. This may take a few minutes.
2014-05-13 07:36:24 INFO Application available at MyApp-test-envz4vsuuxh36.elasticbeanstalk.com.
2014-05-13 07:36:24 INFO Successfully launched environment: MyApp-test-env
Application is available at "MyApp-test-env-z4EXAMPLE6.elasticbeanstalk.com"
```



## status

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

## Description

Describes the status of the specified environment. For a tutorial that includes a description of how to view an environment's status using `eb status`, see [Getting Started with Eb](#) (p. 483).

## Syntax

`eb status`

## Options

You might want to use the `--verbose` option with `status`.

Name	Description	Required
<code>-e</code>	The environment for which you want to display status.	No
or	Type: String	
<code>--environment-name</code> <i>ENVIRONMENT_NAME</i>	Default: Current setting	
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

## Output

If successful, the command returns the status of the environment.

### Example 1

The following example request returns the status of the environment.

```
PROMPT> eb status --verbose
Retrieving status of environment "MyNodeApp-env".
URL : MyNodeApp-env-tnEXAMPLEcf.elasticbeanstalk.com
Status : Ready
Health : Green
Environment Name: MyNodeApp-env
Environment ID : e-vmEXAMPLEp
Environment Tier: WebServer::Standard::1.0
Solution Stack : 64bit Amazon Linux 2014.02 running Node.js
Version Label : Sample Application
Date Created : 2014-05-14 07:25:35
Date Updated : 2014-05-14 07:36:24
Description :
```

```
RDS Database: AWSEBRDSDatabase | aavcEXAMPLEd5y.clak1.us-west-2.rds.amazon
aws.com:3306
Database Engine: mysql 5.5.33
Allocated Storage: 5
Instance Class: db.t1.micro
Multi AZ: False
Master Username: ebroot
Creation Time: 2014-05-15 07:29:39
DB Instance Status: available
```

## Example 2

The following example request returns the status of an application named *MyNodeApp* in an environment called *MyNodeApp-test-env*.

```
PROMPT> eb status -e MyNodeApp-test-env -a MyNodeApp
Retrieving status of environment "MyNodeApp-test-env".
URL : MyNodeApp-test-env-tnEXAMPLEcf.elasticbeanstalk.com
Status : Ready
Health : Green

RDS Database: AWSEBRDSDatabase | aavcEXAMPLEd5y.clak1.us-west-2.rds.amazon
aws.com:3306
```

## stop

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Terminates the environment. For a tutorial that includes a description of how to terminate an environment using `eb stop`, see [Getting Started with Eb](#) (p. 483).

#### Note

The `stop` operation applies to environments, not applications. To delete an application along with its environments, use `eb delete`.

### Syntax

`eb stop`

### Options

Name	Description	Required
<code>-e</code> or <code>--environment-name</code> <i>ENVIRONMENT_NAME</i>	The environment you want to terminate. The environment must contain the current application; you cannot specify an application other than the one in the repository you're currently working in.  Type: String  Default: Current setting	No
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

### Output

If successful, the command returns the status of the `stop` operation.

### Example1

The following example request terminates the environment.

```
PROMPT> eb stop

If you terminate your environment, your RDS DB Instance will be deleted and
you will lose your data.
Terminate environment? [y/n]: y
Stopping environment "MyApp-env". This may take a few minutes.
2014-05-13 07:18:10 INFO terminateEnvironment is starting.
2014-05-13 07:18:17 INFO Waiting for EC2 instances to terminate. This may
take
a few minutes.
```

```
2014-05-13 07:19:43 INFO Deleted EIP: xxx.xxx.xxx.xx
2014-05-13 07:19:43 INFO Deleted security group named: awseb-e-zEXAMPLEEng-
stack-
AWSEBSecurityGroup-MEEXAMPLENHQ
2014-05-13 07:19:51 INFO Deleting SNS topic for environment MyApp-env.
2014-05-13 07:19:52 INFO terminateEnvironment completed successfully.
Stop of environment "MyApp-env" has completed.
```

## Example 2

The following example request terminates the environment named *MyApp-test-env*.

```
PROMPT> eb stop -e MyApp-test-env

If you terminate your environment, your RDS DB Instance will be deleted and
you will lose your data.
Terminate environment? [y/n]: y
Stopping environment "MyApp-test-env". This may take a few minutes.
2014-05-15 17:27:09 INFO terminateEnvironment is starting.
2014-05-15 17:27:16 INFO Waiting for EC2 instances to terminate. This
may take a few minutes.
2014-05-15 17:27:42 INFO Deleted EIP: xxx.xxx.xxx.xx
2014-05-15 17:27:42 INFO Deleted security group named: awseb-e-
zEXAMPLEEngstack-
AWSEBSecurityGroup-MEEXAMPLENHQ
2014-05-15 17:34:50 INFO Deleting SNS topic for environment MyApp-testenv.
2014-05-15 17:34:51 INFO terminateEnvironment completed successfully.
2013-05-15 17:29:55 INFO Deleted Auto Scaling group named: awseb-e-
mqmp6mmcpk-stack-AWSEBAutoScalingGroup-QAL0012HZJVJ
2013-05-15 17:29:56 INFO Deleted Auto Scaling
launch configuration named: awseb-e-mqmp6mmcpk-stack-
AWSEBAutoScalingLaunchConfiguration-1DBGPQ99YFX08
2013-05-15 17:34:11 INFO Deleted RDS database named: aaue15gap2gqb4
2013-05-15 17:34:16 INFO Deleted security group named: awseb-e-
mqmp6mmcpk-stack-AWSEBSecurityGroup-1LDYFT0256P0B
2013-05-15 17:34:17 INFO Deleted load balancer named: awseb-e-m-
AWSEBLoa-CT74SPXN541T
2013-05-15 17:34:29 INFO Deleting SNS topic for environment
MyOtherApp-env.
2013-05-15 17:34:30 INFO terminateEnvironment completed successfully.
Stop of environment "MyApp-test-env" has completed.
```

## update

### Important

This version of the EB CLI and its documentation have been replaced with version 3. Version 3 has different commands and is not backwards compatible with version 2. For information on the new version, see [The Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 416).

### Description

Updates the specified environment by reading the `.elasticbeanstalk/optionsettings`. (Setting values in `.elasticbeanstalk/optionsettings` take precedence over the values specified for the same settings specified in `.ebextensions/*.conf` if the settings are configured in both places.) Use this operation after making changes to your settings (for example, via `init` or `branch`).

### Syntax

**eb update**

### Options

Name	Description	Required
<code>-e</code>	The environment you want to update.	No
or	Type: String	
<code>--environment-name</code> <i>ENVIRONMENT_NAME</i>	Default: Current setting	
Common options	For more information, see <a href="#">Eb Common Options</a> (p. 491).	No

### Output

If successful, the command returns the status of the update operation.

### Example

The following example request updates the environment.

```
PROMPT> eb update

Update environment? [y/n]: y
Updating environment "MyApp-env". This may take a few minutes.
2014-05-15 17:10:34 INFO Updating environment MyApp-env's configuration
settings.
2014-05-15 17:11:12 INFO Successfully deployed new configuration to en
vironment.
2014-05-15 17:11:12 INFO Environment update completed successfully.
Update of environment "MyApp-env" has completed.
```

# Elastic Beanstalk API Command Line Interface (deprecated)

## Important

This tool, the Elastic Beanstalk API CLI, and its documentation have been replaced with the AWS CLI. See the [AWS CLI User Guide](#) to get started with the AWS CLI. Also try the [EB CLI \(p. 416\)](#) for a simplified, higher level command line experience.

This section contains a reference for the old Elastic Beanstalk API command line interface. This tool's functionality has been replaced by the AWS CLI, which provides API equivalent commands for all AWS services. See [Installing the AWS Command Line Interface](#) to get started with the AWS CLI.

## Topics

- [Converting Elastic Beanstalk API CLI Scripts \(p. 512\)](#)
- [Getting Set Up \(p. 514\)](#)
- [Common Options \(p. 516\)](#)
- [Operations \(p. 517\)](#)

## Converting Elastic Beanstalk API CLI Scripts

Convert your old EB API CLI scripts to use the AWS CLI or Tools for Windows PowerShell to get access to the latest Elastic Beanstalk APIs. The following table lists the Elastic Beanstalk API-based CLI commands and their equivalent commands in the AWS CLI and Tools for Windows PowerShell.

Elastic Beanstalk API CLI	AWS CLI	AWS Tools for Windows PowerShell
<a href="#">elastic-beanstalk-check-dns-availability (p. 518)</a>	<code>check-dns-availability</code>	<code>Get-EBDNSAvailability</code>
<a href="#">elastic-beanstalk-create-application (p. 518)</a>	<code>create-application</code>	<code>New-EBApplication</code>
<a href="#">elastic-beanstalk-create-application-version (p. 519)</a>	<code>create-application-version</code>	<code>New-EBApplicationVersion</code>
<a href="#">elastic-beanstalk-create-configuration-template (p. 521)</a>	<code>create-configuration-template</code>	<code>New-EBConfigurationTemplate</code>
<a href="#">elastic-beanstalk-create-environment (p. 523)</a>	<code>create-environment</code>	<code>New-EBEnvironment</code>
<a href="#">elastic-beanstalk-create-storage-location (p. 527)</a>	<code>create-storage-location</code>	<code>New-EBStorageLocation</code>

<b>Elastic Beanstalk API CLI</b>	<b>AWS CLI</b>	<b>AWS Tools for Windows PowerShell</b>
<code>elastic-beanstalk-delete-application</code> (p. 527)	<code>delete-application</code>	<code>Remove-EBApplication</code>
<code>elastic-beanstalk-delete-application-version</code> (p. 528)	<code>delete-application-version</code>	<code>Remove-EBApplicationVersion</code>
<code>elastic-beanstalk-delete-configuration-template</code> (p. 529)	<code>delete-configuration-template</code>	<code>Remove-EBConfigurationTemplate</code>
<code>elastic-beanstalk-delete-environment-configuration</code> (p. 530)	<code>delete-environment-configuration</code>	<code>Remove-EBEnvironmentConfiguration</code>
<code>elastic-beanstalk-describe-application-versions</code> (p. 531)	<code>describe-application-versions</code>	<code>Get-EBApplicationVersion</code>
<code>elastic-beanstalk-describe-applications</code> (p. 532)	<code>describe-applications</code>	<code>Get-EBApplication</code>
<code>elastic-beanstalk-describe-configuration-options</code> (p. 533)	<code>describe-configuration-options</code>	<code>Get-EBConfigurationOption</code>
<code>elastic-beanstalk-describe-configuration-settings</code> (p. 534)	<code>describe-configuration-settings</code>	<code>Get-EBConfigurationSetting</code>
<code>elastic-beanstalk-describe-environment-resources</code> (p. 535)	<code>describe-environment-resources</code>	<code>Get-EBEnvironmentResource</code>
<code>elastic-beanstalk-describe-environments</code> (p. 536)	<code>describe-environments</code>	<code>Get-EBEnvironment</code>
<code>elastic-beanstalk-describe-events</code> (p. 538)	<code>describe-events</code>	<code>Get-EBEvent</code>
<code>elastic-beanstalk-list-available-solution-stacks</code> (p. 540)	<code>list-available-solution-stacks</code>	<code>Get-EBAvailableSolutionStack</code>
<code>elastic-beanstalk-rebuild-environment</code> (p. 540)	<code>rebuild-environment</code>	<code>Start-EBEnvironmentRebuild</code>

Elastic Beanstalk API CLI	AWS CLI	AWS Tools for Windows PowerShell
<code>elastic-beanstalk-request-environment-info</code> (p. 541)	<code>request-environment-info</code>	<code>Request-EBEnvironmentInfo</code>
<code>elastic-beanstalk-restart-app-server</code> (p. 542)	<code>restart-app-server</code>	<code>Restart-EBAppServer</code>
<code>elastic-beanstalk-retrieve-environment-info</code> (p. 543)	<code>retrieve-environment-info</code>	<code>Get-EBEnvironmentInfo</code>
<code>elastic-beanstalk-swap-environment-cnames</code> (p. 544)	<code>swap-environment-cnames</code>	<code>Set-EBEnvironmentCNAME</code>
<code>elastic-beanstalk-terminate-environment</code> (p. 544)	<code>terminate-environment</code>	<code>Stop-EBEnvironment</code>
<code>elastic-beanstalk-update-application</code> (p. 546)	<code>update-application</code>	<code>Update-EBApplication</code>
<code>elastic-beanstalk-update-application-version</code> (p. 547)	<code>update-application-version</code>	<code>Update-EBApplicationVersion</code>
<code>elastic-beanstalk-update-configuration-template</code> (p. 548)	<code>update-configuration-template</code>	<code>Update-EBConfigurationTemplate</code>
<code>elastic-beanstalk-update-environment</code> (p. 550)	<code>update-environment</code>	<code>Update-EBEnvironment</code>
<code>elastic-beanstalk-validate-configuration-settings</code> (p. 553)	<code>validate-configuration-settings</code>	<code>Test-EBConfigurationSetting</code>

## Getting Set Up

### Important

This tool, the Elastic Beanstalk API CLI, and its documentation have been replaced with the AWS CLI. See the [AWS CLI User Guide](#) to get started with the AWS CLI. Also try the [EB CLI \(p. 416\)](#) for a simplified, higher level command line experience.

Elastic Beanstalk provides a command line interface (CLI) to access Elastic Beanstalk functionality without using the AWS Management Console or the APIs. This section describes the prerequisites for



running the CLI tools (or command line tools), where to get the tools, how to set up the tools and their environment, and includes a series of common examples of tool usage.

## Prerequisites

This document assumes you can work in a Linux/UNIX or Windows environment. The Elastic Beanstalk command line interface also works correctly on Mac OS X (which resembles the Linux and UNIX command environment), but no specific Mac OS X instructions are included in this guide.

As a convention, all command line text is prefixed with a generic `PROMPT>` command line prompt. The actual command line prompt on your machine is likely to be different. We also use `$` to indicate a Linux/UNIX-specific command and `C:\>` for a Windows-specific command. The example output resulting from the command is shown immediately thereafter without any prefix.

The command line tools used in this guide require Ruby (version 1.8.7+ or 1.9.2+) and Python version 2.7 to run. To view and download Ruby clients for a range of platforms, including Linux/UNIX and Windows, go to <http://www.ruby-lang.org/en/>. Python is available at [python.org](http://python.org).

### Note

If you are using Linux with a system version of Linux lower than 2.7, install Python 2.7 with your distribution's package manager and then modify the `eb` script under `eb/linux/python2.7/eb` to refer to the Python 2.7 executable:

```
#!/usr/bin/env python2.7
```

Additionally, you will need to install the boto module with pip:

```
$ sudo /usr/bin/easy_install-2.7 pip
$ sudo pip install boto
```

## Getting the Command Line Tools

The command line tools are available as a .zip file on the [AWS Sample Code & Libraries](#) website. These tools are written in Ruby, and include shell scripts for Windows 2000, Windows XP, Windows Vista, Windows 7, Linux/UNIX, and Mac OS X. The .zip file is self-contained and no installation is required; simply download the .zip file and unzip it to a directory on your local machine. You can find the tools in the `api` directory.

## Providing Credentials for the Command Line Interface

The command line interface requires the access key ID and secret access key. To get your access keys (access key ID and secret access key), see [How Do I Get Security Credentials?](#) in the *AWS General Reference*.

You need to create a file containing your access key ID and secret access key. The contents of the file should look like this:

```
AWSAccessKeyId=Write your AWS access ID
AWSSecretKey=Write your AWS secret key
```

### Important

On UNIX, limit permissions to the owner of the credential file:

```
$ chmod 600 <the file created above>
```

With the credentials file set up, you'll need to set the `AWS_CREDENTIAL_FILE` environment variable so that the Elastic Beanstalk CLI tools can find your information.

### To set the `AWS_CREDENTIAL_FILE` environment variable

- Set the environment variable using the following command:

On Linux and UNIX	On Windows
<pre>\$ export AWS_CREDENTIAL_FILE=&lt;the file created above&gt;</pre>	<pre>C:\&gt; set AWS_CREDENTIAL_FILE=&lt;the file created above&gt;</pre>

## Set the Service Endpoint URL

By default, the AWS Elastic Beanstalk uses the US East (N. Virginia) region (us-east-1) with the `elasticbeanstalk.us-east-1.amazonaws.com` service endpoint URL. This section describes how to specify a different region by setting the service endpoint URL. For information about this product's regions, go to [Regions and Endpoints](#) in the Amazon Web Services General Reference.

### To set the service endpoint URL

- Set the environment variable using the following command:

On Linux and UNIX	On Windows
<pre>\$ export ELASTICBEANSTALK_URL=&lt;service_endpoint&gt;</pre>	<pre>C:\&gt; set ELASTICBEANSTALK_URL=&lt;service_endpoint&gt;</pre>

For example, on Linux, type the following to set your endpoint to us-west-2:

```
export ELASTICBEANSTALK_URL="https://elasticbeanstalk.us-west-2.amazonaws.com"
```

For example, on Windows, type the following to set your endpoint to us-west-2:

```
set ELASTICBEANSTALK_URL=https://elasticbeanstalk.us-west-2.amazonaws.com
```

## Common Options

### Important

This tool, the Elastic Beanstalk API CLI, and its documentation have been replaced with the AWS CLI. See the [AWS CLI User Guide](#) to get started with the AWS CLI. Also try the [EB CLI \(p. 416\)](#) for a simplified, higher level command line experience.

The command line operations accept the set of optional parameters described in the following table.

Option	Description
<code>--help</code> <code>-h</code>	Displays help text for the command. You can also use <code>help commandname</code> . This option applies to <code>eb</code> and the original command line interface. Default: off

Option	Description
<pre>--show-json</pre> <pre>-j</pre>	<p>Displays the raw JSON response. This option applies only to the original command line interface.</p> <p>Default: off</p>

## Operations

### Important

This tool, the Elastic Beanstalk API CLI, and its documentation have been replaced with the AWS CLI. See the [AWS CLI User Guide](#) to get started with the AWS CLI. Also try the [EB CLI \(p. 416\)](#) for a simplified, higher level command line experience.

### Commands

- [elastic-beanstalk-check-dns-availability \(p. 518\)](#)
- [elastic-beanstalk-create-application \(p. 518\)](#)
- [elastic-beanstalk-create-application-version \(p. 519\)](#)
- [elastic-beanstalk-create-configuration-template \(p. 521\)](#)
- [elastic-beanstalk-create-environment \(p. 523\)](#)
- [elastic-beanstalk-create-storage-location \(p. 527\)](#)
- [elastic-beanstalk-delete-application \(p. 527\)](#)
- [elastic-beanstalk-delete-application-version \(p. 528\)](#)
- [elastic-beanstalk-delete-configuration-template \(p. 529\)](#)
- [elastic-beanstalk-delete-environment-configuration \(p. 530\)](#)
- [elastic-beanstalk-describe-application-versions \(p. 531\)](#)
- [elastic-beanstalk-describe-applications \(p. 532\)](#)
- [elastic-beanstalk-describe-configuration-options \(p. 533\)](#)
- [elastic-beanstalk-describe-configuration-settings \(p. 534\)](#)
- [elastic-beanstalk-describe-environment-resources \(p. 535\)](#)
- [elastic-beanstalk-describe-environments \(p. 536\)](#)
- [elastic-beanstalk-describe-events \(p. 538\)](#)
- [elastic-beanstalk-list-available-solution-stacks \(p. 540\)](#)
- [elastic-beanstalk-rebuild-environment \(p. 540\)](#)
- [elastic-beanstalk-request-environment-info \(p. 541\)](#)
- [elastic-beanstalk-restart-app-server \(p. 542\)](#)
- [elastic-beanstalk-retrieve-environment-info \(p. 543\)](#)
- [elastic-beanstalk-swap-environment-cnames \(p. 544\)](#)
- [elastic-beanstalk-terminate-environment \(p. 544\)](#)
- [elastic-beanstalk-update-application \(p. 546\)](#)
- [elastic-beanstalk-update-application-version \(p. 547\)](#)
- [elastic-beanstalk-update-configuration-template \(p. 548\)](#)
- [elastic-beanstalk-update-environment \(p. 550\)](#)
- [elastic-beanstalk-validate-configuration-settings \(p. 553\)](#)

## elastic-beanstalk-check-dns-availability

### Description

Checks if the specified CNAME is available.

### Syntax

```
elastic-beanstalk-check-dns-availability -c [CNAMEPrefix]
```

### Options

Name	Description	Required
-c --cname-prefix <i>CNAMEPrefix</i>	The name of the CNAME to check. Type: String Default: None	Yes

### Output

The command returns a table with the following information:

- **Available**—Shows `true` if the CNAME is available; otherwise, shows `false`.
- **FullyQualifiedCNAME**—Shows the fully qualified CNAME if it is available; otherwise shows N/A.

### Examples

#### Checking to Availability of a CNAME

This example shows how to check to see if the CNAME prefix "myapp23" is available.

```
PROMPT> elastic-beanstalk-check-dns-availability -c myapp23
```

## elastic-beanstalk-create-application

### Description

Creates an application that has one configuration template named `default` and no application versions.

#### Note

The `default` configuration template is for a 32-bit version of the Amazon Linux operating system running the Tomcat 6 application container.

### Syntax

```
elastic-beanstalk-create-application -a [name] -d [desc]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application. Constraint: This name must be unique within your account. If the specified name already exists, the action returns an <code>InvalidParameterValue</code> error.	Yes

Name	Description	Required
	Type: String Default: None	
-d --description <i>desc</i>	The description of the application. Type: String Default: None	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application. If no application is found with this name, and `AutoCreateApplication` is `false`, Elastic Beanstalk returns an `InvalidParameterValue` error.
- **ConfigurationTemplates**—A list of the configuration templates used to create the application.
- **DateCreated**—The date the application was created.
- **DateUpdated**—The date the application was last updated.
- **Description**—The description of the application.
- **Versions**—The versions of the application.

## Examples

### Creating an Application

This example shows how to create an application.

```
PROMPT> elastic-beanstalk-create-application -a MySampleApp -d "My
description"
```

## elastic-beanstalk-create-application-version

### Description

Creates an application version for the specified application.

#### Note

Once you create an application version with a specified Amazon S3 bucket and key location, you cannot change that Amazon S3 location. If you change the Amazon S3 location, you receive an exception when you attempt to launch an environment from the application version.

### Syntax

```
elastic-beanstalk-create-application-version -a [name] -l [label] -c -d
[desc] -s [location]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application. If no application is found with this name, and <code>AutoCreateApplication</code> is <code>false</code> , Elastic	Yes

Name	Description	Required
	<p>Beanstalk returns an <code>InvalidParameterValue</code> error.</p> <p>Type: String</p> <p>Default: None</p> <p>Length Constraints: Minimum value of 1. Maximum value of 100.</p>	
<p><code>-c</code> <code>--auto-create</code></p>	<p>Determines how the system behaves if the specified application for this version does not already exist:</p> <ul style="list-style-type: none"> <li><code>true</code>: Automatically creates the specified application for this release if it does not already exist.</li> <li><code>false</code>: Throws an <code>InvalidParameterValue</code> if the specified application for this release does not already exist.</li> </ul> <p>Type: Boolean</p> <p>Valid Values: <code>true</code>   <code>false</code></p> <p>Default: <code>false</code></p>	No
<p><code>-d</code> <code>--description desc</code></p>	<p>The description of the version.</p> <p>Type: String</p> <p>Default: None</p> <p>Length Constraints: Minimum value of 0. Maximum value of 200.</p>	No
<p><code>-l</code> <code>--version-label label</code></p>	<p>A label identifying this version.</p> <p>Type: String</p> <p>Default: None</p> <p>Constraint: Must be unique per application. If an application version already exists with this label for the specified application, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error.</p> <p>Length Constraints: Minimum value of 1. Maximum value of 100.</p>	Yes
<p><code>-s</code> <code>--source-location location</code></p>	<p>The name of the Amazon S3 bucket and key that identify the location of the source bundle for this version, in the format <code>bucketname/key</code>. If data found at the Amazon S3 location exceeds the maximum allowed source bundle size, Elastic Beanstalk returns an <code>InvalidParameterCombination</code> error.</p> <p>Type: String</p> <p>Default: If not specified, AWS Elastic Beanstalk uses a sample application. If only partially specified (for example, a bucket is provided but not the key) or if no data is found at the Amazon S3 location, AWS Elastic Beanstalk returns an <code>InvalidParameterCombination</code> error.</p>	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application.
- **DateCreated**—The date the application was created.
- **DateUpdated**—The date the application was last updated.
- **Description**—The description of the application.
- **SourceBundle**—The location where the source bundle is located for this version.
- **VersionLabel**—A label uniquely identifying the version for the associated application.

## Examples

### Creating a Version from a Source Location

This example shows create a version from a source location.

```
PROMPT> elastic-beanstalk-create-application-version -a MySampleApp -d "My
version" -l "TestVersion 1" -s amazonaws.com/sample.war
```

## elastic-beanstalk-create-configuration-template

### Description

Creates a configuration template. Templates are associated with a specific application and are used to deploy different versions of the application with the same configuration settings.

### Syntax

```
elastic-beanstalk-create-configuration-template -a [name] -t [name] -E [id] -
d [desc] -s [stack] -f [filename] -A [name] -T [name]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application to associate with this configuration template. If no application is found with this name, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None	Yes
-t --template-name <i>name</i>	The name of the configuration template. If a configuration template already exists with this name, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None Constraint: Must be unique for this application. Length Constraints: Minimum value of 1. Maximum value of 100.	Yes

Name	Description	Required
-E --environment-id <i>id</i>	The environment ID of the configuration template. Type: String Default: None	No
-d --description <i>desc</i>	The description of the configuration. Type: String Default: None	No
-s --solution-stack <i>stack</i>	The name of the solution stack used by this configuration. The solution stack specifies the operating system, architecture, and application server for a configuration template. It determines the set of configuration options as well as the possible and default values. Use <code>elastic-beanstalk-list-available-solution-stacks</code> to obtain a list of available solution stacks. A solution stack name or a source configuration parameter must be specified; otherwise, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. If a solution stack name is not specified and the source configuration parameter is specified, Elastic Beanstalk uses the same solution stack as the source configuration template. Type: String Length Constraints: Minimum value of 0. Maximum value of 100.	No
-f --options-file <i>filename</i>	The name of a JSON file that contains a set of key-value pairs defining configuration options for the configuration template. The new values override the values obtained from the solution stack or the source configuration template. Type: String	No
-A --source-application-name <i>name</i>	The name of the application to use as the source for this configuration template. Type: String Default: None	No
-T --source-template-name <i>name</i>	The name of the template to use as the source for this configuration template. Type: String Default: None	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with the configuration set.
- **DateCreated**—The date (in UTC time) when this configuration set was created.



- **DateUpdated**—The date (in UTC time) when this configuration set was last modified.
- **DeploymentStatus**—If this configuration set is associated with an environment, the deployment status parameter indicates the deployment status of this configuration set:
  - `null`: This configuration is not associated with a running environment.
  - `pending`: This is a draft configuration that is not deployed to the associated environment but is in the process of deploying.
  - `deployed`: This is the configuration that is currently deployed to the associated running environment.
  - `failed`: This is a draft configuration that failed to successfully deploy.
- **Description**—The description of the configuration set.
- **EnvironmentName**—If not `null`, the name of the environment for this configuration set.
- **OptionSettings**—A list of configuration options and their values in this configuration set.
- **SolutionStackName**—The name of the solution stack this configuration set uses.
- **TemplateName**—If not `null`, the name of the configuration template for this configuration set.

## Examples

### Creating a Basic Configuration Template

This example shows how to create a basic configuration template. For a list of configuration settings, see [Configuration Options](#) (p. 131).

```
PROMPT> elastic-beanstalk-create-configuration-template -a MySampleApp -t
myconfigtemplate -E e-eup272zdrw
```

## Related Operations

- [elastic-beanstalk-describe-configuration-options](#) (p. 533)
- [elastic-beanstalk-describe-configuration-settings](#) (p. 534)
- [elastic-beanstalk-list-available-solution-stacks](#) (p. 540)

## elastic-beanstalk-create-environment

### Description

Launches an environment for the specified application using the specified configuration.

### Syntax

```
elastic-beanstalk-create-environment -a [name] -l [label] -e [name] [-t
name] | -s [stack] -c [prefix] -d [desc] -f [filename] -F [filename]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application that contains the version to be deployed. If no application is found with this name, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String	Yes

Name	Description	Required
	<p>Default: None</p> <p>Length Constraints: Minimum value of 1. Maximum value of 100.</p>	
<p>-l --version-label <i>label</i></p>	<p>The name of the application version to deploy.</p> <p>If the specified application has no associated application versions, Elastic Beanstalk <code>UpdateEnvironment</code> returns an <code>InvalidParameterValue</code> error.</p> <p>Default: If not specified, Elastic Beanstalk attempts to launch the the sample application in the container.</p> <p>Type: String</p> <p>Default: None</p> <p>Length Constraints: Minimum value of 1. Maximum value of 100.</p>	No
<p>-e --environment-name <i>name</i></p>	<p>A unique name for the deployment environment. Used in the application URL.</p> <p>Constraint: Must be from 4 to 23 characters in length. The name can contain only letters, numbers, and hyphens. It cannot start or end with a hyphen. This name must be unique in your account. If the specified name already exists, Elastic Beanstalk returns an <code>InvalidParameterValue</code>.</p> <p>Type: String</p> <p>Default: If the CNAME parameter is not specified, the environment name becomes part of the CNAME, and therefore part of the visible URL for your application.</p>	Yes
<p>-t --template-name <i>name</i></p>	<p>The name of the configuration template to use in the deployment. If no configuration template is found with this name, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error.</p> <p>Conditional: You must specify either this parameter or a solution stack name, but not both. If you specify both, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. If you do not specify either, Elastic Beanstalk returns a <code>MissingRequiredParameter</code>.</p> <p>Type: String</p> <p>Default: None</p> <p>Constraint: Must be unique for this application.</p>	Conditional

Name	Description	Required
-s --solution-stack <i>stack</i>	This is the alternative to specifying a configuration name. If specified, Elastic Beanstalk sets the configuration values to the default values associated with the specified solution stack.  Condition: You must specify either this or a <code>TemplateName</code> , but not both. If you specify both, Elastic Beanstalk returns an <code>InvalidParameterCombination</code> error. If you do not specify either, Elastic Beanstalk returns <code>MissingRequiredParameter</code> error.  Type: String Default: None	Conditional
-c --cname-prefix <i>prefix</i>	If specified, the environment attempts to use this value as the prefix for the CNAME. If not specified, the environment uses the environment name.  Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	No
-d --description <i>desc</i>	The description of the environment.  Type: String Default: None	No
-f --options-file <i>filename</i>	The name of a JSON file that contains a set of key-value pairs defining configuration options for this new environment. These override the values obtained from the solution stack or the configuration template.  Type: String	No
-F --options-to-remove-file <i>value</i>	The name of a JSON file that contains configuration options to remove from the configuration set for this new environment.  Type: String Default: None	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with this environment.
- **CNAME**—The URL to the CNAME for this environment.
- **DateCreated**—The date the environment was created.
- **DateUpdated**—The date the environment was last updated.
- **Description**—The description of the environment.
- **EndpointURL**—The URL to the LoadBalancer for this environment.
- **EnvironmentID**—The ID of this environment.

- **EnvironmentName**—The name of this environment.
- **Health**—Describes the health status of the environment. Elastic Beanstalk indicates the failure levels for a running environment:
  - **Red**: Indicates the environment is not responsive. Occurs when three or more consecutive failures occur for an environment.
  - **Yellow**: Indicates that something is wrong. Occurs when two consecutive failures occur for an environment.
  - **Green**: Indicates the environment is healthy and fully functional.
  - **Gray**: Default health for a new environment. The environment is not fully launched and health checks have not started or health checks are suspended during an `UpdateEnvironment` or `RestartEnvironment` request.
- **Resources**—A list of AWS resources used in this environment.
- **SolutionStackName**—The name of the solution stack deployed with this environment.
- **Status**—The current operational status of the environment:
  - **Launching**: Environment is in the process of initial deployment.
  - **Updating**: Environment is in the process of updating its configuration settings or application version.
  - **Ready**: Environment is available to have an action performed on it, such as update or terminate.
  - **Terminating**: Environment is in the shut-down process.
  - **Terminated**: Environment is not running.
- **TemplateName**—The name of the configuration template used to originally launch this environment.
- **VersionLabel**—The application version deployed in this environment.

## Examples

### Creating an Environment Using a Basic Configuration Template

This example shows how to create an environment using a basic configuration template as well as pass in a file to edit configuration settings and a file to remove configuration settings. For a list of configuration settings, see [Configuration Options \(p. 131\)](#).

```
$ elastic-beanstalk-create-environment -a MySampleApp -t myconfigtemplate -e MySampleAppEnv -f options.txt -F options_remove.txt
```

#### options.txt

```
[
 {
 "Namespace": "aws:autoscaling:asg",
 "OptionName": "MinSize",
 "Value": "2"
 },
 {
 "Namespace": "aws:autoscaling:asg",
 "OptionName": "MaxSize",
 "Value": "3"
 }
]
```

#### options\_remove.txt

```
[
```

```
{
 "Namespace": "aws:elasticbeanstalk:sns:topics",
 "OptionName": "PARAM4"
}
]
```

## elastic-beanstalk-create-storage-location

### Description

Creates the Amazon S3 storage location for the account. This location is used to store user log files and is used by the AWS Management Console to upload application versions. You do not need to create this bucket in order to work with Elastic Beanstalk.

### Syntax

```
elastic-beanstalk-create-storage-location
```

### Examples

#### Creating the Storage Location

This example shows how to create a storage location.

```
PROMPT> elastic-beanstalk-create-storage-location
```

This command will output the name of the Amazon S3 bucket created.

## elastic-beanstalk-delete-application

### Description

Deletes the specified application along with all associated versions and configurations.

#### Note

You cannot delete an application that has a running environment.

### Syntax

```
elastic-beanstalk-delete-application -a [name] -f
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application to delete. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes
-f --force-terminate-env	Determines if all running environments should be deleted before deleting the application. Type: Boolean Valid Values: true   false Default: false	No

## Output

The command returns the string `Application deleted`.

## Examples

### Deleting an Application

This example shows how to delete an application.

```
PROMPT> elastic-beanstalk-delete-application -a MySampleApp
```

## elastic-beanstalk-delete-application-version

### Description

Deletes the specified version from the specified application.

#### Note

You cannot delete an application version that is associated with a running environment.

### Syntax

```
elastic-beanstalk-delete-application-version -a [name] -l [label] -d
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application to delete releases from. Type: String Default: None	Yes
-l --version-label	The label of the version to delete. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes
-d --delete-source-bundle	Indicates whether to delete the associated source bundle from Amazon S3. <i>true</i> : An attempt is made to delete the associated Amazon S3 source bundle specified at time of creation. <i>false</i> : No action is taken on the Amazon S3 source bundle specified at time of creation. Type: Boolean Valid Values: <i>true</i>   <i>false</i> Default: <i>false</i>	No

## Output

The command returns the string `Application version deleted`.

## Examples

### Deleting an Application Version

This example shows how to delete an application version.

```
PROMPT> elastic-beanstalk-delete-application-version -a MySampleApp -l
MyAppVersion
```

### Deleting an Application Version and Amazon S3 Source Bundle

This example shows how to delete an application version.

```
PROMPT> elastic-beanstalk-delete-application-version -a MySampleApp -l
MyAppVersion -d
```

## elastic-beanstalk-delete-configuration-template

### Description

Deletes the specified configuration template.

#### Note

When you launch an environment using a configuration template, the environment gets a copy of the template. You can delete or modify the environment's copy of the template without affecting the running environment.

### Syntax

```
elastic-beanstalk-delete-configuration-template -a [name] -t [name]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application to delete the configuration template from. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes
-t --template-name	The name of the configuration template to delete. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes

### Output

The command returns the string `Configuration template deleted.`

## Examples

### Deleting a Configuration Template

This example shows how to delete a configuration template.

```
PROMPT> elastic-beanstalk-delete-configuration-template -a MySampleApp -t
MyConfigTemplate
```

## elastic-beanstalk-delete-environment-configuration

### Description

Deletes the draft configuration associated with the running environment.

#### Note

Updating a running environment with any configuration changes creates a draft configuration set. You can get the draft configuration using `elastic-beanstalk-describe-configuration-settings` while the update is in progress or if the update fails. The deployment status for the draft configuration indicates whether the deployment is in process or has failed. The draft configuration remains in existence until it is deleted with this action.

### Syntax

```
elastic-beanstalk-delete-environment-configuration -a [name] -e [name]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application the environment is associated with. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes
-e --environment-name <i>name</i>	The name of the environment to delete the draft configuration from. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	Yes

### Output

The command returns the string `Environment configuration deleted.`

## Examples

### Deleting a Configuration Template

This example shows how to delete a configuration template.



```
PROMPT> elastic-beanstalk-delete-environment-configuration -a MySampleApp -e MyEnvConfig
```

## elastic-beanstalk-describe-application-versions

### Description

Returns information about existing application versions.

### Syntax

```
elastic-beanstalk-describe-application-versions -a [name] -l [labels [,label..]]
```

### Options

Name	Description	Required
-a --application-name <i>value</i>	The name of the application. If specified, Elastic Beanstalk restricts the returned descriptions to only include ones that are associated with the specified application. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-l --version-label <i>labels</i>	Comma-delimited list of version labels. If specified, restricts the returned descriptions to only include ones that have the specified version labels. Type: String[] Default: None	No

### Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with this release.
- **DateCreated**—The date the application was created.
- **DateUpdated**—The date the application version was last updated.
- **Description**—The description of the application version.
- **SourceBundle**—The location where the source bundle is located for this version.
- **VersionLabel**—A label uniquely identifying the version for the associated application.

### Examples

#### Describing Application Versions

This example shows how to describe all application versions for this account.

```
PROMPT> elastic-beanstalk-describe-application-versions
```

## Describing Application Versions for a Specified Application

This example shows how to describe application versions for a specific application.

```
PROMPT> elastic-beanstalk-describe-application-versions -a MyApplication
```

## Describing Multiple Application Versions

This example shows how to describe multiple specified application versions.

```
PROMPT> elastic-beanstalk-describe-application-versions -l MyAppVersion1,
MyAppVersion2
```

# elastic-beanstalk-describe-applications

## Description

Returns descriptions about existing applications.

## Syntax

```
elastic-beanstalk-describe-applications -a [names [,name..]]
```

## Options

Name	Description	Required
-a --application-names <i>name</i>	The name of one or more applications, separated by commas. If specified, Elastic Beanstalk restricts the returned descriptions to only include those with the specified names. Type: String[] Default: None	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application.
- **ConfigurationTemplates**—A list of the configuration templates used to create the application.
- **DateCreated**—The date the application was created.
- **DateUpdated**—The date the application was last updated.
- **Description**—The description of the application.
- **Versions**—The names of the versions for this application.

## Examples

### Describing the Applications

This example shows how to describe all applications for this account.

```
PROMPT> elastic-beanstalk-describe-applications
```

## Describing a Specific Application

This example shows how to describe a specific application.

```
PROMPT> elastic-beanstalk-describe-applications -a MyApplication
```

## elastic-beanstalk-describe-configuration-options

### Description

Describes the configuration options that are used in a particular configuration template or environment, or that a specified solution stack defines. The description includes the values, the options, their default values, and an indication of the required action on a running environment if an option value is changed.

### Syntax

```
elastic-beanstalk-describe-configuration-options -a [name] -t [name] -e [name] -s [stack] -f [filename]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application associated with the configuration template or environment. Only needed if you want to describe the configuration options associated with either the configuration template or environment. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-t --template-name <i>name</i>	The name of the configuration template whose configuration options you want to describe. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-e --environment-name <i>name</i>	The name of the environment whose configuration options you want to describe. Type: String Length Constraints: Minimum value of 4. Maximum value of 23.	No
-s --solution-stack <i>stack</i>	The name of the solution stack whose configuration options you want to describe. Type: String Default: None Length Constraints: Minimum value of 0. Maximum value of 100.	No

Name	Description	Required
-f --options-file <i>filename</i>	The name of a JSON file that contains the options you want described. Type: String	No

## Output

The command returns a table with the following information:

- **Options**—A list of the configuration options.
- **SolutionStackName**—The name of the `SolutionStack` these configuration options belong to.

## Examples

### Describing Configuration Options for an Environment

This example shows how to describe configuration options for an environment.

```
PROMPT> elastic-beanstalk-describe-configuration-options -a MySampleApp -t
myconfigtemplate -e MySampleAppEnv
```

## elastic-beanstalk-describe-configuration-settings

### Description

Returns a description of the settings for the specified configuration set, that is, either a configuration template or the configuration set associated with a running environment.

When describing the settings for the configuration set associated with a running environment, it is possible to receive two sets of setting descriptions. One is the deployed configuration set, and the other is a draft configuration of an environment that is either in the process of deployment or that failed to deploy.

### Syntax

```
elastic-beanstalk-describe-configuration-settings -a [name] [-t [name] | -e
[name]]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The application name for the environment or configuration template. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes
-t --template-name <i>name</i>	The name of the configuration template to describe. If no configuration template is found with this name, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error.	Conditional

Name	Description	Required
	<p>Conditional: You must specify either this parameter or an environment name, but not both. If you specify both, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. If you do not specify either, Elastic Beanstalk returns a <code>MissingRequiredParameter</code> error.</p> <p>Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.</p>	
<p>-e --environment-name <i>name</i></p>	<p>The name of the environment to describe.</p> <p>Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.</p>	Conditional

## Output

The command returns a table with the following information:

- **ConfigurationSettings**—A list of the configuration settings.

## Examples

### Describing Configuration Settings for an Environment

This example shows how to describe the configuration options for an environment.

```
PROMPT> elastic-beanstalk-describe-configuration-settings -a MySampleApp -e MySampleAppEnv
```

## Related Operations

- [elastic-beanstalk-delete-environment-configuration](#) (p. 530)

## elastic-beanstalk-describe-environment-resources

### Description

Returns AWS resources for this environment.

### Syntax

```
elastic-beanstalk-describe-environment-resources [-e name] | -E [id]
```

### Options

Name	Description	Required
-e	The name of the environment to retrieve AWS resource usage data.	Conditional

Name	Description	Required
<code>--environment-name name</code>	Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	
<code>-E</code> <code>--environment-id id</code>	The ID of the environment to retrieve AWS resource usage data. Type: String Default: None	Conditional

## Output

The command returns a table with the following information:

- **AutoScalingGroups**—A list of AutoScalingGroups used by this environment.
- **EnvironmentName**—The name of the environment.
- **Instances**—The Amazon EC2 instances used by this environment.
- **LaunchConfigurations**—The Auto Scaling launch configurations in use by this environment.
- **LoadBalancers**—The LoadBalancers in use by this environment.
- **Triggers**—The AutoScaling triggers in use by this environment.

## Examples

### Describing Environment Resources for an Environment

This example shows how to describe environment resources for an environment.

```
PROMPT> elastic-beanstalk-describe-environment-resources -e MySampleAppEnv
```

## elastic-beanstalk-describe-environments

### Description

Returns descriptions for existing environments.

### Syntax

```
elastic-beanstalk-describe-environments -e [names [,name...]] -E [ids [,id...]] -a [name] -l [label] -d -D [timestamp]
```

### Options

Name	Description	Required
<code>-e</code> <code>--environment-names names</code>	A list of environment names. Type: String[] Default: None	No
<code>-E</code> <code>--environment-ids ids</code>	A list of environment IDs. Type: String[] Default: None	No

Name	Description	Required
-a --application-name <i>name</i>	A list of descriptions associated with the application. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-l --version-label <i>label</i>	A list of descriptions associated with the application version. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-d --include-deleted	Indicates whether to include deleted environments. <i>true</i> : Environments that have been deleted after --include-deleted-back-to are displayed. <i>false</i> : Do not include deleted environments. Type: Boolean Default: <i>true</i>	No
-D --include-deleted-back-to <i>timestamp</i>	If --include-deleted is set to <i>true</i> , then a list of environments that were deleted after this date are displayed. Type: Date Time Default: None	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with this environment.
- **CNAME**—The URL to the CNAME for this environment.
- **DateCreated**—The date the environment was created.
- **DateUpdated**—The date the environment was last updated.
- **Description**—The description of the environment.
- **EndpointURL**—The URL to the LoadBalancer for this environment.
- **EnvironmentID**—The ID of this environment.
- **EnvironmentName**—The name of this environment.
- **Health**—Describes the health status of the environment. Elastic Beanstalk indicates the failure levels for a running environment:
  - **Red**: Indicates the environment is not responsive. Occurs when three or more consecutive failures occur for an environment.
  - **Yellow**: Indicates that something is wrong. Occurs when two consecutive failures occur for an environment.
  - **Green**: Indicates the environment is healthy and fully functional.
  - **Gray**: Default health for a new environment. The environment is not fully launched and health checks have not started or health checks are suspended during an `UpdateEnvironment` or `RestartEnvironment` request.

- **Resources**—A list of AWS resources used in this environment.
- **SolutionStackName**—The name of the `SolutionStack` deployed with this environment.
- **Status**—The current operational status of the environment:
  - `Launching`: Environment is in the process of initial deployment.
  - `Updating`: Environment is in the process of updating its configuration settings or application version.
  - `Ready`: Environment is available to have an action performed on it, such as update or terminate.
  - `Terminating`: Environment is in the shut-down process.
  - `Terminated`: Environment is not running.
- **TemplateName**—The name of the configuration template used to originally launch this environment.
- **VersionLabel**—The application version deployed in this environment.

## Examples

### Describing Environments

This example shows how to describe existing environments.

```
PROMPT> elastic-beanstalk-describe-environments
```

## elastic-beanstalk-describe-events

### Description

Returns a list of event descriptions matching criteria up to the last 6 weeks.

#### Note

This action returns the most recent 1,000 events from the specified `NextToken`.

### Syntax

```
elastic-beanstalk-describe-events -a [name] -e [name] -E [id] -l [label] -L [timestamp] -m [count] -n [token] -r [id] -s [level] -S [timestamp] -t [name]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-e --environment-name <i>name</i>	The name of the environment. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	No
-E --environment-id <i>id</i>	The ID of the environment. Type: String Default: None	No



Name	Description	Required
-l --version-label <i>label</i>	The application version. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-L --end-time <i>timestamp</i>	If specified, a list of events that occurred up to but not including the specified time is returned. Type: Date Time Default: None	No
-m --max-records <i>count</i>	Specifies the maximum number of events that can be returned, beginning with the most recent event. Type: Integer Default: None	No
-n --next-token <i>token</i>	Pagination token. Used to return the next batch of results. Type: String Default: None	No
-r --request-id <i>id</i>	The request ID. Type: String Default: None	No
-s --severity <i>level</i>	If specified, a list of events with the specified severity level or higher is returned. Type: String Valid Values: TRACE   DEBUG   INFO   WARN   ERROR   FATAL Default: None	No
-S --start-time <i>timestamp</i>	If specified, a list of events that occurred after the specified time is returned. Type: Date Time Default: None	No
-t --template-name <i>name</i>	The name of the configuration template. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with the event.
- **EnvironmentName**—The name of the environment associated with the event.
- **EventDate**—The date of the event.

- **Message**—The event's message.
- **RequestID**—The web service request ID for the activity of this event.
- **Severity**—The severity level of the event.
- **TemplateName**—The name of the configuration associated with this event.
- **VersionLabel**—The release label for the application version associated with this event.

## Examples

### Describing Events for an Environment with a Security Level

This example shows how to describe events that have a severity level of WARN or higher for an environment.

```
PROMPT> elastic-beanstalk-describe-events -e MySampleAppEnv -s WARN
```

## elastic-beanstalk-list-available-solution-stacks

### Description

Returns a list of available solution stack names.

### Syntax

```
elastic-beanstalk-list-available-solution-stacks
```

### Output

The command returns of available solution stack names.

## Examples

### Listing the Available Solution Stacks

This example shows how to get the list of available solution stacks.

```
PROMPT> elastic-beanstalk-list-available-solution-stacks
```

## elastic-beanstalk-rebuild-environment

### Description

Deletes and recreates all of the AWS resources (for example: the Auto Scaling group, LoadBalancer, etc.) for a specified environment and forces a restart.

### Syntax

```
elastic-beanstalk-rebuild-environment [-e name] | -E [id]
```

### Options

Name	Description	Required
-e	A name of the environment to rebuild.	Conditional

Name	Description	Required
<code>--environment-name name</code>	Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	
<code>-E</code> <code>--environment-id id</code>	The ID of the environment to rebuild. Type: String Default: None	Conditional

## Output

The command outputs `Rebuilding environment.`

## Examples

### Rebuilding an Environment

This example shows how to rebuild an environment.

```
PROMPT> elastic-beanstalk-rebuild-environment -e MySampleAppEnv
```

## elastic-beanstalk-request-environment-info

### Description

Initiates a request to compile the specified type of information of the deployed environment.

Setting the InfoType to `tail` compiles the last lines from the application server log files of every Amazon EC2 instance in your environment. Use `RetrieveEnvironmentInfo` to access the compiled information.

### Syntax

```
elastic-beanstalk-request-environment-info [-e name] | -E [id] -i [type]
```

### Options

Name	Description	Required
<code>-e</code> <code>--environment-name name</code>	The name of the environment of the requested data. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	Conditional
<code>-E</code> <code>--environment-id id</code>	The ID of the environment of the requested data. Type: String Default: None	Conditional
<code>-i</code> <code>--info-type type</code>	The type of information to request. Type: String	Yes

Name	Description	Required
	Valid Values: <code>tail</code> Default: None	

## Examples

### Requesting Environment Information

This example shows how to request environment information.

```
PROMPT> elastic-beanstalk-request-environment-info -e MySampleAppEnv -i tail
```

## Related Operations

- [elastic-beanstalk-retrieve-environment-info](#) (p. 543)

## elastic-beanstalk-restart-app-server

### Description

Causes the environment to restart the application container server running on each Amazon EC2 instance.

### Syntax

```
elastic-beanstalk-restart-app-server [-e name] | -E [id]
```

### Options

Name	Description	Required
-e --environment-name <i>name</i>	The name of the environment to restart the server for. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	Conditional
-E --environment-id <i>id</i>	The ID of the environment to restart the server for. Type: String Default: None	Conditional

## Examples

### Restarting the Application Server

This example shows how to restart the application server.

```
PROMPT> elastic-beanstalk-restart-app-server -e MySampleAppEnv
```

## elastic-beanstalk-retrieve-environment-info

### Description

Retrieves the compiled information from a RequestEnvironmentInfo request.

### Syntax

```
elastic-beanstalk-retrieve-environment-info [-e name] | [-E id] -i type
```

### Options

Name	Description	Required
-e --environment-name <i>name</i>	The name of the data's environment. If no environments are found, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	Conditional
-E --environment-id <i>id</i>	The ID of the data's environment. The name of the data's environment. If no environments are found, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None	Conditional
-i --info-type <i>type</i>	The type of information to retrieve. Type: String Valid Values: tail Default: None	Yes

### Output

The command returns a table with the following information:

- **EC2Instanceid**—The Amazon EC2 instance ID for this information.
- **InfoType**—The type of information retrieved.
- **Message**—The retrieved information.
- **SampleTimestamp**—The time stamp when this information was retrieved.

### Examples

#### Retrieving Environment Information

This example shows how to retrieve environment information.

```
PROMPT> elastic-beanstalk-retrieve-environment-info -e MySampleAppEnv -i tail
```

## Related Operations

- [elastic-beanstalk-request-environment-info](#) (p. 541)

## elastic-beanstalk-swap-environment-cnames

### Description

Swaps the CNAMEs of two environments.

### Syntax

```
elastic-beanstalk-swap-environment-cnames [-s [name] | -S [desc]] [-d [desc] | -D [desc]]
```

### Options

Name	Description	Required
-s --source-environment-name <i>name</i>	The name of the source environment. Type: String Default: None	Conditional
-S --source-environment-id <i>id</i>	The ID of the source environment. Type: String Default: None	Conditional
-d --destination-environment-name <i>name</i>	The name of the destination environment. Type: String Default: None	Conditional
-D --destination-environment-id <i>id</i>	The ID of the destination environment. Type: String Default: None	Conditional

## Examples

### Swapping Environment CNAMEs

This example shows how to swap the CNAME for two environments.

```
PROMPT> elastic-beanstalk-swap-environment-cnames -s MySampleAppEnv -d MySampleAppEnv2
```

## elastic-beanstalk-terminate-environment

### Description

Terminates the specified environment.

### Syntax

```
elastic-beanstalk-terminate-environment [-e [name] | -E [id]] -t
```

## Options

Name	Description	Required
-e --environment-name <i>name</i>	The name of the environment to terminate. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	Conditional
-E --environment-id <i>id</i>	The ID of the environment to terminate. Type: String Default: None	Conditional
-t --terminate-resources	Indicates whether the associated AWS resources should shut down when the environment is terminated: <ul style="list-style-type: none"> <li><code>true</code>: The specified environment as well as the associated AWS resources, such as Auto Scaling group and LoadBalancer, are terminated.</li> <li><code>false</code>: Elastic Beanstalk resource management is removed from the environment, but the AWS resources continue to operate.</li> </ul> Type: Boolean Valid Values: <code>true</code>   <code>false</code> Default: <code>true</code> <p><b>Note</b> You can specify this parameter (<code>-t</code>) only for legacy environments because only legacy environments can have resources running when you terminate the environment.</p>	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with this environment.
- **CNAME**—The URL to the CNAME for this environment.
- **DateCreated**—The date the environment was created.
- **DateUpdated**—The date the environment was last updated.
- **Description**—The description of the environment.
- **EndpointURL**—The URL to the LoadBalancer for this environment.
- **EnvironmentID**—The ID of this environment.
- **EnvironmentName**—The name of this environment.
- **Health**—Describes the health status of the environment. Elastic Beanstalk indicates the failure levels for a running environment:

- **Red:** Indicates the environment is not responsive. Occurs when three or more consecutive failures occur for an environment.
- **Yellow:** Indicates that something is wrong. Occurs when two consecutive failures occur for an environment.
- **Green:** Indicates the environment is healthy and fully functional.
- **Gray:** Default health for a new environment. The environment is not fully launched and health checks have not started or health checks are suspended during an `UpdateEnvironment` or `RestartEnvironment` request.
- **Resources**—A list of AWS resources used in this environment.
- **SolutionStackName**—The name of the `SolutionStack` deployed with this environment.
- **Status**—The current operational status of the environment:
  - **Launching:** Environment is in the process of initial deployment.
  - **Updating:** Environment is in the process of updating its configuration settings or application version.
  - **Ready:** Environment is available to have an action performed on it, such as update or terminate.
  - **Terminating:** Environment is in the shut-down process.
  - **Terminated:** Environment is not running.
- **TemplateName**—The name of the configuration template used to originally launch this environment.
- **VersionLabel**—The application version deployed in this environment.

## Examples

### Terminating an Environment

This example shows how to terminate an environment.

```
PROMPT> elastic-beanstalk-terminate-environment -e MySampleAppEnv
```

## elastic-beanstalk-update-application

### Description

Updates the specified application to have the specified properties.

#### Note

If a property (for example, `description`) is not provided, the value remains unchanged. To clear these properties, specify an empty string.

### Syntax

```
elastic-beanstalk-update-application -a [name] -d [desc]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application to update. If no such application is found, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None	Yes



Name	Description	Required
	Length Constraints: Minimum value of 1. Maximum value of 100.	
-d --description <i>desc</i>	A new description for the application. Type: String Default: If not specified, Elastic Beanstalk does not update the description. Length Constraints: Minimum value of 0. Maximum value of 200.	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application.
- **ConfigurationTemplate**—The names of the configuration templates associated with this application.
- **DateCreated**—The date the environment was created.
- **DateUpdated**—The date the environment was last updated.
- **Description**—The description of the environment.
- **Versions**—The names of the versions for this application.

## Examples

### Updating an Application

This example shows how to update an application.

```
PROMPT> elastic-beanstalk-update-application -a MySampleApp -d "My new description"
```

## elastic-beanstalk-update-application-version

### Description

Updates the specified application version to have the specified properties.

#### Note

If a property (for example, `description`) is not provided, the value remains unchanged. To clear these properties, specify an empty string.

### Syntax

```
elastic-beanstalk-update-application-version -a [name] -l [label] -d [desc]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application associated with this version. If no such application is found, Elastic	Yes

Name	Description	Required
	<p>Beanstalk returns an <code>InvalidParameterValue</code> error.</p> <p>Type: String</p> <p>Default: None</p> <p>Length Constraints: Minimum value of 1. Maximum value of 100.</p>	
<p>-l</p> <p>--version-label</p>	<p>The name of the version to update.</p> <p>If no application version is found with this label, Elastic Beanstalk returns an <code>InvalidParameterVaue</code> error.</p> <p>Type: String</p> <p>Length Constraints: Minimum value of 1. Maximum value of 100.</p>	Yes
<p>-d</p> <p>--description</p>	<p>A new description for the release.</p> <p>Type: String</p> <p>Default: If not specified, Elastic Beanstalk does not update the description.</p> <p>Length Constraints: Minimum value of 0. Maximum value of 200.</p>	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with this release.
- **DateCreated**—The creation date of the application version.
- **DateUpdated**—The last modified date of the application version.
- **Description**—The description of this application version.
- **SourceBundle**—The location where the source bundle is located for this version.
- **VersionLabel**—A label identifying the version for the associated application.

## Examples

### Updating an Application Version

This example shows how to update an application version.

```
PROMPT> elastic-beanstalk-update-application-version -a MySampleApp -d "My
new version" -l "TestVersion 1"
```

## elastic-beanstalk-update-configuration-template

### Description

Updates the specified configuration template to have the specified properties or configuration option values.

### Note

If a property (for example, `ApplicationName`) is not provided, its value remains unchanged. To clear such properties, specify an empty string.

## Syntax

```
elastic-beanstalk-update-configuration-template -a [name] -t [name] -d [desc]
-f [filename] -F [filename]
```

## Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application associated with the configuration template to update. If no application is found with this name, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes
-t --template-name <i>name</i>	The name of the configuration template to update. If no configuration template is found with this name, <code>UpdateConfigurationTemplate</code> returns an <code>InvalidParameterValue</code> error. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	Yes
-d --description <i>desc</i>	A new description for the configuration. Type: String Default: None Length Constraints: Minimum value of 0. Maximum value of 200.	No
-f --options-file <i>filename</i>	The name of a JSON file that contains option settings to update with the new specified option value. Type: String	No
-F --options-to-remove-file <i>value</i>	The name of a JSON file that contains configuration options to remove. Type: String Default: None	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with this configuration set.
- **DateCreated**—The date (in UTC time) when this configuration set was created.
- **DateUpdated**—The date (in UTC time) when this configuration set was last modified.

- **DeploymentStatus**—If this configuration set is associated with an environment, the *DeploymentStatus* parameter indicates the deployment status of this configuration set:
  - `null`: This configuration is not associated with a running environment.
  - `pending`: This is a draft configuration that is not deployed to the associated environment but is in the process of deploying.
  - `deployed`: This is the configuration that is currently deployed to the associated running environment.
  - `failed`: This is a draft configuration that failed to successfully deploy.
- **Description**—The description of the configuration set.
- **EnvironmentName**—If not null, the name of the environment for this configuration set.
- **OptionSettings**—A list of configuration options and their values in this configuration set.
- **SolutionStackName**—The name of the solution stack this configuration set uses.
- **TemplateName**—If not null, the name of the configuration template for this configuration set.

## Examples

### Updating a Configuration Template

This example shows how to update a configuration template. For a list of configuration settings, see [Configuration Options \(p. 131\)](#).

```
PROMPT> elastic-beanstalk-update-configuration-template -a MySampleApp -t
myconfigtemplate -d "My updated configuration template" -f "options.txt"
```

#### options.txt

```
[
 {
 "Namespace": "aws:elasticbeanstalk:application:environment",
 "OptionName": "my_custom_param_1",
 "Value": "firstvalue"
 },
 {
 "Namespace": "aws:elasticbeanstalk:application:environment",
 "OptionName": "my_custom_param_2",
 "Value": "secondvalue"
 }
]
```

## Related Operations

- [elastic-beanstalk-describe-configuration-options \(p. 533\)](#)

## elastic-beanstalk-update-environment

### Description

Updates the environment description, deploys a new application version, updates the configuration settings to an entirely new configuration template, or updates select configuration option values in the running environment.

Attempting to update both the release and configuration is not allowed and Elastic Beanstalk returns an `InvalidParameterCombination` error.

When updating the configuration settings to a new template or individual settings, a draft configuration is created and `DescribeConfigurationSettings` for this environment returns two setting descriptions with different `DeploymentStatus` values.

## Syntax

```
elastic-beanstalk-update-environment [-e name] | -E [id] -l [label] -t [name] -d [desc] -f [filename] -F [filename]
```

## Options

Name	Description	Required
-e --environment-name <i>name</i>	The name of the environment to update. If no environment with this name exists, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	Conditional
-E --environment-id <i>id</i>	The ID of the environment to update. If no environment with this ID exists, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None	Conditional
-l --version-label <i>label</i>	If this parameter is specified, Elastic Beanstalk deploys the named application version to the environment. If no such application version is found, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-t --template-name <i>name</i>	If this parameter is specified, Elastic Beanstalk deploys this configuration template to the environment. If no such configuration template is found, Elastic Beanstalk returns an <code>InvalidParameterValue</code> error. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-d --description <i>desc</i>	If this parameter is specified, Elastic Beanstalk updates the description of this environment. Type: String Default: None Length Constraints: Minimum value of 0. Maximum value of 200.	No
-f	A file containing option settings to update. If specified, Elastic Beanstalk updates the	No

Name	Description	Required
<code>--options-file <i>filename</i></code>	configuration set associated with the running environment and sets the specified configuration options to the requested values. Type: String Default: None	
<code>-F</code> <code>--options-to-remove-file <i>filename</i></code>	A file containing options settings to remove. If specified, Elastic Beanstalk removes the option settings from the configuration set associated with the running environment. Type: String Default: None	No

## Output

The command returns a table with the following information:

- **ApplicationName**—The name of the application associated with this environment.
- **CNAME**—The URL to the CNAME for this environment.
- **DateCreated**—The date the environment was created.
- **DateUpdated**—The date the environment was last updated.
- **Description**—The description of the environment.
- **EndpointURL**—The URL to the LoadBalancer for this environment.
- **EnvironmentID**—The ID of this environment.
- **EnvironmentName**—The name of this environment.
- **Health**—Describes the health status of the environment. Elastic Beanstalk indicates the failure levels for a running environment:
  - **Red**: Indicates the environment is not responsive. Occurs when three or more consecutive failures occur for an environment.
  - **Yellow**: Indicates that something is wrong. Occurs when two consecutive failures occur for an environment.
  - **Green**: Indicates the environment is healthy and fully functional.
  - **Gray**: Default health for a new environment. The environment is not fully launched and health checks have not started or health checks are suspended during an `UpdateEnvironment` or `RestartEnvironment` request.
- **Resources**—A list of AWS resources used in this environment.
- **SolutionStackName**—The name of the `SolutionStack` deployed with this environment.
- **Status**—The current operational status of the environment:
  - **Launching**: Environment is in the process of initial deployment.
  - **Updating**: Environment is in the process of updating its configuration settings or application version.
  - **Ready**: Environment is available to have an action performed on it, such as update or terminate.
  - **Terminating**: Environment is in the shut-down process.
  - **Terminated**: Environment is not running.
- **TemplateName**—The name of the configuration template used to originally launch this environment.
- **VersionLabel**—The application version deployed in this environment.

## Examples

### Updating an Existing Environment

This example shows how to update an existing environment. It passes in a file called `options.txt` that updates the size of the instance to a `t1.micro` and sets two environment variables. For a list of possible configuration settings, see [Configuration Options \(p. 131\)](#).

```
PROMPT> elastic-beanstalk-update-environment -e MySampleAppEnv -f
"options.txt"
```

#### options.txt

```
[
 {
 "Namespace": "aws:autoscaling:launchconfiguration",
 "OptionName": "InstanceType",
 "Value": "t1.micro"
 },
 {
 "Namespace": "aws:elasticbeanstalk:application:environment",
 "OptionName": "my_custom_param_1",
 "Value": "firstvalue"
 },
 {
 "Namespace": "aws:elasticbeanstalk:application:environment",
 "OptionName": "my_custom_param_2",
 "Value": "secondvalue"
 }
]
```

## elastic-beanstalk-validate-configuration-settings

### Description

Takes a set of configuration settings and either a configuration template or environment, and determines whether those values are valid.

This action returns a list of messages indicating any errors or warnings associated with the selection of option values.

### Syntax

```
elastic-beanstalk-validate-configuration-settings -a [name] -t [name] -e
[name] -f [filename]
```

### Options

Name	Description	Required
-a --application-name <i>name</i>	The name of the application that the configuration template or environment belongs to. Type: String Default: None	Yes

Name	Description	Required
	Length Constraints: Minimum value of 1. Maximum value of 100.	
-t --template-name <i>name</i>	The name of the configuration template to validate the settings against. Condition: You cannot specify both this and the environment name. Type: String Default: None Length Constraints: Minimum value of 1. Maximum value of 100.	No
-e --environment-name <i>name</i>	The name of the environment to validate the settings against. Type: String Default: None Length Constraints: Minimum value of 4. Maximum value of 23.	No
-f --options-file <i>filename</i>	The name of a JSON file that contains a list of options and desired values to evaluate. Type: String	Yes

## Output

The command returns a table with the following information:

- **Message**—A message describing the error or warning.
- **Namespace**
- **OptionName**
- **Severity**—An indication of the severity of this message:
  - `error`: This message indicates that this is not a valid settings for an option.
  - `warning`: This message provides information you should take into account.

## Examples

### Validating Configuration Settings for an Environment

This example shows how to validate the configuration settings for an environment.

```
PROMPT> elastic-beanstalk-validate-configuration-settings -a MySampleApp -e
MySampleAppEnv -f MyOptionSettingsFile.json
```



# Deploying Elastic Beanstalk Applications from Docker Containers

---

Elastic Beanstalk supports the deployment of web applications from Docker containers. With Docker containers, you can define your own runtime environment. You can choose your own platform, programming language, and any application dependencies (such as package managers or tools), that aren't supported by other platforms. Docker containers are self-contained and include all the configuration information and software your web application requires to run.

By using Docker with Elastic Beanstalk, you have an infrastructure that automatically handles the details of capacity provisioning, load balancing, scaling, and application health monitoring. You can manage your web application in an environment that supports the range of services that are integrated with Elastic Beanstalk, including but not limited to [VPC](#), [RDS](#), and [IAM](#). For more information about Docker, including how to install it, what software it requires, and how to use Docker images to launch Docker containers, go to [Docker: the Linux container engine](#).

**Note**

If a Docker container running in an Elastic Beanstalk environment crashes or is killed for any reason, Elastic Beanstalk restarts it automatically.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

## Docker Platform Configurations

The Docker platform for Elastic Beanstalk has two generic configurations (single container and multicontainer), and several preconfigured containers.

See the [Supported Platforms \(p. 24\)](#) page for details on the currently supported version of each configuration.

## Single Container Docker

The single container configuration can be used to deploy a Docker image (described in a Dockerfile or Dockerrun.aws.json definition) and source code to EC2 instances running in an Elastic Beanstalk environment. Use the single container configuration when you only need to run one container per instance.

For samples and help getting started with a single container Docker environment, see [Single Container Docker \(p. 556\)](#). For detailed information on the container definition formats and their use, see [Single Container Docker Configuration \(p. 556\)](#).

## Multicontainer Docker

The other basic configuration, Multicontainer Docker, uses the Amazon EC2 Container Service to coordinate a deployment of multiple Docker containers to an Amazon ECS cluster in an Elastic Beanstalk environment. The instances in the environment each run the same set of containers, which are defined in a `Dockerrun.aws.json` file. Use the multicontainer configuration when you need to deploy multiple Docker containers to each instance.

For more details on the Multicontainer Docker configuration and its use, see [Multicontainer Docker Environments \(p. 562\)](#). The [Multicontainer Docker Configuration \(p. 562\)](#) topic details version 2 of the `Dockerrun.aws.json` format, which is similar to but not compatible with the version used with the single container configuration. There is also a [tutorial \(p. 566\)](#) available that guides you through a from scratch deployment of a multicontainer environment running a PHP website with an nginx proxy running in front of it in a separate container.

## Preconfigured Docker Containers

In addition to the two generic Docker configurations, there are several *preconfigured* Docker platform configurations that you can use to run your application in a popular software stack such as *Java with Glassfish* or *Python with uWSGI*. Use a preconfigured container if it matches the software used by your application.

For more information, see [Preconfigured Docker Containers \(p. 577\)](#).

### Topics

- [Single Container Docker Environments \(p. 556\)](#)
- [Multicontainer Docker Environments \(p. 562\)](#)
- [Preconfigured Docker Containers \(p. 577\)](#)
- [Configuring Docker Environments \(p. 580\)](#)
- [Running a Docker Environment Locally with the EB CLI \(p. 584\)](#)

## Single Container Docker Environments

### Single Container Docker Configuration

This section describes how to prepare your Docker image and container for uploading to Elastic Beanstalk. Any web application that you deploy to Elastic Beanstalk in single-container Docker container must include a `Dockerfile`, which defines a custom image, a `Dockerrun.aws.json` file, which specifies an existing image to use and environment configuration, or both. You can deploy your web application from a Docker container to Elastic Beanstalk by doing one of the following:

- Create a `Dockerfile` to customize an image and to deploy a Docker container to Elastic Beanstalk.
- Create a `Dockerrun.aws.json` file to deploy a Docker container from an existing Docker image to Elastic Beanstalk.
- Create a `.zip` file containing your application files, any application file dependencies, the `Dockerfile`, and the `Dockerrun.aws.json` file.

If you use only a `Dockerfile` or only a `Dockerrun.aws.json` file to deploy your application, you do not need to compress the file into a `.zip` file.

## Sections

- [Dockerrun.aws.json v1 \(p. 557\)](#)
- [Using Images from a Private Repository \(p. 558\)](#)
- [Building Custom Images with a Dockerfile \(p. 559\)](#)

## Dockerrun.aws.json v1

A `Dockerrun.aws.json` file describes how to deploy a Docker container as an Elastic Beanstalk application. This JSON file is specific to Elastic Beanstalk. If your application runs on an image that is available in a hosted repository, you can specify the image in a `Dockerrun.aws.json` file and omit the `Dockerfile`.

Valid keys and values for the `Dockerrun.aws.json` file include the following:

### **AWSEBDockerrunVersion**

(Required) Specifies the version number as the value `1` for single container Docker environments.

### **Authentication**

(Required only for private repositories) Specifies the Amazon S3 object storing the `.dockercfg` file.

See [Using Images from a Private Repository \(p. 558\)](#).

### **Image**

Specifies the Docker base image on an existing Docker repository from which you're building a Docker container. Specify the value of the **Name** key in the format `<organization>/<image name>` for images on Docker Hub, or `<site>/<organization name>/<image name>` for other sites.

When you specify an image in the `Dockerrun.aws.json` file, each instance in your Elastic Beanstalk environment will run `docker pull` on that image and run it. Optionally include the **Update** key. The default value is "true" and instructs Elastic Beanstalk to check the repository, pull any updates to the image, and overwrite any cached images.

Do not specify the **Image** key in the `Dockerrun.aws.json` file when using a `Dockerfile`. Elastic Beanstalk will always build and use the image described in the `Dockerfile` when one is present.

### **Ports**

(Required when you specify the **Image** key) Lists the ports to expose on the Docker container. Elastic Beanstalk uses **ContainerPort** value to connect the Docker container to the reverse proxy running on the host.

You can specify multiple container ports, but Elastic Beanstalk uses only the first one to connect your container to the host's reverse proxy and route requests from the public Internet.

### **Volumes**

Map volumes from an EC2 instance to your Docker container. Specify one or more arrays of volumes to map.

## Logging

Specify the directory to which your application writes logs. Elastic Beanstalk uploads any logs in this directory to Amazon S3 when you request tail or bundle logs. If you rotate logs to a folder named `rotated` within this directory, you can also configure Elastic Beanstalk to upload rotated logs to Amazon S3 for permanent storage. For more information, see [Instance Logs \(p. 320\)](#).

The following snippet is an example that illustrates the syntax of the `Dockerrun.aws.json` file for a single container.

```
{
 "AWSEBDockerrunVersion": "1",
 "Image": {
 "Name": "janedoe/image",
 "Update": "true"
 },
 "Ports": [
 {
 "ContainerPort": "1234"
 }
],
 "Volumes": [
 {
 "HostDirectory": "/var/app/mydb",
 "ContainerDirectory": "/etc/mysql"
 }
],
 "Logging": "/var/log/nginx"
}
```

You can provide Elastic Beanstalk with only the `Dockerrun.aws.json` file or in addition to the `Dockerfile` in a `.zip` file. When you provide both files, the `Dockerfile` builds the Docker image and the `Dockerrun.aws.json` file provides additional information for deployment as described later in this section. When you provide both the `Dockerfile` and the `Dockerrun.aws.json` file, do not specify an image in the `Dockerrun.aws.json` file. Elastic Beanstalk uses the image specified in the `Dockerfile` and ignores it in the `Dockerrun.aws.json` file.

## Using Images from a Private Repository

Add the information about the Amazon S3 bucket that contains the authentication file in the `Authentication` parameter of the `Dockerrun.aws.json` file. Make sure that the `Authentication` parameter contains a valid Amazon S3 bucket and key. The Amazon S3 bucket must be hosted in the same region as the environment that is using it. Elastic Beanstalk will not download files from Amazon S3 buckets hosted in other regions.

For information about generating and uploading the authentication file, see [Using Images From a Private Repository \(p. 582\)](#).

The following example shows the use of an authentication file named `mydockercfg` in a bucket named `my-bucket` to use a private image in a third party registry.

```
{
 "AWSEBDockerrunVersion": "1",
 "Authentication": {
 "Bucket": "my-bucket",
 "Key": "mydockercfg"
 },
}
```

```
"Image": {
 "Name": "quay.io/johndoe/private-image",
 "Update": "true"
},
"Ports": [
 {
 "ContainerPort": "1234"
 }
],
"Volumes": [
 {
 "HostDirectory": "/var/app/mydb",
 "ContainerDirectory": "/etc/mysql"
 }
],
"Logging": "/var/log/nginx"
}
```

## Building Custom Images with a Dockerfile

Docker uses a `Dockerfile` to create a Docker image that contains your source bundle. A Docker image is the template from which you create a Docker container. `Dockerfile` is a plain text file that contains instructions that Elastic Beanstalk uses to build a customized Docker image on each Amazon EC2 instance in your Elastic Beanstalk environment. Create a `Dockerfile` when you do not already have an existing image hosted in a repository.

Include the following instructions in the `Dockerfile`:

### FROM

(Required as the first instruction in the file) Specifies the base image from which to build the Docker container and against which Elastic Beanstalk runs subsequent `Dockerfile` instructions.

The image can be hosted in a public repository, a private repository hosted by a third-party registry, or a repository that you run on EC2.

### EXPOSE

(Required) Lists the ports to expose on the Docker container. Elastic Beanstalk uses the port value to connect the Docker container to the reverse proxy running on the host.

You can specify multiple container ports, but Elastic Beanstalk uses only the first one to connect your container to the host's reverse proxy and route requests from the public Internet.

### CMD

Specifies an executable and default parameters, which are combined into the command that the container runs at launch. Use the following format:

```
CMD ["executable", "param1", "param2"]
```

`CMD` can also be used to provide default parameters for an `ENTRYPOINT` command by omitting the executable argument. An executable must be specified in either a `CMD` or an `ENTRYPOINT`, but not both. For basic scenarios, use a `CMD` and omit the `ENTRYPOINT`.

### ENTRYPOINT

Uses the same JSON format as `CMD` and, like `CMD`, specifies a command to run when the container is launched. Also allows a container to be run as an executable with `docker run`.

If you define an `ENTRYPOINT`, you can use a `CMD` as well to specify default parameters that can be overridden with `docker run`'s `-d` option. The command defined by an `ENTRYPOINT` (including any parameters) is combined with parameters from `CMD` or `docker run` when the container is run.

## RUN

Specifies one or more commands that install packages and configure your web application inside the image.

If you include RUN instructions in the `Dockerfile`, compress the file and the context used by RUN instructions in the `Dockerfile` into a `.zip` file. Compress files at the top level of the directory.

The following snippet is an example of the `Dockerfile`. When you follow the instructions in [Single Container Docker Environments \(p. 556\)](#), you can upload this `Dockerfile` as written. Elastic Beanstalk runs the game 2048 when you use this `Dockerfile`.

```
FROM ubuntu:12.04

RUN apt-get update
RUN apt-get install -y nginx zip curl

RUN echo "daemon off;" >> /etc/nginx/nginx.conf
RUN curl -o /usr/share/nginx/www/master.zip -L https://codeload.github.com/gabrielecirulli/2048/zip/master
RUN cd /usr/share/nginx/www/ && unzip master.zip && mv 2048-master/* . && rm -rf 2048-master master.zip

EXPOSE 80

CMD ["/usr/sbin/nginx", "-c", "/etc/nginx/nginx.conf"]
```

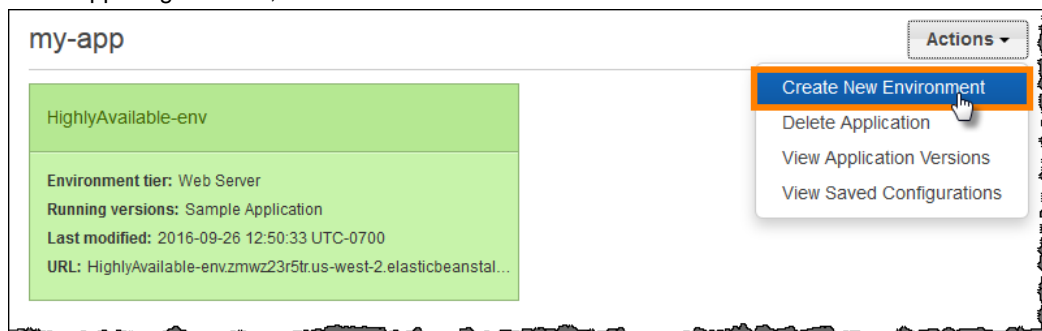
For more information about instructions you can include in the `Dockerfile`, go to [Dockerfile Reference](#) on the Docker website.

Single container Docker environments can be launched from a `Dockerfile` (which describes an image to build), a `Dockerrun.aws.json` file (which specifies an image to use and additional Elastic Beanstalk configuration options), or both. These configuration files can be bundled with source code and deployed in a ZIP file.

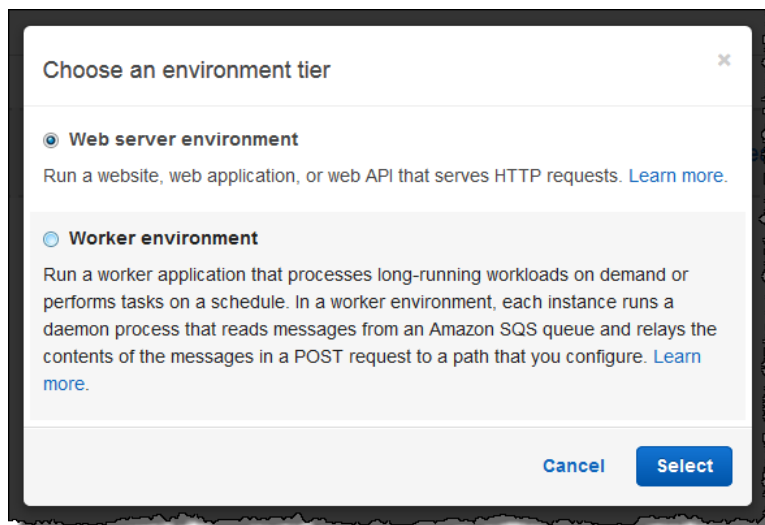
Get started with one of the following example applications, or see [Single Container Docker Configuration \(p. 556\)](#) for details on authoring Docker configuration files for a single container environment.

### To launch an environment (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one \(p. 36\)](#).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

**Note**

Elastic Beanstalk supports multiple [configurations](#) (p. 24) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk](#) (p. 24). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Upload**.
7. Choose **Local file**, choose **Browse**, and open the source bundle.
8. Choose **Upload**.
9. Choose **Create environment**.

For detailed instructions on configuring and using the EB CLI, see [Configure the EB CLI](#) (p. 425) and [Managing Elastic Beanstalk Environments with the EB CLI](#) (p. 429).

## Sample PHP Application

GitHub link: [awslabs/eb-demo-php-simple-app](#)

This sample is a PHP application that runs on a custom Ubuntu image defined in a Dockerfile.

The PHP sample application uses Amazon RDS. You may be charged for using these services. If you are a new customer, you can make use of the AWS Free Usage Tier. For more information about pricing, see the following:

- [Amazon Relational Database Service \(RDS\) Pricing](#)

## Sample Python Application

GitHub link: [awslabs/eb-py-flask-signup](#)

This sample is a Python application that runs on a custom Ubuntu image defined in a Dockerfile. It also includes a `Dockerrun.aws.json` file that maps a storage volume on the container to a matching path on the host instance.

The Python sample application uses Amazon DynamoDB, Amazon SQS, and Amazon SNS. You may be charged for using these services. If you are a new customer, you can make use of the AWS Free Usage Tier. For more information about pricing, see the following:

- [Amazon DynamoDB Pricing](#)
- [Amazon SQS Pricing](#)
- [Amazon SNS Pricing](#)

## Sample Dockerfile Application

This sample is a `Dockerfile` configured to download the game 2048 from GitHub and run it on nginx.

Copy and paste the example into a file named `Dockerfile` and upload it instead of a source bundle when creating the environment.

```
FROM ubuntu:12.04

RUN apt-get update
RUN apt-get install -y nginx zip curl

RUN echo "daemon off;" >> /etc/nginx/nginx.conf
RUN curl -o /usr/share/nginx/www/master.zip -L https://codeload.github.com/gabrielecirulli/2048/zip/master
RUN cd /usr/share/nginx/www/ && unzip master.zip && mv 2048-master/* . && rm -rf 2048-master master.zip

EXPOSE 80

CMD ["/usr/sbin/nginx", "-c", "/etc/nginx/nginx.conf"]
```

## Multicontainer Docker Environments

You can create docker environments that support multiple containers per instance with multicontainer Docker platform for Elastic Beanstalk.

Elastic Beanstalk uses Amazon EC2 Container Service to coordinate container deployments to multicontainer Docker environments. Amazon ECS provides tools to manage a cluster of instances running Docker containers. Elastic Beanstalk takes care of Amazon ECS tasks including cluster creation, task definition and execution.

## Multicontainer Docker Configuration

A `Dockerrun.aws.json` file is an Elastic Beanstalk-specific JSON file that describes how to deploy a set of Docker containers as an Elastic Beanstalk application. You can use a `Dockerrun.aws.json` file for a multicontainer Docker environment.

`Dockerrun.aws.json` describes the containers to deploy to each container instance in the environment as well as the data volumes to create on the host instance for the containers to mount.

A `Dockerrun.aws.json` file can be used on its own or zipped up with additional source code in a single archive. Source code that is archived with a `Dockerrun.aws.json` is deployed to container instances and accessible in the `/var/app/current/` directory. Use the `volumes` section of the config to provide mount points for the containers running on the instance, and the `mountPoints` section of the embedded container definitions to mount them from the containers.



#### Topics

- [Dockerrun.aws.json v2](#) (p. 563)
- [Using Images from a Private Repository](#) (p. 565)
- [Container Definition Format](#) (p. 565)

## Dockerrun.aws.json v2

The `Dockerrun.aws.json` file includes three sections:

### **AWSEBDockerrunVersion**

Specifies the version number as the value "2" for multicontainer Docker environments.

### **containerDefinitions**

An array of container definitions, detailed below.

### **volumes**

Creates mount points in the container instance that a container can use. Configure volumes for folders in your source bundle (deployed to `/var/app/current` on the container instance) for a container's application to read.

#### **Note**

Elastic Beanstalk configures additional volumes for logs, one for each container. These should be mounted by your containers in order to write logs to the host instance. See [Container Definition Format](#) (p. 565) for details.

Volumes are specified in the following format:

```
"volumes": [
 {
 "name": "volumename",
 "host": {
 "sourcePath": "/path/on/host/instance"
 }
 }
],
```

### **authentication**

(optional) The location in Amazon S3 of a `.dockercfg` file that contains authentication data for a private repository. Uses the following format:

```
"authentication": {
 "bucket": "my-bucket",
 "key": "mydockercfg"
},
```

See [Using Images from a Private Repository](#) (p. 565) for details.

The following snippet is an example that illustrates the syntax of the `Dockerrun.aws.json` file for an instance with two containers.

```
{
 "AWSEBDockerrunVersion": 2,
 "volumes": [
 {
 "name": "php-app",
 "host": {
 "sourcePath": "/var/app/current/php-app"
 }
 }
]
}
```

```

 }
 },
 {
 "name": "nginx-proxy-conf",
 "host": {
 "sourcePath": "/var/app/current/proxy/conf.d"
 }
 }
],
"containerDefinitions": [
 {
 "name": "php-app",
 "image": "php:fpm",
 "environment": [
 {
 "name": "Container",
 "value": "PHP"
 }
],
 "essential": true,
 "memory": 128,
 "mountPoints": [
 {
 "sourceVolume": "php-app",
 "containerPath": "/var/www/html",
 "readOnly": true
 }
]
 },
 {
 "name": "nginx-proxy",
 "image": "nginx",
 "essential": true,
 "memory": 128,
 "portMappings": [
 {
 "hostPort": 80,
 "containerPort": 80
 }
],
 "links": [
 "php-app"
],
 "mountPoints": [
 {
 "sourceVolume": "php-app",
 "containerPath": "/var/www/html",
 "readOnly": true
 },
 {
 "sourceVolume": "nginx-proxy-conf",
 "containerPath": "/etc/nginx/conf.d",
 "readOnly": true
 },
 {
 "sourceVolume": "awseb-logs-nginx-proxy",
 "containerPath": "/var/log/nginx"
 }
]
 }
]

```

```
}
]
}
```

## Using Images from a Private Repository

Add the information about the Amazon S3 bucket that contains the authentication file in the `authentication` parameter of the `Dockerrun.aws.json` file. Make sure that the `authentication` parameter contains a valid Amazon S3 bucket and key. The Amazon S3 bucket must be hosted in the same region as the environment that is using it. Elastic Beanstalk will not download files from Amazon S3 buckets hosted in other regions.

For information about generating and uploading the authentication file, see [Using Images From a Private Repository \(p. 582\)](#).

## Container Definition Format

The container definition and volumes sections of `Dockerrun.aws.json` use the same formatting as the corresponding sections of an Amazon ECS task definition file.

The following examples show a subset of parameters that are commonly used. More optional parameters are available. For more information on the task definition format and a full list of task definition parameters, see [Amazon ECS Task Definitions](#) in the Amazon ECS Developer Guide.

A `Dockerrun.aws.json` file contains an array of one or more container definition objects with the following fields:

### name

The name of the container.

### image

The name of a Docker image in an online Docker repository from which you're building a Docker container. Note these conventions:

- Images in official repositories on Docker Hub use a single name (for example, `ubuntu` or `mongo`).
- Images in other repositories on Docker Hub are qualified with an organization name (for example, `amazon/amazon-ecs-agent`).
- Images in other online repositories are qualified further by a domain name (for example, `quay.io/assemblyline/ubuntu`).

### environment

An array of environment variables to pass to the container.

For example, the following entry defines an environment variable with the name `Container` and the value `PHP`:

```
"environment": [
 {
 "name": "Container",
 "value": "PHP"
 }
],
```

### essential

True if the task should stop if the container fails. Nonessential containers can finish or crash without affecting the rest of the containers on the instance.

### memory

Amount of memory on the container instance to reserve for the container.

### mountPoints

Volumes from the container instance to mount and the location on the container file system at which to mount them. Mount volumes containing application content so your container can read the data you upload in your source bundle, as well as log volumes for writing log data to a location where Elastic Beanstalk can gather it.

Elastic Beanstalk creates log volumes on the container instance, one for each container, at `/var/log/containers/containername`. These volumes are named `awseb-logs-containername` and should be mounted to the location within the container file structure where logs are written.

For example, the following mount point maps the nginx log location in the container to the Elastic Beanstalk-generated volume for the `nginx-proxy` container.

```
{
 "sourceVolume": "awseb-logs-nginx-proxy",
 "containerPath": "/var/log/nginx"
}
```

### portMappings

Maps network ports on the container to ports on the host.

### links

List of containers to link to. Linked containers can discover each other and communicate securely.

### volumesFrom

Mount all of the volumes from a different container. For example, to mount volumes from a container named `web`:

```
"volumesFrom": [
 {
 "sourceContainer": "web"
 }
],
```

## Multicontainer Docker Environments with the AWS Management Console

You can launch a cluster of multicontainer instances in a single-instance or autoscaling Elastic Beanstalk environment using the AWS Management Console. This tutorial details IAM role creation, container configuration, and source code for an environment that uses two containers.

The containers, a PHP application and an nginx proxy, run side by side on each of the Amazon EC2 instances in an Elastic Beanstalk environment. After creating the environment and verifying that the applications are running, you'll connect to a container instance to see how it all fits together.

### Sections

- [Define Docker Containers \(p. 567\)](#)
- [Add Content \(p. 569\)](#)
- [Deploy to Elastic Beanstalk \(p. 569\)](#)
- [Connect to a Container Instance \(p. 571\)](#)
- [Inspect the Amazon ECS Container Agent \(p. 572\)](#)

## Define Docker Containers

The first step in creating a new Docker environment is to create a directory for your application data. This folder can be located anywhere on your local machine and have any name you choose. In addition to a container configuration file, this folder will contain the content that you will upload to Elastic Beanstalk and deploy to your environment.

### Note

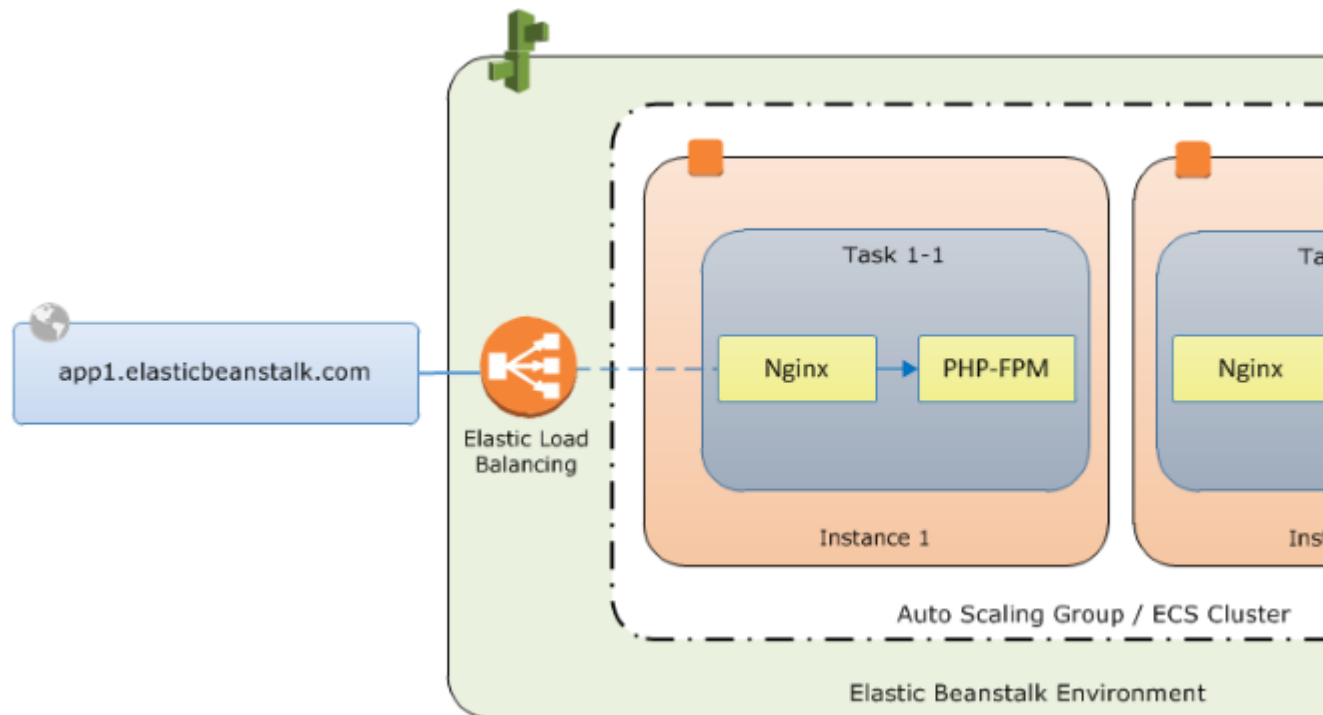
All of the code for this tutorial is available in the awslabs repository on GitHub at <https://github.com/awslabs/eb-docker-nginx-proxy>

The file that Elastic Beanstalk uses to configure the containers on an EC2 instance is a JSON-formatted text file named `Dockerrun.aws.json`. Create a text file with this name at the root of your application and add the following text:

```
{
 "AWSEBDockerrunVersion": 2,
 "volumes": [
 {
 "name": "php-app",
 "host": {
 "sourcePath": "/var/app/current/php-app"
 }
 },
 {
 "name": "nginx-proxy-conf",
 "host": {
 "sourcePath": "/var/app/current/proxy/conf.d"
 }
 }
],
 "containerDefinitions": [
 {
 "name": "php-app",
 "image": "php:fpm",
 "essential": true,
 "memory": 128,
 "mountPoints": [
 {
 "sourceVolume": "php-app",
 "containerPath": "/var/www/html",
 "readOnly": true
 }
]
 },
 {
 "name": "nginx-proxy",
 "image": "nginx",
 "essential": true,
 "memory": 128,
 "portMappings": [
 {
 "hostPort": 80,
 "containerPort": 80
 }
],
 "links": [
 "php-app"
]
 }
]
}
```

```
"mountPoints": [
 {
 "sourceVolume": "php-app",
 "containerPath": "/var/www/html",
 "readOnly": true
 },
 {
 "sourceVolume": "nginx-proxy-conf",
 "containerPath": "/etc/nginx/conf.d",
 "readOnly": true
 },
 {
 "sourceVolume": "awseb-logs-nginx-proxy",
 "containerPath": "/var/log/nginx"
 }
]
```

This example configuration defines two containers, a PHP web site with an nginx proxy in front of it. These two containers will run side by side in Docker containers on each instance in your Elastic Beanstalk environment, accessing shared content (the content of the website) from volumes on the host instance, which are also defined in this file. The containers themselves are created from images hosted in official repositories on Docker Hub. The resulting environment looks like this:



The volumes defined in the configuration correspond to the content that you will create next and upload as part of your application source bundle. The containers access content on the host by mounting volumes in the `mountPoints` section of the container definitions.

For more information on the format of `Dockerrun.aws.config` and its parameters, see [Container Definition Format \(p. 565\)](#).

## Add Content

Next you will add some content for your PHP site to display to visitors, and a configuration file for the nginx proxy.

### php-app\index.php

```
<h1>Hello World!!!</h1>
<h3>PHP Version <pre><?= phpversion()?></pre></h3>
```

### php-app\static.html

```
<h1>Hello World!</h1>
<h3>This is a static HTML page.</h3>
```

### proxy\conf.d\default.conf

```
server {
 listen 80;
 server_name localhost;
 root /var/www/html;

 index index.php;

 location ~ [^/]\.php(/|$) {
 fastcgi_split_path_info ^(.+?\.php)(/.*)$;
 if (!-f $document_root$fastcgi_script_name) {
 return 404;
 }

 include fastcgi_params;
 fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
 fastcgi_param PATH_INFO $fastcgi_path_info;
 fastcgi_param PATH_TRANSLATED $document_root$fastcgi_path_info;

 fastcgi_pass php-app:9000;
 fastcgi_index index.php;
 }
}
```

## Deploy to Elastic Beanstalk

Your application folder now contains the following files:

```
php-app\index.php
php-app\static.html
proxy\conf.d\default.conf
Dockerrun.aws.json
```

This is all you need to create the Elastic Beanstalk environment. Create a `.zip` archive of the above files and folders (not including the top-level project folder). To create the archive in Windows explorer, select the contents of the project folder, right-click, select **Send To**, and then click **Compressed (zipped) Folder**

**Note**

For information on the required file structure and instructions for creating archives in other environments, see [Create an Application Source Bundle \(p. 43\)](#)

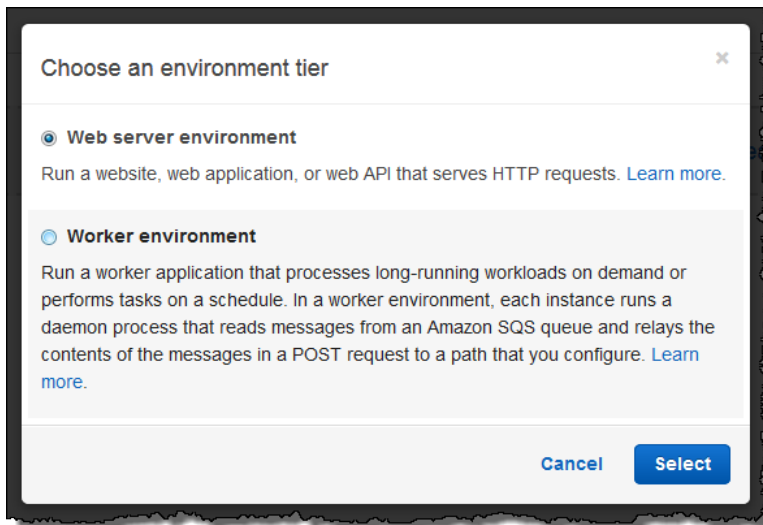
Next, upload the source bundle to Elastic Beanstalk and create your environment. When you are prompted to select a platform, choose **Multi-container Docker**.

**To launch an environment (console)**

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one \(p. 36\)](#).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types (p. 14)**. You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

**Note**

Elastic Beanstalk supports multiple [configurations \(p. 24\)](#) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk \(p. 24\)](#). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Upload**.
7. Choose **Local file**, choose **Browse**, and open the source bundle.
8. Choose **Upload**.



## 9. Choose **Create environment**.

The AWS Management Console redirects you to the management dashboard for your new environment. This screen shows the health status of the environment and events output by the Elastic Beanstalk service. When the status is Green, click the URL next to the environment name to see your new website.

## Connect to a Container Instance

So how does it all work? Next you will connect to an EC2 instance in your Elastic Beanstalk environment to see some of the moving parts in action.

First, identify the instance and note its public IP address, which is available in the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>. If multiple instances are running and you have trouble identifying the one that belongs to your environment, read through the events on the environment dashboard and find the instance ID. This ID appears in an event listing when Elastic Beanstalk launches an EC2 instance. Search for the instance ID in the Amazon EC2 console and view its details to find the public IP address.

Next, use an SSH client and your private key file to connect to the instance. Use the following settings:

### SSH Settings

- **Address** – The public IP address or DNS name of the EC2 instance.
- **Port** – 22. This port is opened for ingress by Elastic Beanstalk when you select an Amazon EC2 key pair during environment configuration.
- **User Name** – `ec2-user`. This is the default user name for EC2 instances running Amazon Linux.
- **Private Key** – Your private key file.

For full instructions on using SSH to connect to an EC2 instance, see [Connecting to Your Linux Instance Using SSH](#) in the *Amazon EC2 User Guide for Linux Instances*.

Now that you're connected to the EC2 instance hosting your Docker containers, you can see how things are set up. Run `ls` on `/var/app/current`:

```
[ec2-user@ip-10-0-0-117 ~]$ ls /var/app/current
Dockerrun.aws.json php-app proxy
```

This directory contains the files from the source bundle that you uploaded to Elastic Beanstalk during environment creation.

```
[ec2-user@ip-10-0-0-117 ~]$ ls /var/log/containers
nginx nginx-proxy-ffffd873ada5-stdouterr.log
 rotated
nginx-66a4fd37eb63-stdouterr.log php-app
nginx-proxy php-app-b894601a1364-stdouterr.log
```

This is where logs are created on the container instance and collected by Elastic Beanstalk. Elastic Beanstalk creates a volume in this directory for each container, which you mount to the container location where logs are written.

You can also take a look at Docker to see the running containers with `docker ps`.

```
[ec2-user@ip-10-0-0-117 ~]$ sudo docker ps
```

CONTAINER ID	IMAGE	STATUS	PORTS	COMMAND	NAMES
ffffd873ada5	nginx:1.7	Up About an hour	443/tcp, 0.0.0.0:80->80/tcp	"nginx -g 'daemon of	ecs-
b894601a1364	php:5-fpm	Up About an hour	9000/tcp	"php-fpm"	ecs-
09fb19828e38	amazon/amazon-ecs-agent:latest	Up About an hour	127.0.0.1:51678->51678/tcp	"/agent"	ecs-

This shows the two running containers that you deployed, as well as the Amazon ECS container agent that coordinated the deployment.

## Inspect the Amazon ECS Container Agent

EC2 instances in a Multicontainer Docker environment on Elastic Beanstalk run an agent process in a Docker container. This agent connects to the Amazon ECS service in order to coordinate container deployments. These deployments run as tasks in Amazon ECS, which are configured in task definition files. Elastic Beanstalk creates these task definition files based on the `Dockerrun.aws.json` that you upload in a source bundle.

Check the status of the container agent with an HTTP get request to `http://localhost:51678/v1/metadata`:

```
[ec2-user@ip-10-0-0-117 ~]$ curl http://localhost:51678/v1/metadata
{
 "Cluster": "eb-dv-example-env-qpoziguye24",
 "ContainerInstanceArn": "arn:aws:ecs:us-east-1:123456789012:container-
instance/6a72af64-2838-400d-be09-3ab2d836ebcd"
}
```

This structure shows the name of the Amazon ECS cluster, and the ARN ([Amazon Resource Name](#)) of the cluster instance (the EC2 instance that you are connected to).

For more information, make an HTTP get request to information is available at `http://localhost:51678/v1/tasks`:

```
[ec2-user@ip-10-0-0-117 ~]$ curl http://localhost:51678/v1/tasks
{
 "Tasks": [
 {
 "Arn": "arn:aws:ecs:us-east-1:123456789012:task/3ff2bf0f-790d-4f6d-
affb-5b127b3b6e4a",
 "DesiredStatus": "RUNNING",
 "KnownStatus": "RUNNING",
 "Family": "eb-dv-example-env-qpoziguye24",
 "Version": "2",
 "Containers": [
 {
 "DockerId": "b894601a1364a438156a239813c77cdef17040785bc4d5e49349470dc1556b15",
 "DockerName": "ecs-eb-dv-example-env-qpoziguye24-2-php-app-
cec0918ed1a3a49a8001",
 "Name": "php-app"
 }
]
 }
]
}
```

```
 },
 {
 "DockerId": "ffffd873ada5f537c88862cce4e1de7ec3edf962645982fb236961c833a5d0fe",
 "DockerName": "ecs-eb-dv-example-env-qpoxiguye24-2-nginx-
proxy-90fce996cc8cbeeb2800",
 "Name": "nginx-proxy"
 }
]
}
]
```

This structure describes the task that is run to deploy the two docker containers from this tutorial's example project. The following information is displayed:

- **KnownStatus** – The `RUNNING` status indicates that the containers are still active.
- **Family** – The name of the task definition that Elastic Beanstalk created from `Dockerrun.aws.json`.
- **Version** – The version of the task definition. This is incremented each time the task definition file is updated.
- **Containers** – Information about the containers running on the instance.

Even more information is available from the Amazon ECS service itself, which you can call using the AWS Command Line Interface. For instructions on using the AWS CLI with Amazon ECS, and information about Amazon ECS in general, see the [Amazon ECS User Guide](#).

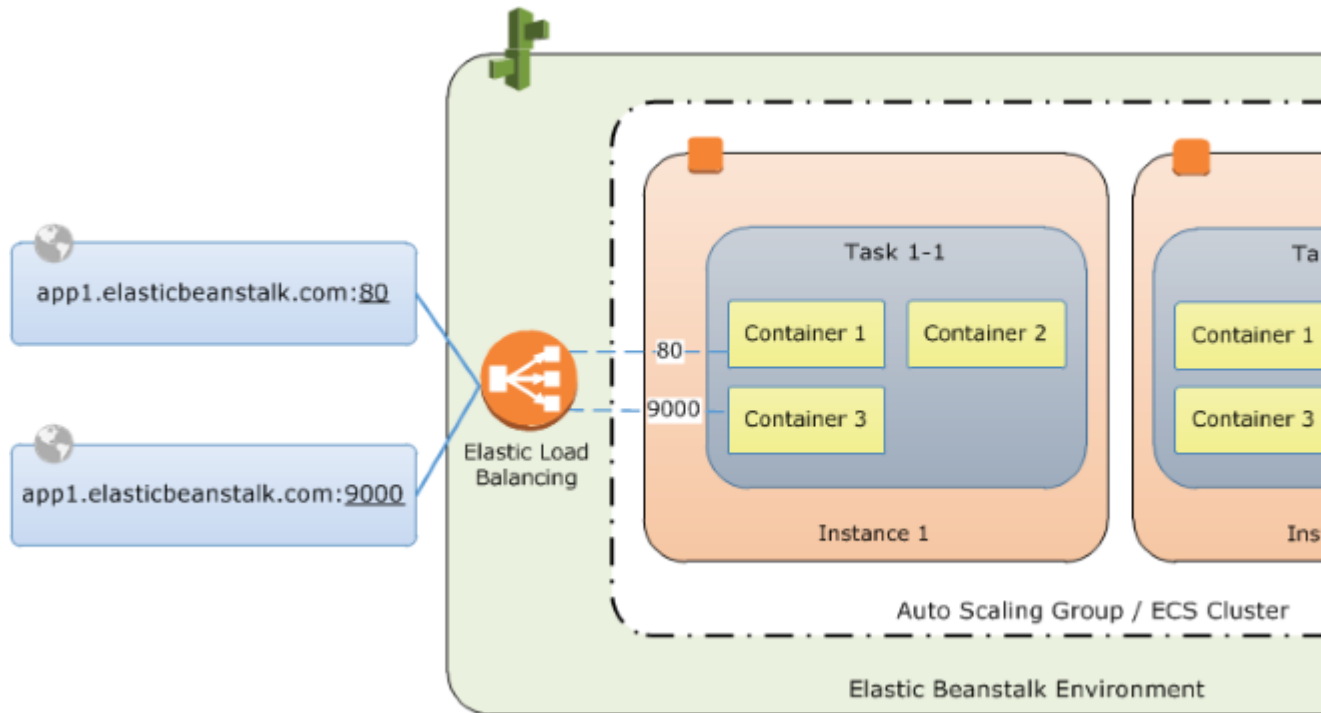
#### Topics

- [Multicontainer Docker Platform \(p. 573\)](#)
- [Dockerrun.aws.json File \(p. 574\)](#)
- [Docker Images \(p. 574\)](#)
- [Container Instance Role \(p. 575\)](#)
- [Amazon ECS Resources Created by Elastic Beanstalk \(p. 575\)](#)
- [Using Multiple Elastic Load Balancing Listeners \(p. 576\)](#)
- [Failed Container Deployments \(p. 577\)](#)

## Multicontainer Docker Platform

Standard generic and preconfigured Docker platforms on Elastic Beanstalk support only a single Docker container per Elastic Beanstalk environment. In order to get the most out of Docker, Elastic Beanstalk lets you create an environment where your instances run multiple Docker containers side by side.

The following diagram shows an example Elastic Beanstalk environment configured with three Docker containers running on each EC2 instance in an Auto Scaling group:



## Dockerrun.aws.json File

Multicontainer Docker instances on Elastic Beanstalk require a configuration file named `Dockerrun.aws.json`. This file is specific to Elastic Beanstalk and can be used alone or combined with source code and content in a [source bundle](#) (p. 43) to create an environment on a Docker platform.

### Note

Version 1 of the `Dockerrun.aws.json` format is used to launch a single Docker container to an Elastic Beanstalk environment. Version 2 adds support for multiple containers per instance and can only be used with the multicontainer Docker platform. The format differs significantly from the previous version which is detailed under [Single Container Docker Configuration](#) (p. 556)

See [Dockerrun.aws.json v2](#) (p. 563) for details on the updated format and an example file.

## Docker Images

The Multicontainer Docker platform for Elastic Beanstalk requires images to be prebuilt and stored in a public or private online image repository.

### Note

Building custom images during deployment with a `Dockerfile` is not supported by the multicontainer Docker platform on Elastic Beanstalk. Build your images and deploy them to an online repository before creating an Elastic Beanstalk environment.

Specify images by name in `Dockerrun.aws.json`. Note these conventions:

- Images in official repositories on Docker Hub use a single name (for example, `ubuntu` or `mongo`).
- Images in other repositories on Docker Hub are qualified with an organization name (for example, `amazon/amazon-ecs-agent`).
- Images in other online registries are qualified further by a domain name (for example, `quay.io/assemblyline/ubuntu`).

To configure Elastic Beanstalk to authenticate to a private repository, include the `authentication` parameter in your `Dockerrun.aws.json` file.

## Container Instance Role

Elastic Beanstalk uses an Amazon ECS-optimized AMI with an Amazon ECS container agent that runs in a Docker container. The agent communicates with Amazon ECS to coordinate container deployments. In order to communicate with Amazon ECS, each instance must have the corresponding permissions in IAM. These permissions are attached to the default [instance profile](#) (p. 17) when you create an environment in the Elastic Beanstalk Management Console:

```
{
 "Version": "2012-10-17",
 "Statement": [
 {
 "Sid": "ECSAccess",
 "Effect": "Allow",
 "Action": [
 "ecs:Poll",
 "ecs:StartTask",
 "ecs:StopTask",
 "ecs:DiscoverPollEndpoint",
 "ecs:StartTelemetrySession",
 "ecs:RegisterContainerInstance",
 "ecs:DeregisterContainerInstance",
 "ecs:DescribeContainerInstances",
 "ecs:Submit*"
],
 "Resource": "*"
 }
]
}
```

If you create your own instance profile, you can attach the `AWSElasticBeanstalkMulticontainerDocker` managed policy to make sure the permissions stay up-to-date. For instructions on creating policies and roles in IAM, see [Creating IAM Roles](#) in the IAM User Guide.

## Amazon ECS Resources Created by Elastic Beanstalk

When you create an environment using the multicontainer Docker platform, Elastic Beanstalk automatically creates and configures several Amazon EC2 Container Service resources while building the environment in order to create the necessary containers on each EC2 instance.

- **Amazon ECS Cluster** – Container instances in Amazon ECS are organized into clusters. When used with Elastic Beanstalk, one cluster is always created for each multicontainer Docker environment.
- **Amazon ECS Task Definition** – Elastic Beanstalk uses the `Dockerrun.aws.json` file in your project to generate the Amazon ECS task definition that is used to configure container instances in the environment.
- **Amazon ECS Task** – Elastic Beanstalk communicates with Amazon ECS to run a task on every instance in the environment to coordinate container deployment. In an autoscaling environment, Elastic Beanstalk initiates a new task whenever an instance is added to the cluster.

- **Amazon ECS Container Agent** – The agent runs in a Docker container on the instances in your environment. The agent polls the Amazon ECS service and waits for a task to run.
- **Amazon ECS Data Volumes** – Elastic Beanstalk inserts volume definitions (in addition to the volumes that you define in `Dockerrun.aws.json`) into the task definition to facilitate log collection.

Elastic Beanstalk creates log volumes on the container instance, one for each container, at `/var/log/containers/containername`. These volumes are named `awseb-logs-containername` and are provided for containers to mount. See [Container Definition Format \(p. 565\)](#) for details on how to mount them.

## Using Multiple Elastic Load Balancing Listeners

You can configure multiple Elastic Load Balancing listeners on a multicontainer Docker environment in order to support inbound traffic for proxies or other services that don't run on the default HTTP port.

Create a `.ebextensions` folder in your source bundle and add a file with a `.config` file extension. The following example shows a configuration file that creates an Elastic Load Balancing listener on port 8080.

### `.ebextensions/elb-listener.config`

```
option_settings:
 aws:elb:listener:8080:
 ListenerProtocol: HTTP
 InstanceProtocol: HTTP
 InstancePort: 8080
```

If your environment is running in a custom VPC that you created, Elastic Beanstalk takes care of the rest. In a default VPC, you need to configure your instance's security group to allow ingress from the load balancer. Add a second configuration file that adds an ingress rule to the security group:

### `.ebextensions/elb-ingress.config`

```
Resources:
 port8080SecurityGroupIngress:
 Type: AWS::EC2::SecurityGroupIngress
 Properties:
 GroupId: { "Fn::GetAtt" : ["AWSEBSecurityGroup", "GroupId"] }
 IpProtocol: tcp
 ToPort: 8080
 FromPort: 8080
 SourceSecurityGroupName: { "Fn::GetAtt": ["AWSEBLoadBalancer",
 "SourceSecurityGroup.GroupName"] }
```

For more information on the configuration file format, see [Adding and Customizing Elastic Beanstalk Environment Resources \(p. 197\)](#) and [Option Settings \(p. 179\)](#)

In addition to adding a listener to the Elastic Load Balancing configuration and opening a port in the security group, you need to map the port on the host instance to a port on the Docker container in the `containerDefinitions` section of the `Dockerrun.aws.json` file. The following excerpt shows an example:

```
"portMappings": [
 {
 "hostPort": 8080,
 "containerPort": 8080
```

```
}
]
```

See [Dockerrun.aws.json v2 \(p. 563\)](#) for details on the `Dockerrun.aws.json` file format.

## Failed Container Deployments

If an Amazon ECS task fails, one or more containers in your Elastic Beanstalk environment will not start. Elastic Beanstalk does not roll back multicontainer environments due to a failed Amazon ECS task. If a container fails to start in your environment, redeploy the current version or a previous working version from the AWS Management Console.

### To deploy an existing version

1. Open the Elastic Beanstalk console in your environment's region.
2. Click **Actions** to the right of your application name and then click **View Application Versions**.
3. Select a version of your application and click **Deploy**.

## Preconfigured Docker Containers

Elastic Beanstalk supports Docker containers that are based on the language stacks provided in the [Docker Official Repositories](#). You can use preconfigured Docker containers to develop and test your application locally and then deploy the application in an Elastic Beanstalk environment that is identical to your local environment.

For an end-to-end walkthrough about deploying an application to Elastic Beanstalk using a preconfigured Docker container, see [Getting Started with Preconfigured Docker Containers \(p. 577\)](#).

For more information about supported platforms for preconfigured Docker containers, see [Preconfigured Docker \(p. 25\)](#).

### Topics

- [Getting Started with Preconfigured Docker Containers \(p. 577\)](#)
- [Example: Using a Dockerfile to Customize and Configure a Preconfigured Docker Platform \(p. 579\)](#)

## Getting Started with Preconfigured Docker Containers

This section walks you through how to develop a sample application locally and then deploy your application to Elastic Beanstalk with a preconfigured Docker container.

### Set Up Your Local Development Environment

For this walkthrough we will use a Python Flask “Hello World” application.

#### To set up your develop environment

1. Create a new folder for the sample application.

```
~$ mkdir eb-flask-sample
~$ cd eb-flask-sample
```

2. In the application's root folder, create an `application.py` file. In the file, include the following:

**Example ~/eb-flask-sample/application.py**

```
from flask import Flask
app = Flask(__name__)

@app.route('/')
def hello_world():
 return 'Hello World!'

if __name__ == '__main__':
 app.run()
```

3. In the application's root folder, create a `requirements.txt` file. In the file, include the following:

**Example ~/eb-flask-sample/requirements.txt**

```
flask
```

## Develop and Test Locally

### To develop a sample Python Flask application

1. Add a `Dockerfile` to your application's root folder. In the file, specify the AWS Elastic Beanstalk Docker base image to be used to run your local preconfigured Docker container and against which Elastic Beanstalk runs any subsequent `Dockerfile` instructions by including the following:

**Example ~/eb-flask-sample/Dockerfile**

```
For Python 3.4
FROM amazon/aws-eb-python:3.4.2-onbuild-3.5.1
```

AWS Elastic Beanstalk also supports Docker images for Glassfish 4.1 Java 8 and Glassfish 4.0 Java 7. For their Docker image names, see [Supported Platforms \(p. 24\)](#). For more information about using a `Dockerfile`, see [Single Container Docker Configuration \(p. 556\)](#).

2. Build the Docker image.

```
~/eb-flask-sample$ docker build -t my-app-image .
```

3. Run the Docker container from the image.

**Note**

You must include the `-p` flag to map port 8080 on the container to the localhost port 3000. Elastic Beanstalk Docker containers always expose the application on port 8080 on the container. The `-it` flag runs the image as an interactive process. The `-rm` flag cleans up the container file system when the container exits. You can optionally include the `-d` flag to run the image as a daemon.

```
$ docker run --it --rm -p 3000:8080 my-app-image
```

4. To view the sample application, type the following URL into your web browser.

```
http://localhost:3000
```



## Deploy to Elastic Beanstalk

After testing your application, you are ready to deploy it to Elastic Beanstalk.

### To deploy your application to Elastic Beanstalk

1. In your application's root folder, rename the `Dockerfile` to `Dockerfile.local`. This step is required for Elastic Beanstalk to use the `Dockerfile` that contains the correct instructions for Elastic Beanstalk to build a customized Docker image on each Amazon EC2 instance in your Elastic Beanstalk environment.
2. Create an application source bundle. For more information, see [Create an Application Source Bundle \(p. 43\)](#).
3. To create a new Elastic Beanstalk application to which you can deploy your application, see [Managing and Configuring AWS Elastic Beanstalk Applications \(p. 36\)](#). At the appropriate step, on the **Environment Type** page, in the **Predefined configuration** list, under **Preconfigured - Docker**, click **Python**.

## Example: Using a Dockerfile to Customize and Configure a Preconfigured Docker Platform

With preconfigured Docker platforms you cannot use a configuration file to customize and configure the software that your application depends on. Instead, if you want to customize the preconfigured Docker platform to install additional software packages that your application needs, you can add a `Dockerfile` to your application's root folder.

You can include the following instructions in the `Dockerfile`:

- **FROM** – (required as the first instruction in the file) Specifies the base image from which to build the Docker container and against which Elastic Beanstalk runs subsequent `Dockerfile` instructions.

The image can be hosted in a public repository, a private repository hosted by a third-party registry, or a repository that you run on EC2.

- **EXPOSE** – (required) Lists the ports to expose on the Docker container. Elastic Beanstalk uses the port value to connect the Docker container to the reverse proxy running on the host.

You can specify multiple container ports, but Elastic Beanstalk uses only the first one to connect your container to the host's reverse proxy and route requests from the public Internet.

- **CMD** – Specifies an executable and default parameters, which are combined into the command that the container runs at launch. Use the following format:

```
CMD ["executable" , "param1" , "param2"]
```

`CMD` can also be used to provide default parameters for an `ENTRYPOINT` command by omitting the executable argument. An executable must be specified in either a `CMD` or an `ENTRYPOINT`, but not both. For basic scenarios, use a `CMD` and omit the `ENTRYPOINT`.

- **ENTRYPOINT** – Uses the same JSON format as `CMD` and, like `CMD`, specifies a command to run when the container is launched. Also allows a container to be run as an executable with `docker run`.

If you define an `ENTRYPOINT`, you can use a `CMD` as well to specify default parameters that can be overridden with `docker run`'s `-d` option. The command defined by an `ENTRYPOINT` (including any parameters) is combined with parameters from `CMD` or `docker run` when the container is run.

- **RUN** – Specifies one or more commands that install packages and configure your web application inside the image.

If you include RUN instructions in the `Dockerfile`, compress the file and the context used by RUN instructions in the `Dockerfile` into a `.zip` file. Compress files at the top level of the directory.

For more information about instructions you can include in the `Dockerfile`, go to [Dockerfile Reference](#) on the Docker website.

The following snippet is an example of a `Dockerfile`. The instructions in the `Dockerfile` customize the Python 3.4 platform by adding PostgreSQL dependencies and expose port 8080.

**Note**

Elastic Beanstalk preconfigured Docker platforms for Glassfish and Python require you to expose port 8080. Elastic Beanstalk preconfigured Docker platforms for Go require you to expose port 3000.

```
Use the AWS Elastic Beanstalk Python 3.4 image
FROM amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Exposes port 8080
EXPOSE 8080


Install PostgreSQL dependencies
RUN apt-get update && \
 apt-get install -y postgresql libpq-dev && \
 rm -rf /var/lib/apt/lists/*
```

If you want to use additional AWS resources (such as Amazon DynamoDB or Amazon Simple Notification Service), modify the proxy server or modify the operating system configuration for your Elastic Beanstalk environment. For more information about using configuration files, see [AWS Elastic Beanstalk Environment Configuration \(p. 130\)](#).

## Configuring Docker Environments

You can use the Elastic Beanstalk Management Console to configure the software running on your environment's EC2 instances.

### To access the software configuration for your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .

The Log Options section has two settings:

- **Instance profile** – Your environment's [instance profile \(p. 18\)](#), which must have write access to your environment's Amazon S3 storage bucket in order to upload logs.
- **Enable log file rotation to Amazon S3** – Configure the instances in your environment to [upload rotated logs \(p. 320\)](#).

The **Environment Properties** section lets you specify environment variables that you can read from your application code.

Sections

- [Docker Images \(p. 581\)](#)
- [Configuring Additional Storage Volumes \(p. 583\)](#)

## Docker Images

The single container and multicontainer Docker configuration for Elastic Beanstalk support the use of Docker images stored in a public or private online image repository.

Specify images by name in `Dockerrun.aws.json`. Note these conventions:

- Images in official repositories on Docker Hub use a single name (for example, `ubuntu` or `mongo`).
- Images in other repositories on Docker Hub are qualified with an organization name (for example, `amazon/amazon-ecs-agent`).
- Images in other online repositories are qualified further by a domain name (for example, `quay.io/assemblyline/ubuntu` or `account-id.dkr.ecr.us-east-1.amazonaws.com/ubuntu:trusty`).

For single container environments only, you can also build your own image during environment creation with a Dockerfile. See [Building Custom Images with a Dockerfile \(p. 559\)](#) for details.

## Using Images from an Amazon ECR Repository

You can store your custom Docker images in AWS with [Amazon EC2 Container Registry](#) (Amazon ECR). When you store your Docker images in Amazon ECR, Elastic Beanstalk automatically authenticates to the Amazon ECR registry with your environment's [instance profile \(p. 18\)](#), so you don't need to [generate an authentication file \(p. 582\)](#) and upload it to Amazon Simple Storage Service (Amazon S3).

You do, however, need to provide your instances with permission to access the images in your Amazon ECR repository by adding permissions to your environment's instance profile. You can attach the [AmazonEC2ContainerRegistryReadOnly](#) managed policy to the instance profile to provide read-only access to all Amazon ECR repositories in your account, or grant access to single repository by using the following template to create a custom policy:

```
{
 "Version": "2008-10-17",
 "Statement": [
 {
 "Sid": "AllowEbAuth",
 "Effect": "Allow",
 "Action": [
 "ecr:GetAuthorizationToken"
],
 "Resource": [
 "*"
]
 },
 {
 "Sid": "AllowPull",
 "Effect": "Allow",
 "Resource": [
 "arn:aws:ecr:us-east-1:account-id:repository/repository-name"
],
 "Action": [
 "ecr:GetAuthorizationToken",
```

```
 "ecr:BatchCheckLayerAvailability",
 "ecr:GetDownloadUrlForLayer",
 "ecr:GetRepositoryPolicy",
 "ecr:DescribeRepositories",
 "ecr:ListImages",
 "ecr:BatchGetImage"
]
}
]
```

Replace the Amazon Resource Name (ARN) in the above policy with the ARN of your repository.

In your `Dockerrun.aws.json` file, refer to the image by URL. For a [single container configuration \(p. 556\)](#), the URL goes in the `Image` definition:

```
"Image": {
 "Name": "account-id.dkr.ecr.us-east-1.amazonaws.com/repository-name:latest",
 "Update": "true"
},
```

For a [multicontainer configuration \(p. 562\)](#), use the `image` key in a container definition object:

```
"containerDefinitions": [
 {
 "name": "my-image",
 "image": "account-id.dkr.ecr.us-east-1.amazonaws.com/repository-name:latest",
```

## Using Images From a Private Repository

To use a Docker image in a private repository hosted by an online registry, you must provide an authentication file that contains information required to authenticate with the registry.

Generate an authentication file with the **docker login** command. For repositories on Docker Hub, run `docker login`:

```
$ docker login
```

For other registries, include the URL of the registry server:

```
$ docker login registry-server-url
```

### Important

Beginning with Docker version 1.7, the **docker login** command changed the name of the authentication file, and the format of the file. With Docker version 1.7 and later, the **docker login** command creates the authentication file in `~/.docker/config.json` in the following format:

```
{
 "auths" :
 {
 "server" :
```

```
{
 "auth" : "auth_token",
 "email" : "email"
}
```

With Docker version 1.6.2 and earlier, the **docker login** command creates the authentication file in `~/ .dockercfg` in the following format:

```
{
 "server" :
 {
 "auth" : "auth_token",
 "email" : "email"
 }
}
```

Elastic Beanstalk currently requires the older `~/ .dockercfg` format configuration file. To convert a `config.json` file, remove the outer `auths` key and flatten the JSON document to match the old format.

Upload the authentication file to a secure Amazon S3 bucket. The Amazon S3 bucket must be hosted in the same region as the environment that is using it. Elastic Beanstalk cannot download files from an Amazon S3 bucket hosted in other regions. Grant permissions for the `s3:GetObject` operation to the IAM role in the instance profile. For details, see [Managing Elastic Beanstalk Instance Profiles \(p. 333\)](#).

Include the Amazon S3 bucket information in the `Authentication (v1)` or `authentication (v2)` parameter in your `Dockerrun.aws.json` file.

For more information about the `Dockerrun.aws.json` format for single container environments, see [Single Container Docker Configuration \(p. 556\)](#). For multicontainer environments, see [Multicontainer Docker Configuration \(p. 562\)](#).

For more information about the authentication file, see [Store images on Docker Hub](#) and [docker login](#) on the Docker website.

## Configuring Additional Storage Volumes

For improved performance, Elastic Beanstalk configures two Amazon EBS storage volumes for your Docker environment's EC2 instances. In addition to the root volume provisioned for all Elastic Beanstalk environments, a second 12GB volume named `xvdcz` is provisioned for image storage on Docker environments.

If you need more storage space or increased IOPS for Docker images, you can customize the image storage volume by using the `BlockDeviceMapping` configuration option in the `aws:autoscaling:launchconfiguration (p. 147)` namespace.

For example, the following [configuration file \(p. 178\)](#) increases the storage volume's size to 100 GiB with 500 provisioned IOPS:

### Example `.ebextensions/blockdevice-xvdcz.config`

```
option_settings:
 aws:autoscaling:launchconfiguration:
 BlockDeviceMappings: /dev/xvdcz=:100::io1:500
```

If you use the `BlockDeviceMappings` option to configure additional volumes for your application, you should include a mapping for `xvdcz` to ensure that it is created. The following example configures two volumes, the image storage volume `xvdcz` with default settings and an additional 24 GiB application volume named `sdh`:

#### Example `.ebextensions/blockdevice-sdh.config`

```
option_settings:
 aws:autoscaling:launchconfiguration:
 BlockDeviceMappings: /dev/xvdcz=:12:true:gp2,/dev/sdh=:24
```

Note that when you change settings in this namespace, Elastic Beanstalk replaces all instances in your environment with instances running the new configuration. See [Configuration Changes \(p. 106\)](#) for details.

## Running a Docker Environment Locally with the EB CLI

You can use the Elastic Beanstalk Command Line Interface (EB CLI) to run the Docker container(s) configured in your AWS Elastic Beanstalk application locally. The EB CLI uses the Docker configuration file (Dockerfile or `Dockerrun.aws.json`) and source code in your project directory to run your application locally in Docker.

The EB CLI supports running single container, multicontainer, and preconfigured container applications locally.

#### Topics

- [Prerequisites for Running Docker Applications Locally \(p. 584\)](#)
- [Preparing a Docker Application for Use with the EB CLI \(p. 585\)](#)
- [Running a Docker Application Locally \(p. 585\)](#)
- [Cleaning Up After Running a Docker Application Locally \(p. 587\)](#)

## Prerequisites for Running Docker Applications Locally

- Linux OS or Mac OS X
- [EB CLI version 3.3 or greater \(p. 417\)](#)

Run `eb init` in your project directory to initialize an EB CLI repository. If you haven't used the EB CLI before, see [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#).

- [Docker version 1.6 or greater](#)

Add yourself to the `docker` group, log out, and then log back in to ensure that you can run Docker commands without `sudo`:

```
$ sudo usermod -a -G docker $USER
```

Run `docker ps` to verify that the Docker daemon is up and running:

```
$ docker ps
```

CONTAINER ID STATUS	IMAGE PORTS	COMMAND NAMES	CREATED
------------------------	----------------	------------------	---------

- A Docker application

If you don't have a Docker application in a project folder on your local machine, see [Deploying Elastic Beanstalk Applications from Docker Containers \(p. 555\)](#) for an introduction to using Docker with AWS Elastic Beanstalk.

- Docker profile (optional)

If your application uses Docker images that are in a private repository, run `docker login` and follow the prompts to create an authentication profile.

- w3m (optional)

W3m is a web browser that you can use to view your running web application within a command line terminal with `eb local run`. If you are using the command line in a desktop environment, you don't need w3m.

Docker containers run locally without emulating AWS resources that are provisioned when you deploy an application to Elastic Beanstalk, including security groups and data or worker tiers.

You can configure your local containers to connect to a database by passing the necessary connection string or other variables with the `envvars` option, but you must ensure that any resources in AWS are accessible from your local machine by [opening the appropriate ports](#) in their assigned security groups or attaching a [default gateway](#) or [elastic IP address](#).

## Preparing a Docker Application for Use with the EB CLI

Prepare your Docker configuration file and source data as though you were deploying them to Elastic Beanstalk. This topic uses the PHP and nginx proxy example from the [Multicontainer Docker tutorial \(p. 566\)](#) earlier in this guide as an example, but you can use the same commands with any single container, multicontainer, or preconfigured Docker application.

## Running a Docker Application Locally

Run your Docker application locally with the `eb local run` command from within the project directory:

```
~/project$ eb local run
Creating elasticbeanstalk_phpapp_1...
Creating elasticbeanstalk_nginxproxy_1...
Attaching to elasticbeanstalk_phpapp_1, elasticbeanstalk_nginxproxy_1
phpapp_1 | [23-Apr-2015 23:24:25] NOTICE: fpm is running, pid 1
phpapp_1 | [23-Apr-2015 23:24:25] NOTICE: ready to handle connections
```

The EB CLI reads the Docker configuration and executes the Docker commands necessary to run your application. The first time you run a project locally, Docker downloads images from a remote repository and stores them on your local machine. This process can take several minutes.

### Note

The `eb local run` command takes two optional parameters, `port` and `envvars`. To override the default port for a single container application, use the `port` option:

```
$ eb local run --port 8080
```

This command tells the EB CLI to use port 8080 on the host and map it to the exposed port on the container. If you don't specify a port, the EB CLI uses the container's port for the host. This option only works with single container applications

To pass environment variables to the application containers, use the `envvars` option:

```
$ eb local run --envvars RDS_HOST=$RDS_HOST,RDS_DB=$RDS_DB,RDS_USER=$RDS_USER,RDS_PASS=$RDS_PASS
```

Use environment variables to configure a database connection, set debug options, or pass secrets securely to your application. For more information on the options supported by the `eb local` subcommands, see [eb local](#) (p. 468).

After the containers are up and running in Docker, they are ready to take requests from clients. The `eb local` process stays open as long as the containers are running. If you need to stop the process and containers, press **Ctrl+C**.

Open a second terminal to run additional commands while the `eb local` process is running. Use `eb local status` to view your application's status:

```
~/project$ eb local status
Platform: 64bit Amazon Linux 2014.09 v1.2.1 running Multi-container Docker
1.3.3 (Generic)
Container name: elasticbeanstalk_nginxproxy_1
Container ip: 127.0.0.1
Container running: True
Exposed host port(s): 80
Full local URL(s): 127.0.0.1:80

Container name: elasticbeanstalk_phpapp_1
Container ip: 127.0.0.1
Container running: True
Exposed host port(s): None
Full local URL(s): None
```

You can use `docker ps` to see the status of the containers from Docker's point of view:

```
~/project$ docker ps
CONTAINER ID IMAGE COMMAND CREATED
STATUS PORTS NAMES
6a8e71274fed nginx:latest "nginx -g 'daemon of 9
minutes ago Up 9 minutes 0.0.0.0:80->80/tcp, 443/tcp
elasticbeanstalk_nginxproxy_1
82cbf620bdc1 php:fpm "php-fpm" 9
minutes ago Up 9 minutes 9000/tcp
elasticbeanstalk_phpapp_1
```

Next, view your application in action with `eb local open`:

```
~/project$ eb local open
```

This command opens your application in the default web browser. If you are running a terminal in a desktop environment, this may be Firefox, Safari, or Google Chrome. If you are running a terminal in a



headless environment or over an SSH connection, a command line browser, such as `w3m`, will be used if one is available.

Switch back to the terminal running the application process for a moment and note the additional output:

```
phpapp_1 | 172.17.0.36 - 21/Apr/2015:23:46:17 +0000 "GET /index.php" 200
```

This shows that the web application in the Docker container received an HTTP GET request for `index.php` that was returned successfully with a 200 (non error) status.

Run `eb local logs` to see where the EB CLI writes the logs.

```
~/project$ eb local logs
Elastic Beanstalk will write logs locally to /home/user/
project/.elasticbeanstalk/logs/local.
Logs were most recently created 3 minutes ago and written to /home/user/
project/.elasticbeanstalk/logs/local/150420_234011665784.
```

## Cleaning Up After Running a Docker Application Locally

When you are done testing your application locally, you can stop the applications and remove the images downloaded by Docker when you use `eb local run`. Removing the images is optional. You may want to keep them for future use.

Return to the terminal running the `eb local` process and press **Ctrl+C** to stop the application:

```
^CGracefully stopping... (press Ctrl+C again to force)
Stopping elasticbeanstalk_nginxproxy_1...
Stopping elasticbeanstalk_phpapp_1...

Aborting.
[1]+ Exit 5 eb local run
```

The EB CLI attempts to stop each running container gracefully with Docker commands. If you need to stop a process immediately, press **Ctrl+C** again.

After you stop the applications, the Docker containers should also stop running. Verify this with `docker ps`:

```
$ docker ps --all
CONTAINER ID IMAGE COMMAND CREATED
STATUS PORTS NAMES
73d515d99d2a nginx:latest "nginx -g 'daemon of" 21
minutes ago Exited (0) 11 minutes ago
elasticbeanstalk_nginxproxy_1
7061c76220de php:fpm "php-fpm" 21
minutes ago Exited (0) 11 minutes ago
elasticbeanstalk_phpapp_1
```

The `all` option shows stopped containers (if you omitted this option, the output will be blank). In the above example, Docker shows that both containers exited with a 0 (non-error) status.

If you are done using Docker and EB CLI local commands, you can remove the Docker images from your local machine to save space.

### To remove Docker images from your local machine

1. View the images that you downloaded using `docker images`:

```
$ docker images
REPOSITORY TAG IMAGE ID CREATED
VIRTUAL SIZE
php fpm 68bc5150cffc 1 hour ago
414.1 MB
nginx latest 637d3b2f5fb5 1 hour ago
93.44 MB
```

2. Remove the two Docker containers with `docker rm`:

```
$ docker rm 73d515d99d2a 7061c76220de
73d515d99d2a
7061c76220de
```

3. Remove the images with `docker rmi`:

```
$ docker rmi 68bc5150cffc 637d3b2f5fb5
Untagged: php:fpm
Deleted: 68bc5150cffc0526c66b92265c3ed8f2ea50f3c71d266aa655b7a4d20c3587b0
Untagged: nginx:latest
Deleted: 637d3b2f5fb5c4f70895b77a9e76751a6e7670f4ef27a159dad49235f4fe61e0
```

# Deploying Go Applications to Elastic Beanstalk Applications

---

AWS Elastic Beanstalk supports applications that are developed using the Go programming language (sometimes called Golang). Elastic Beanstalk supports both native Go environments and Docker containers that are based on the language stacks provided in the [Docker Official Repositories](#). You can use either of these Elastic Beanstalk environments to develop and test your Go application locally, and then deploy the application in an Elastic Beanstalk environment that is identical to your local environment.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

## Topics

- [Using the AWS Elastic Beanstalk Go Platform \(p. 589\)](#)
- [Using the Elastic Beanstalk Docker-based Go Platform \(p. 592\)](#)

## Using the AWS Elastic Beanstalk Go Platform

You can use AWS Elastic Beanstalk to run, build, and configure Go-based applications.

## Topics

- [Deploying Simple Go Applications \(p. 589\)](#)
- [Deploying Complex Go Applications \(p. 590\)](#)
- [Execution Order \(p. 591\)](#)
- [Setting Configuration Options \(p. 592\)](#)
- [Configuring the Reverse Proxy \(p. 592\)](#)

## Deploying Simple Go Applications

For simple Go applications, there are two ways to deploy your application:

- Provide a source bundle with a source file at the root called `application.go` that contains the main package for your application. Elastic Beanstalk builds the binary using the following command:

```
go build -o bin/application application.go
```

After the application is built, Elastic Beanstalk starts it on port 5000.

- Provide a source bundle with a binary file called `application`. The binary file can be located either at the root of the source bundle or in the `bin/` directory of the source bundle. If you place the `application` binary file in both locations, Elastic Beanstalk uses the file in the `bin/` directory.

Elastic Beanstalk launches this application on port 5000.

For more complex applications, you must use a [Procfile \(p. 590\)](#), or a Procfile and a [Buildfile \(p. 590\)](#).

## Deploying Complex Go Applications

For more complex Go applications, there are two ways to deploy your application:

- Provide a source bundle that includes your application source files, along with a [Buildfile \(p. 590\)](#) and a [Procfile \(p. 590\)](#). The [Buildfile \(p. 590\)](#) includes a command to build the application, and the [Procfile \(p. 590\)](#) includes instructions to run the application.
- Provide a source bundle that includes your application binary files, along with a [Procfile \(p. 590\)](#). The [Procfile \(p. 590\)](#) includes instructions to run the application.

## Creating a Build Configuration File (Buildfile)

To specify a custom build and configuration command for your Go application, include a file called `Buildfile` at the root of your source bundle. The file name is case sensitive. Use the following format for the `Buildfile`:

```
<process_name>: <command>
```

The command in your `Buildfile` must match the following regular expression: `^[A-Za-z0-9_]+:\s*.\+$`.

Elastic Beanstalk doesn't monitor the application that is run with a `Buildfile`. Use a `Buildfile` for commands that run for short periods and terminate after completing their tasks. For long-running application processes that should not exit, use the [Procfile \(p. 590\)](#) instead.

In the following example of a `Buildfile`, `build.sh` is a shell script that is located at the root of the source bundle:

```
make: ./build.sh
```

All paths in the `Buildfile` are relative to the root of the source bundle. If you know in advance where the files reside on the instance, you can include absolute paths in the `Buildfile`.

## Creating an Application Process Configuration File (Procfile)

To specify custom commands to start a Go application, include a file called `Procfile` at the root of your source bundle. The file name is case sensitive. Use the following format for the `Procfile`:

```
<process_name>: <command>
```

Each line in your Procfile must conform to the following regular expression: `^[A-Za-z0-9_]+:\s*.*+$`.

Elastic Beanstalk expects processes run from the `Procfile` to run continuously. Elastic Beanstalk monitors these applications and restarts any process that terminates. For short-running processes, use a [Buildfile \(p. 590\)](#) command.

You can use any name for your Go application, as long as it conforms to the aforementioned regular expression. You must call the main application `web`.

```
web: bin/server
queue_process: bin/queue_processor
foo: bin/fooapp
```

Elastic Beanstalk exposes the main `web` application on the root URL of the environment; for example, `http://my-go-env.elasticbeanstalk.com`.

Elastic Beanstalk configures the nginx proxy to forward requests to your application on the port number specified in the `PORT` environment variable for your application. Your application should always listen on that port. You can access this variable within your application by calling the `os.Getenv("PORT")` method.

Elastic Beanstalk uses the port number specified in the `PORT` option setting for the port for the first application in the `Procfile`, and then increments the port number for each subsequent application in the `Procfile` by 100. If the `PORT` option is not set, Elastic Beanstalk uses 5000 for the initial port.

In the preceding example, the `PORT` environment variable for the `web` application is 5000, the `queue_process` application is 5100, and the `foo` application is 5200.

You can specify the initial port by setting the `PORT` option with the [aws:elasticbeanstalk:application:environment \(p. 156\)](#) namespace, as shown in the following example.

```
option_settings:
- namespace: aws:elasticbeanstalk:application:environment
 option_name: PORT
 value: <first_port_number>
```

For more information about setting environment variables for your application, see [Option Settings \(p. 179\)](#).

Elastic Beanstalk also runs any application whose name does not have the `web_` prefix, but these applications are not available from outside of your instance.

Standard output and error streams from processes started with a `Procfile` are captured in log files named after the process and stored in `/var/log`. For example, the `web` process in the preceding example generates logs named `web-1.log` and `web-1.error.log` for `stdout` and `stderr`, respectively.

All paths in the `Procfile` are relative to the root of the source bundle. If you know in advance where the files reside on the instance, you can include absolute paths in the `Procfile`.

## Execution Order

For Go applications, the commands and configuration settings are executed in the following order:

1. The `commands` in the `.ebextensions` directory of the source bundle.
2. `Buildfile` commands. Elastic Beanstalk runs all commands concurrently.
3. The `container_commands` in the `.ebextensions` directory of the source bundle.

4. `Procfile` commands. Elastic Beanstalk runs all commands concurrently.

## Setting Configuration Options

In addition to the [options supported by all platforms \(p. 146\)](#), the Go platform supports the `aws:elasticbeanstalk:container:golang:staticfiles` (p. 168) namespace. This namespace allows you to map a virtual directory to a physical directory on the server.

For example, this [option\\_settings \(p. 179\)](#) snippet defines two virtual directories, `public` and `images`:

```
option_settings:
 aws:elasticbeanstalk:container:golang:staticfiles:
 /public: /var/www/mypublic
 aws:elasticbeanstalk:container:golang:staticfiles:
 /images: /var/www/myimages
```

## Configuring the Reverse Proxy

Elastic Beanstalk uses `nginx` as the reverse proxy to map your application to your load balancer on port 80. If you want to provide your own `nginx` configuration, you can override the default configuration provided by Elastic Beanstalk by including the `.ebextensions/nginx/nginx.conf` file in your source bundle. If this file is present, Elastic Beanstalk uses it in place of the default `nginx` configuration file.

If you want to include directives in addition to those in the `nginx.conf` `http` block, you can also provide additional configuration files in the `.ebextensions/nginx/conf.d/` directory of your source bundle. All files in this directory must have the `.conf` extension.

To take advantage of functionality provided by Elastic Beanstalk, such as [Enhanced Health Reporting and Monitoring \(p. 291\)](#), automatic application mappings, and static files, you must include the following line in the `server` block of your `nginx` configuration file:

```
include conf.d/elasticbeanstalk/*.conf;
```

# Using the Elastic Beanstalk Docker-based Go Platform

Follow the steps here to walk you through the process of deploying a Go application to Elastic Beanstalk with a preconfigured Docker container for Go.

## Set Up Your Local Development Environment

This tutorial uses a Go “Hello World” application.

### To set up your develop environment

1. Create a new folder for the sample application.

```
~$ mkdir eb-go-sample
~$ cd eb-go-sample
```

2. In the application's root folder, create a file with the name `server.go`. In the file, include the following:

**Example `~/eb-go-sample/server.go`**

```
package main

import "github.com/go-martini/martini"

func main() {
 m := martini.Classic()
 m.Get("/", func() string {
 return "Hello world!"
 })
 m.Run()
}
```

**Note**

- The application source bundle must include a package called `main`. Within that package, you must have a `main` function for the container to execute.
- Dependencies that need to be imported (for example, the Martini package, `go-martini`) will be downloaded to the container and installed during deployment. Therefore, you do not need to include the dependencies in the application source bundle that you upload to Elastic Beanstalk.
- Elastic Beanstalk sets the container's `GOPATH` environment variable to `/go`.

## Develop and Test Locally Using Docker

With your environment set up, you're ready to create and test your Go application.

### To develop a sample Go application

1. Add a `Dockerfile` to your application's root folder. In the file, specify the Elastic Beanstalk Docker base image to use to run your local preconfigured Docker container. Elastic Beanstalk uses this image to run any subsequent `Dockerfile` instructions.

**Note**

Include only the instruction with the Docker image name for your platform version. For preconfigured Docker image names, see [Supported Platforms \(p. 24\)](#). For more information about using a `Dockerfile`, see [Single Container Docker Configuration \(p. 556\)](#). For an example `Dockerfile` for preconfigured Docker platforms, see [Example: Using a Dockerfile to Customize and Configure a Preconfigured Docker Platform \(p. 579\)](#).

You can use the following example:

**Example `~/eb-go-sample/Dockerfile`**

```
For Go 1.3
FROM golang:1.3.3-onbuild

For Go 1.4
FROM golang:1.4.1-onbuild
```

2. Build the Docker image.

```
~/eb-go-sample$ docker build -t my-app-image .
```

3. Run the Docker container from the image.

**Note**

You must include the `-p` flag to map port 3000 on the container to the localhost port 8080. Elastic Beanstalk preconfigured Docker containers for Go applications always expose the application on port 3000 on the container. The `-it` flag runs the image as an interactive process. The `-rm` flag cleans up the container file system when the container exits. You can optionally include the `-d` flag to run the image as a daemon.

```
~/eb-go-sample$ docker run -it --rm -p 8080:3000 my-app-image
```

4. To view the sample application, type the following URL into your web browser.

```
http://localhost:8080
```

## Deploy to Elastic Beanstalk

After testing your application, you are ready to deploy it to Elastic Beanstalk.

### To deploy your application to Elastic Beanstalk

1. In your application's root folder, rename the `Dockerfile` to `Dockerfile.local`. This step is required for Elastic Beanstalk to use the `Dockerfile` that contains the correct instructions for Elastic Beanstalk to build a customized Docker image on each Amazon EC2 instance in your Elastic Beanstalk environment.

**Note**

You do not need to perform this step if your `Dockerfile` includes instructions that modify the base Go Docker image. You do not need to use a `Dockerfile` if your `Dockerfile` includes only a `FROM` line to specify the base image from which to build the container. In that situation, the `Dockerfile` is redundant.

2. Create an application source bundle. For more information, see [Create an Application Source Bundle \(p. 43\)](#).
3. Create an Elastic Beanstalk environment to which you can deploy your application. For step-by-step instructions, see [Managing and Configuring AWS Elastic Beanstalk Applications \(p. 36\)](#). At the appropriate step, on the **Environment Type** page, in the **Predefined configuration** list, under **Preconfigured - Docker**, choose **Go**.



# Creating and Deploying Java Applications on AWS Elastic Beanstalk

---

AWS Elastic Beanstalk supports several [platform configurations \(p. 24\)](#) for Java applications, including multiple versions of Java with the Tomcat application server and Java-only configurations for applications that do not use Tomcat.

[Apache Tomcat \(p. 600\)](#) is an open source web container for applications that use Java servlets and JavaServer Pages (JSPs) to serve HTTP requests. Tomcat facilitates web application development by providing multithreading, declarative security configuration, and extensive customization. Platform configurations are available for each of Tomcat's current major versions.

[Java SE platform configurations \(p. 609\)](#) (without Tomcat) are also provided for applications that don't use a web container, or use one other than Tomcat, such as Jetty or GlassFish. You can include any library Java Archives (JARs) used by your application in the source bundle that you deploy to Elastic Beanstalk.

AWS provides several tools for working with Java and Elastic Beanstalk. Regardless of the platform configuration that you choose, you can use the [AWS SDK for Java \(p. 600\)](#) to use other AWS services from within your Java application. The AWS SDK for Java is a set of libraries that allow you to use AWS APIs from your application code without writing the raw HTTP calls from scratch.

If you use the Eclipse integrated development environment (IDE) to develop your Java application, you can also get the [AWS Toolkit for Eclipse \(p. 620\)](#). The AWS Toolkit for Eclipse is an open source plug-in that lets you manage AWS resources, including Elastic Beanstalk applications and environments, from within the Eclipse IDE.

If the command line is more your style, install the [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) and use it to create, monitor, and manage your Elastic Beanstalk environments from the command line. If you run multiple environments for your application, the EB CLI integrates with Git to let you associate each of your environments with a different Git branch.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

#### Topics

- [Getting Started with Java on Elastic Beanstalk \(p. 596\)](#)
- [Setting Up your Java Development Environment \(p. 599\)](#)
- [Using the AWS Elastic Beanstalk Tomcat Platform \(p. 600\)](#)
- [Using the AWS Elastic Beanstalk Java SE Platform \(p. 609\)](#)
- [Configuring Your AWS Elastic Beanstalk Java Environment \(p. 613\)](#)
- [Adding an Amazon RDS Database to Your Elastic Beanstalk Environment \(p. 614\)](#)
- [Using the AWS Toolkit for Eclipse \(p. 620\)](#)
- [Resources \(p. 632\)](#)

## Getting Started with Java on Elastic Beanstalk

To get started with Java applications on AWS Elastic Beanstalk, all you need is an application [source bundle \(p. 43\)](#) to upload as your first application version and to deploy to an environment. When you create an environment, Elastic Beanstalk allocates all of the AWS resources needed to run a highly scalable web application.

### Launching an Environment with a Sample Java Application

Elastic Beanstalk provides single page sample applications for each platform as well as more complex examples that show the use of additional AWS resources such as Amazon RDS and language or platform-specific features and APIs.

The single page samples are the same code that you get when you create an environment without supplying your own source code. The more complex examples are hosted on GitHub and may need to be compiled or built prior to deploying to an Elastic Beanstalk environment.

#### Samples

Name	Supported Configurations	Environment Type	Source	Description
Tomcat Default	<ul style="list-style-type: none"> <li>Tomcat 8 with Java 8</li> <li>Tomcat 7 with Java 7</li> <li>Tomcat 7 with Java 6</li> </ul>	Web Server Worker	<a href="#">java-tomcat-v1.zip</a>	<p>Tomcat web application with a single page (<code>index.jsp</code>) configured to be displayed at the website root.</p> <p>For <a href="#">worker environments (p. 122)</a>, this sample includes a <code>cron.yaml</code> file that configures a scheduled task that calls <code>scheduled.jsp</code> once per minute. When <code>scheduled.jsp</code> is called, it writes to a log file at <code>/tmp/sample-app.log</code>. Finally, a configuration file is included in <code>.ebextensions</code> that copies the logs from <code>/tmp/</code> to the locations read by Elastic Beanstalk when you request environment logs.</p>

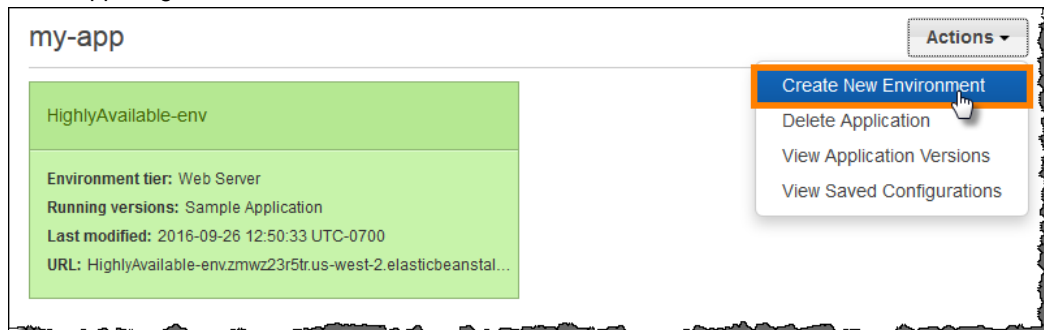
AWS Elastic Beanstalk Developer Guide  
 Launching an Environment  
 with a Sample Java Application

Name	Supported Configurations	Environment Type	Source	Description
Java SE Default	Java 8 Java 7	Web Server	<a href="#">java-se-jetty-maven-v1.zip</a>	Jetty SE application with <code>Buildfile</code> and <code>Procfile</code> configuration files. The <code>Buildfile</code> in this sample runs a Maven command to build the application source on-instance.
Does it Have Snakes?	Tomcat 8 with Java 8	Web Server	<a href="#">Clone the repo at GitHub.com</a>	<i>Does it Have Snakes?</i> is a multipage Tomcat web application that shows the use of Elastic Beanstalk configuration files, Amazon RDS, JDBC, PostgreSQL, Servlets, JSPs, Simple Tag Support, Tag Files, Log4J, Bootstrap, and Jackson.  The source code for this project includes a minimalist build script that compiles the servlets and models into class files and packages the required files into a Web Archive that you can deploy to an Elastic Beanstalk environment. See the readme file in the project repository for full instructions.
Locust Load Generator	Java 8	Web Server	<a href="#">Clone the repo at GitHub.com</a>	Web application that you can use to load test another web application running in a different Elastic Beanstalk environment. Shows the use of <code>Buildfile</code> and <code>Procfile</code> files, DynamoDB, and <code>Locust</code> , an open source load testing tool.

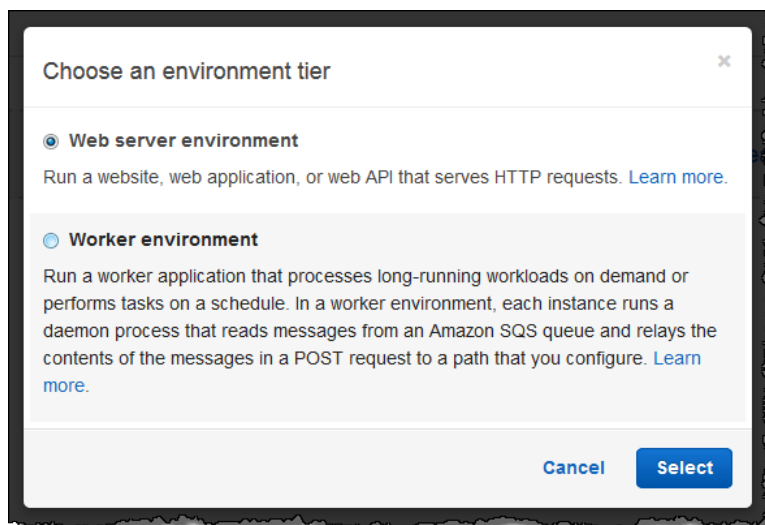
Download any of the sample applications and deploy it to Elastic Beanstalk by following these steps:

**To launch an environment with a sample application (console)**

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one](#) (p. 36).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

**Note**

Elastic Beanstalk supports multiple [configurations \(p. 24\)](#) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk \(p. 24\)](#). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Sample application**.
7. If you would like to further customize your environment, choose **Configure more options**. The following options can only be set during environment creation:
  - Environment name
  - Domain name
  - Platform configuration
  - VPC
  - Tier

The following settings can be changed after environment creation, but require new instances or other resources to be provisioned and can take a long time to apply:

- Instance type, root volume, key pair, and IAM role
- Internal RDS database
- Load balancer

For details on all available settings, see [The Create New Environment Wizard \(p. 63\)](#).

8. Choose **Create environment**.

## Next Steps

After you have an environment running an application, you can [deploy a new version \(p. 98\)](#) of the application or a completely different application at any time. Deploying a new application version is very quick because it doesn't require provisioning or restarting EC2 instances.

After you've deployed a sample application or two and are ready to start developing and running Java applications locally, see [the next section \(p. 599\)](#) to set up a Java development environment with all of the tools and libraries that you will need.

## Setting Up your Java Development Environment

Set up a Java development environment to test your application locally prior to deploying it to AWS Elastic Beanstalk. This topic outlines development environment setup steps and links to installation pages for useful tools.

For common setup steps and tools that apply to all languages, see [Configuring your development environment for use with AWS Elastic Beanstalk \(p. 413\)](#)

### Sections

- [Installing the Java Development Kit \(p. 599\)](#)
- [Installing a Web Container \(p. 599\)](#)
- [Downloading Libraries \(p. 599\)](#)
- [Installing the AWS SDK for Java \(p. 600\)](#)
- [Installing an IDE or Text Editor \(p. 600\)](#)
- [Installing the AWS Toolkit for Eclipse \(p. 600\)](#)

## Installing the Java Development Kit

Install the Java Development Kit (JDK). If you don't have a preference, get the latest version. Download the JDK at [oracle.com](http://oracle.com)

The JDK includes the Java compiler, which you can use to build your source files into class files that can be executed on an Elastic Beanstalk web server.

## Installing a Web Container

If you don't already have another web container or framework, install the appropriate version of Tomcat:

- [Download Tomcat 8 \(requires Java 7 or later\)](#)
- [Download Tomcat 7 \(requires Java 6 or later\)](#)

## Downloading Libraries

Elastic Beanstalk platform configurations include few libraries by default. Download libraries that your application will use and save them in your project folder to deploy in your application source bundle.

If you've installed Tomcat locally, you can copy the servlet API and JavaServer Pages (JSP) API libraries from the installation folder. If you deploy to a Tomcat platform configuration, you don't need to include these files in your source bundle, but you do need to have them in your `classpath` to compile any classes that use them.

JUnit, Google Guava, and Apache Commons provide several useful libraries. Visit their homepages to learn more:

- [Download JUnit](#)

- [Download Google Guava](#)
- [Download Apache Commons](#)

## Installing the AWS SDK for Java

If you need to manage AWS resources from within your application, install the AWS SDK for Java. For example, with the AWS SDK for Java, you can use Amazon DynamoDB (DynamoDB) to share session states of Apache Tomcat applications across multiple web servers. For more information, see [Manage Tomcat Session State with Amazon DynamoDB](#) in the AWS SDK for Java documentation.

Visit the [AWS SDK for Java homepage](#) for more information and installation instructions.

## Installing an IDE or Text Editor

Integrated development environments (IDEs) provide a wide range of features that facilitate application development. If you haven't used an IDE for Java development, try Eclipse and IntelliJ and see which works best for you.

- [Install Eclipse IDE for Java EE Developers](#)
- [Install IntelliJ](#)

### Note

An IDE might add files to your project folder that you might not want to commit to source control. To prevent committing these files to source control, use `.gitignore` or your source control tool's equivalent.

If you just want to begin coding and don't need all of the features of an IDE, consider [installing Sublime Text](#).

## Installing the AWS Toolkit for Eclipse

The [AWS Toolkit for Eclipse \(p. 620\)](#) is an open source plug-in for the Eclipse Java IDE that makes it easier for developers to develop, debug, and deploy Java applications using AWS. Visit the [AWS Toolkit for Eclipse homepage](#) for installation instructions.

# Using the AWS Elastic Beanstalk Tomcat Platform

The AWS Elastic Beanstalk Tomcat platform is a set of [environment configurations \(p. 27\)](#) for Java web applications that can run in a Tomcat web container. Each configuration corresponds to a major version of Tomcat, including *Java 8 with Tomcat 8* and *Java 7 with Tomcat 7*.

Platform-specific configuration options are available in the AWS Management Console for [modifying the configuration of a running environment \(p. 139\)](#). To avoid losing your environment's configuration when you terminate it, you can use [saved configurations \(p. 215\)](#) to save your settings and later apply them to another environment.

To save settings in your source code, you can include [configuration files \(p. 178\)](#). Settings in configuration files are applied every time you create an environment or deploy your application. You can also use configuration files to install packages, run scripts, and perform other instance customization operations during deployments.

Elastic Beanstalk Tomcat platform configurations include a reverse proxy that forwards requests to your application. The default server is [Apache HTTP Server \(version 2.2\)](#) but you can use configuration

options to [use nginx \(p. 602\)](#) instead. Elastic Beanstalk also provides configuration options to configure the proxy server to serve static assets from a folder in your source code to reduce the load on your application. For advanced scenarios, you can [include your own .conf files \(p. 603\)](#) in your source bundle to extend Elastic Beanstalk's proxy configuration or overwrite it completely.

You must package Java applications in a web application archive (WAR) file with a specific structure. For information on the required structure and how it relates to the structure of your project directory, see [Structuring your Project Folder \(p. 607\)](#).

To run multiple applications on the same web server, you can [bundle multiple WAR files \(p. 606\)](#) into a single source bundle. Each application in a multiple WAR source bundle runs at either the root path (`ROOT.war` runs at `myapp.elasticbeanstalk.com/`) or at a path directly beneath it (`app2.war` runs at `myapp.elasticbeanstalk.com/app2/`), as determined by the name of the WAR. In a single WAR source bundle, the application always runs at the root path.

Settings applied in the AWS Management Console override the same settings in configuration files, if they exist. This lets you have default settings in configuration files, and override them with environment specific settings in the console. For more information about precedence, and other methods of changing settings, see [Configuration Options \(p. 131\)](#).

#### Sections


- [Configuring Your Tomcat Environment in the AWS Management Console \(p. 601\)](#)
- [Configuration Files \(p. 602\)](#)
- [Configuring the Proxy Server \(p. 603\)](#)
- [Using .gitignore \(p. 605\)](#)
- [Bundling Multiple WAR Files for Tomcat Environments \(p. 606\)](#)
- [Structuring your Project Folder \(p. 607\)](#)

## Configuring Your Tomcat Environment in the AWS Management Console

For Tomcat platform configurations on Elastic Beanstalk, Elastic Beanstalk provides a few platform-specific options in addition to the standard options it provides for all environments. These options let you configure the Java virtual machine (JVM) that runs on your environment's web servers, and define system properties that provide information configuration strings to your application.

You can use the AWS Management Console to enable log rotation to Amazon S3 and configure variables that your application can read from the environment.

### To access the software configuration settings for your environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .

## JVM Container Options

The heap size in the Java virtual machine (JVM) determines how many objects your application can create in memory before [garbage collection](#) occurs. You can modify the **Initial JVM Heap Size (-Xms argument)** and a **Maximum JVM Heap Size (-Xmx argument)**. A larger initial heap size allows more

objects to be created before garbage collection occurs, but it also means that the garbage collector will take longer to compact the heap. The maximum heap size specifies the maximum amount of memory the JVM can allocate when expanding the heap during heavy activity.

**Note**

The available memory depends on the EC2 instance type. For more information about the EC2 instance types available for your Elastic Beanstalk environment, see [Instance Types](#) in the *Amazon Elastic Compute Cloud User Guide for Linux*.

The *permanent generation* is a section of the JVM heap that stores class definitions and associated metadata. To modify the size of the permanent generation, type the new size in the **Maximum JVM PermGen Size (-XX:MaxPermSize argument)** field. This setting only applies to Java 7 and earlier.

## Log Options

The Log Options section has two settings:

- **Instance profile**– Specifies the instance profile that has permission to access the Amazon S3 bucket associated with your application.
- **Enable log file rotation to Amazon S3**–Specifies whether log files for your application's Amazon EC2 instances should be copied to your Amazon S3 bucket associated with your application.

## Environment Properties

The **Environment Properties** section lets you specify environment configuration settings on the Amazon EC2 instances that are running your application. Environment properties are passed in as key-value pairs to the application.

The Tomcat platform defines a placeholder property named `JDBC_CONNECTION_STRING` for Tomcat environments for passing a connection string to an external database.

**Note**

If you attach an RDS DB instance to your environment, construct the JDBC connection string dynamically from the RDS environment properties provided by Elastic Beanstalk. Use `JDBC_CONNECTION_STRING` only for database instances that are not provisioned using Elastic Beanstalk.

For more information about using Amazon Relational Database Service (Amazon RDS) with your Java application, see [Adding an Amazon RDS Database to Your Elastic Beanstalk Environment \(p. 614\)](#)

Inside the Tomcat environment running in Elastic Beanstalk, environment variables are accessible using the `System.getProperty()`. For example, you could read a property named `API_ENDPOINT` to a variable with the following code:

```
String apiEndpoint = System.getProperty("API_ENDPOINT");
```

## Configuration Files

You can use a [configuration file \(p. 178\)](#) to set configuration options and perform other instance configuration tasks during deployments.

The Tomcat platform supports options in the following namespaces in addition to the [options supported for all Elastic Beanstalk environments \(p. 146\)](#):

- `aws:elasticbeanstalk:container:tomcat:jvmoptions (p. 169)` – Modify JVM settings. Options in this namespace correspond to options in the management console as follows:



- `Xms` – **JVM command line options**
- `Xmx` – **JVM command line options**
- `XX:MaxPermSize` – **Maximum JVM permanent generation size**
- `JVM Options` – **JVM command line options**
- `aws:elasticbeanstalk:application:environment` (p. 169) – Set environment properties.
- `aws:elasticbeanstalk:environment:proxy` (p. 170) – Choose the proxy server and configure response compression.
- `aws:elasticbeanstalk:environment:proxy:staticfiles` (p. 170) – Configure the proxy to serve static assets from a path in your source bundle.

The following example configuration file shows the use of the Tomcat-specific configuration options:

#### Example `.ebextensions/tomcat-settings.config`

```
option_settings:
 aws:elasticbeanstalk:container:tomcat:jvmoptions:
 Xms: 512m
 Xmx: 512m
 JVM Options: '-Xmn128m'
 aws:elasticbeanstalk:application:environment:
 API_ENDPOINT: mywebapi.zkpexsjtmd.us-west-2.elasticbeanstalk.com
 aws:elasticbeanstalk:environment:proxy:
 GzipCompression: 'true'
 ProxyServer: nginx
 aws:elasticbeanstalk:environment:proxy:staticfiles:
 /pub: public
```

## Configuring the Proxy Server

The Tomcat platform uses a reverse proxy to relay requests from port 80 on the instance to your Tomcat web container listening on port 8080. Elastic Beanstalk provides a default proxy configuration that you can either extend or override completely with your own configuration.

The Tomcat platform uses Apache 2.2 for the proxy by default. You can choose to use nginx by including a [configuration file](#) (p. 178) in your source code:

#### Example `.ebextensions/nginx-proxy.config`

```
option_settings:
 aws:elasticbeanstalk:environment:proxy:
 ProxyServer: nginx
```

#### Sections

- [Extending the Default Apache Configuration](#) (p. 603)
- [Extending the Default nginx Configuration](#) (p. 604)

## Extending the Default Apache Configuration

To extend Elastic Beanstalk's default Apache configuration, add `.conf` configuration files to a folder named `.ebextensions/httpd/conf.d` in your application source bundle. Elastic Beanstalk's Apache configuration includes `.conf` files in this folder automatically.

```
~/workspace/my-app/
|-- .ebextensions
| |-- httpd
| |-- conf.d
| |-- myconf.conf
|-- index.jsp
```

For example, the following configuration adds a listener on port 5000:

#### Example `.ebextensions/httpd/conf.d/port5000.conf`

```
listen 5000
<VirtualHost *:5000>
 <Proxy *>
 Order Allow,Deny
 Allow from all
 </Proxy>
 ProxyPass / http://localhost:8080/ retry=0
 ProxyPassReverse / http://localhost:8080/
 ProxyPreserveHost on

 ErrorLog /var/log/httpd/elasticbeanstalk-error_log
</VirtualHost>
```

To override Elastic Beanstalk's default Apache configuration completely, include a configuration in your source bundle at `.ebextensions/httpd/conf/httpd.conf`:

```
~/workspace/my-app/
|-- .ebextensions
| |-- httpd
| |-- conf
| |-- httpd.conf
|-- index.jsp
```

If you override Elastic Beanstalk's Apache configuration, add the following lines to your `httpd.conf` to pull in Elastic Beanstalk's configurations for [Enhanced Health Reporting and Monitoring \(p. 291\)](#), response compression, and static files.

```
Include conf.d/*.conf
Include conf.d/elasticbeanstalk/*.conf
```

#### Note

To override the default listener on port 80, include a file named `00_application.conf` at `.ebextensions/httpd/conf.d/elasticbeanstalk/` to overwrite Elastic Beanstalk's configuration.

Take a look at Elastic Beanstalk's default configuration file at `/etc/httpd/conf/httpd.conf` on an instance in your environment for a working example. All files in the `.ebextensions/httpd` folder in your source bundle are copied to `/etc/httpd` during deployments.

## Extending the Default nginx Configuration

To extend Elastic Beanstalk's default nginx configuration, add `.conf` configuration files to a folder named `.ebextensions/nginx/conf.d/` in your application source bundle. Elastic Beanstalk's nginx configuration includes `.conf` files in this folder automatically.

```
~/workspace/my-app/
|-- .ebextensions
| |-- nginx
| |-- conf.d
| |-- elasticbeanstalk
| |-- my-server-conf.conf
| |-- my-http-conf.conf
|-- index.jsp
```

Files with the `.conf` extension in the `conf.d` folder are included in the `http` block of the default configuration. Files in the `conf.d/elasticbeanstalk` folder are included in the `server` block within the `http` block.

To override Elastic Beanstalk's default nginx configuration completely, include a configuration in your source bundle at `.ebextensions/nginx/nginx.conf`:

```
~/workspace/my-app/
|-- .ebextensions
| |-- nginx
| |-- nginx.conf
|-- index.jsp
```

If you override Elastic Beanstalk's nginx configuration, add the following line to your configuration's `server` block to pull in Elastic Beanstalk's configurations for the port 80 listener, response compression, and static files.

```
include conf.d/elasticbeanstalk/*.conf;
```

#### Note

To override the default listener on port 80, include a file named `00_application.conf` at `.ebextensions/nginx/conf.d/elasticbeanstalk/` to overwrite Elastic Beanstalk's configuration.

Also include the following line in your configuration's `http` block to pull in Elastic Beanstalk's configurations for [Enhanced Health Reporting and Monitoring \(p. 291\)](#) and logging.

```
include conf.d/*.conf;
```

Take a look at Elastic Beanstalk's default configuration file at `/etc/nginx/nginx.conf` on an instance in your environment for a working example. All files in the `.ebextensions/nginx` folder in your source bundle are copied to `/etc/nginx` during deployments.

## Using .gitignore

To avoid committing compiled class files and WAR files to your Git repository, or seeing message about them appear when you run Git commands, add the relevant file types to a file named `.gitignore` in your project folder:

**~/workspace/myapp/.gitignore**

```
*.zip
*.class
```

## Bundling Multiple WAR Files for Tomcat Environments

If your web app comprises multiple web application components, you can simplify deployments and reduce operating costs by running components in a single environment, instead of running a separate environment for each component. This strategy is effective for lightweight applications that don't require a lot of resources, and for development and test environments.

To deploy multiple web applications to your environment, combine each component's web application archive (WAR) files into a single [source bundle](#) (p. 43).

To create an application source bundle that contains multiple WAR files, organize the WAR files using the following structure:

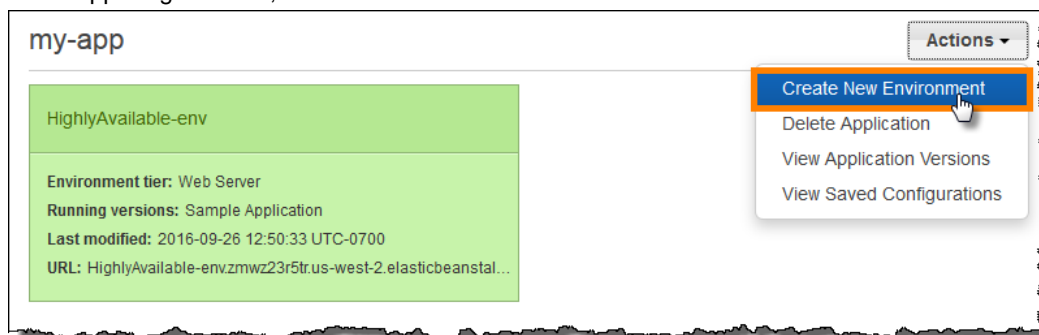
```
MyApplication.zip
.ebextensions
foo.war
bar.war
ROOT.war
```

When you deploy a source bundle containing multiple WAR files to an AWS Elastic Beanstalk environment, each application is accessible from a different path off of the root domain name. The preceding example includes three applications: `foo`, `bar`, and `ROOT`. `ROOT.war` is a special filename that tells Elastic Beanstalk to run that application at the root domain, so that the three applications are available at `http://MyApplication.elasticbeanstalk.com/foo`, `http://MyApplication.elasticbeanstalk.com/bar`, and `http://MyApplication.elasticbeanstalk.com`.

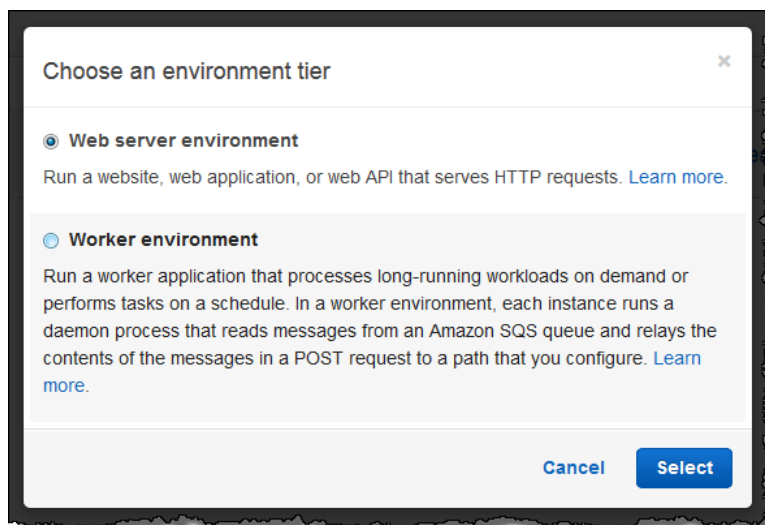
The source bundle can include only an optional `.ebextensions` folder and WAR files. The `.ebextensions` folder can contain [configuration files](#) (p. 178) that customize the resources deployed to your environment.

### To launch an environment (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one](#) (p. 36).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

**Note**

Elastic Beanstalk supports multiple [configurations](#) (p. 24) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk](#) (p. 24). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Upload**.
7. Choose **Local file**, choose **Browse**, and open the source bundle.
8. Choose **Upload**.
9. Choose **Create environment**.

For information about creating source bundles, see [Create an Application Source Bundle](#) (p. 43).

## Structuring your Project Folder

To work when deployed to a Tomcat server, compiled Java Platform Enterprise Edition (*Java EE*) Web application ARchives (WAR files) must be structured according to certain [guidelines](#). Your project directory does not have to meet the same standards, but it is a good idea to structure it in the same way to simplify compiling and packaging. Structuring your project folder like the WAR file contents also helps you understand how files are related and how they behave on a web server.

In the following recommended hierarchy, the source code for the web application is placed in a `src` directory, to isolate it from the build script and the WAR file it generates:

```
~/workspace/my-app/
|-- build.sh - Build script that compiles classes and creates a
WAR
|-- README.MD - Readme file with information about your project,
notes
|-- ROOT.war - Source bundle artifact created by build.sh
`-- src - Source code folder
 |-- WEB-INF - Folder for private supporting files
 | |-- classes - Compiled classes
 | |-- lib - JAR libraries
 | |-- tags - Tag files
 | |-- tlds - Tag Library Descriptor files
```

```
| `-- web.xml - Deployment Descriptor
|-- com - Uncompiled classes
|-- css - Stylesheets
|-- images - Image files
|-- js - JavaScript files
`-- default.jsp - JSP (JavaServer Pages) web page
```

The `src` folder contents match what you will package and deploy to the server, with the exception of the `com` folder. The `com` folder contains your uncompiled classes (`.java` files), which need to be compiled and placed in the `WEB-INF/classes` directory to be accessible from your application code.

The `WEB-INF` directory contains code and configurations that are not served publicly on the web server. The other folders at the root of the source directory (`css`, `images`, and `js`) are publicly available at the corresponding path on the web server.

The following example is identical to the preceding project directory, except that it contains more files and subdirectories. This example project includes simple tags, model and support classes, and a Java Server Pages (JSP) file for a `record` resource. It also includes a stylesheet and JavaScript for [Bootstrap](#), a default JSP file, and an error page for 404 errors.

`WEB-INF/lib` includes a Java Archive (JAR) file containing the Java Database Connectivity (JDBC) driver for PostgreSQL. `WEB-INF/classes` is empty because class files have not been compiled yet.

```
~/workspace/my-app/
|-- build.sh
|-- README.MD
|-- ROOT.war
`-- src
 |-- WEB-INF
 | |-- classes
 | |-- lib
 | | `-- postgresql-9.4-1201.jdbc4.jar
 | |-- tags
 | | `-- header.tag
 | |-- tlds
 | | `-- records.tld
 | `-- web.xml
 |-- com
 | `-- myapp
 | |-- model
 | | `-- Record.java
 | `-- web
 | `-- ListRecords.java
 |-- css
 | |-- bootstrap.min.css
 | `-- myapp.css
 |-- images
 | `-- myapp.png
 |-- js
 | `-- bootstrap.min.js
 |-- 404.jsp
 |-- default.jsp
 `-- records.jsp
```

`build.sh` is a very simple shell script that compiles Java classes, constructs a WAR file, and copies it to Tomcat's `webapps` directory for local testing:

```
cd src
```

```
javac -d WEB-INF/classes com/myapp/model/Record.java
javac -classpath WEB-INF/lib/*:WEB-INF/classes -d WEB-INF/classes com/myapp/
model/Record.java
javac -classpath WEB-INF/lib/*:WEB-INF/classes -d WEB-INF/classes com/myapp/
web/ListRecords.java

jar -cvf ROOT.war *.jsp images css js WEB-INF .ebextensions
cp ROOT.war /Library/Tomcat/webapps
mv ROOT.war ../
```

Inside the WAR file, you'll find the same structure that exists in the `src` directory in the preceding example, excluding the `src/com` folder. The `jar` command automatically creates the `META-INF/MANIFEST.MF` file.

```
~/workspace/my-app/ROOT.war
|-- META-INF
| |-- MANIFEST.MF
|-- WEB-INF
| |-- classes
| | |-- com
| | | |-- myapp
| | | |-- model
| | | | |-- Records.class
| | | |-- web
| | | |-- ListRecords.class
| |-- lib
| | |-- postgresql-9.4-1201.jdbc4.jar
| |-- tags
| | |-- header.tag
| |-- tlds
| | |-- records.tld
| |-- web.xml
|-- css
| |-- bootstrap.min.css
| |-- myapp.css
|-- images
| |-- myapp.png
|-- js
| |-- bootstrap.min.js
|-- 404.jsp
|-- default.jsp
|-- records.jsp
```

## Using the AWS Elastic Beanstalk Java SE Platform

You can use AWS Elastic Beanstalk to run, build, and configure Java web applications.

### Note

Elastic Beanstalk provides two Java SE configurations: Java 8 and Java 7. See [supported platforms \(p. 27\)](#) for details.

To configure the processes that run on the server instances in your environment, including Java virtual machine (JVM) container options like the amount of memory assigned to each, include an optional [Procfile \(p. 610\)](#) in your source bundle. A `Procfile` is required if you have more than one JAR in

your source bundle root. If you only have one JAR file, Elastic Beanstalk will run it with `java -jar application_name.jar`.

To compile Java classes and run other build commands on the EC2 instances in your environment at deploy time, include a [Buildfile \(p. 611\)](#) in your application source bundle. A `Buildfile` lets you deploy your source code as-is and build on the server instead of compiling JARs locally. The Java SE platform includes common build tools to let you build on-server.

Elastic Beanstalk Java SE platform configurations include an [nginx](#) server that acts as a reverse proxy, serving cached static content and passing requests to your application.

The Java SE platform supports an [extensible configuration option namespace \(p. 612\)](#) that lets you define options that specify paths in an application that contains static files. This allows you to include a folder of static content in your source bundle and tell [nginx](#) to serve it directly to reduce load on your application.

#### Topics

- [Configuring the Application Process with a Procfile \(p. 610\)](#)
- [Building JARs On-Server with a Buildfile \(p. 611\)](#)
- [Execution Order \(p. 611\)](#)
- [Software Configuration Options \(p. 612\)](#)
- [Configuring the Reverse Proxy \(p. 612\)](#)

## Configuring the Application Process with a `Procfile`

If you have more than one JAR file in the root of your application source bundle, you must include a `Procfile` file that tells Elastic Beanstalk which JAR(s) to run. You can also include a `Procfile` file for a single JAR application to configure the Java virtual machine (JVM) that runs your application.

You must save the `Procfile` in your source bundle root. The file name is case sensitive. Format the `Procfile` as follows: a process name, followed by a colon, followed by a Java command that runs a JAR. Each line in your `Procfile` must match the following regular expression: `^[A-Za-z0-9_]+:\s*.*$`.

#### Procfile

```
web: java -jar server.jar -Xms:256m
cache: java -jar mycache.jar
web_foo: java -jar other.jar
```

The command that runs the main JAR in your application must be called `web`, and it must be the first command listed in your `Procfile`. The [nginx](#) server forwards all HTTP requests that it receives from your environment's load balancer to this application.

By default, Elastic Beanstalk configures the [nginx](#) proxy to forward requests to your application on port 5000. You can override the default port by setting the `PORT` [system property \(p. 613\)](#) to the port on which your main application listens.

#### Note

The port that your application listens on does not affect the port that the [nginx](#) server listens to receive requests from the load balancer.

If you use a `Procfile` to run multiple applications, Elastic Beanstalk expects each additional application to listen on a port 100 higher than the previous one. Elastic Beanstalk sets the `PORT` variable accessible from within each application to the port that it expects the application to run on. You can access this variable within your application code by calling `System.getProperty("PORT")`.



### Note

In the preceding example, the `web` application listens on port 5000, `cache` listens on port 5100, and `web_foo` listens on port 5200. `web` configures its listening port by reading the `PORT` variable, and adds 100 to that number to determine which port `cache` is listening on so that it can send it requests.

Standard output and error streams from processes started with a `Procfile` are captured in log files named after the process and stored in `/var/log`. For example, the `web` process in the preceding example generates logs named `web-1.log` and `web-1.error.log` for `stdout` and `stderr`, respectively.

Elastic Beanstalk assumes that all entries in the `Procfile` should run at all times and automatically restarts any application defined in the `Procfile` that terminates. To run commands that will terminate and should not be restarted, use a [Buildfile \(p. 611\)](#).

## Building JARs On-Server with a `Buildfile`

You can build your application's class files and JAR(s) on the EC2 instances in your environment by invoking a build command from a `Buildfile` file in your source bundle.

A `Buildfile` file has the same syntax as a `Procfile` file, but commands in a `Buildfile` file are only run once and must terminate upon completion, whereas commands in a `Procfile` file are expected to run for the life of the application and will be restarted if they terminate. To run the JARs in your application, use a `Procfile` instead.

Add a file named `Buildfile` (case sensitive) to the root of your source bundle and configure it to invoke a build command in the following manner:

### Buildfile

```
build: mvn assembly:assembly -DdescriptorId=jar-with-dependencies
```

The above example runs Apache Maven to build a web application from source code. Check out the [Java web application samples \(p. 596\)](#) for a sample application that uses this feature.

The Java SE platform includes the following build tools, which you can invoke from your build script:

- `javac` – Java compiler
- `ant` – Apache Ant
- `mvn` – Apache Maven
- `gradle` – Gradle

## Execution Order

When you include multiple types of configuration in your application source bundle, they are executed in the following order. Each step does not begin until the previous step completes.

- Step 1: `commands`, `files` and `packages` defined in configuration files (`.ebextensions`)
- Step 2: `Buildfile` command
- Step 3: `container_commands` in configuration files (`.ebextensions`)
- Step 4: `Procfile` commands (all commands are run simultaneously)

For more information on using `commands`, `files`, `packages` and `container_commands` in configuration files, see [Customizing Software on Linux Servers \(p. 180\)](#)

## Software Configuration Options

The Java SE platform supports one platform-specific configuration namespace in addition to the [namespaces supported by all platforms \(p. 146\)](#). The `aws:elasticbeanstalk:container:java:staticfiles` namespace lets you define options that map paths on your web application to folders in your application source bundle that contain static content.

For example, this [option\\_settings \(p. 179\)](#) snippet defines two options in the static files namespace. The first maps the path `/public` to a folder named `public`, and the second maps the path `/images` to a folder named `img`:

```
option_settings:
 - namespace: aws:elasticbeanstalk:container:java:staticfiles
 option_name: /public
 value: public
 - namespace: aws:elasticbeanstalk:container:java:staticfiles
 option_name: /images
 value: img
```

The folders that you map using this namespace must be actual folders in the root of your source bundle. You cannot map a path to a folder in a JAR file.

No options are defined in this namespace by default.

## Configuring the Reverse Proxy

Elastic Beanstalk uses nginx as the reverse proxy to map your application to your Elastic Load Balancing load balancer on port 80. Elastic Beanstalk provides a default nginx configuration that you can either extend or override completely with your own configuration.

To extend Elastic Beanstalk's default nginx configuration, add `.conf` configuration files to a folder named `.ebextensions/nginx/conf.d/` in your application source bundle. Elastic Beanstalk's nginx configuration includes `.conf` files in this folder automatically.

```
~/workspace/my-app/
|-- .ebextensions
| |-- nginx
| |-- conf.d
| |-- myconf.conf
|-- web.jar
```

To override Elastic Beanstalk's default nginx configuration completely, include a configuration in your source bundle at `.ebextensions/nginx/nginx.conf`:

```
~/workspace/my-app/
|-- .ebextensions
| |-- nginx
| |-- nginx.conf
|-- web.jar
```

If you override Elastic Beanstalk's nginx configuration, add the following line to your `nginx.conf` to pull in Elastic Beanstalk's configurations for [Enhanced Health Reporting and Monitoring \(p. 291\)](#), automatic application mappings, and static files.

```
include conf.d/elasticbeanstalk/*.conf;
```


## Configuring Your AWS Elastic Beanstalk Java Environment

To set the system properties that Elastic Beanstalk passes to your server instances, use the AWS Management Console or the AWS Toolkit for Eclipse.

### Setting Environment Properties

Environment properties are system properties passed into the Java virtual machine (JVM) at startup to pass database connection strings or other information that you don't want to hard code into your application using the `-D` flag. Environment properties are specific to your application environment. They are not actual (shell) environment variables. Storing information in environment properties can help increase the portability and scalability of your application. You do not need to recompile your source code when you move between environments. You can acquire environment properties with `System.getProperty()` (for Tomcat environments) or `System.getenv()` (for Java SE environments).

#### To set system properties (AWS Management Console)

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .
5. Under **Environment Properties**, next to **JDBC\_CONNECTION\_STRING**, in the **Property Value** column, type a connection string.

For example, the following JDBC connection string would connect to a MySQL database instance on port 3306 of localhost, with a username of `me` and a password of `mypassword`:

```
jdbc:mysql://localhost:3306/mydatabase?user=me&password=mypassword
```

This will be accessible to your Elastic Beanstalk application as a system property called `JDBC_CONNECTION_STRING`.

6. Choose **Save**.

Elastic Beanstalk updates your environment. This takes about one minute.

#### Note

The combined size of all environment properties defined for an environment is limited to 4096 bytes. The format of environment properties is `KEY1=VALUE1, KEY2=VALUE2`, which means that both the value and key of each variable are included in the total. When a platform has one or more predefined environment properties, such as `JDBC_CONNECTION_STRING`, those properties are also included in the total.

### Accessing Environment Properties

Access the system properties from your code by using `System.getProperty()` (for Tomcat environments) or `System.getenv()` (for Java SE environments). For example, the following code shows how to read an environment property in a Tomcat servlet:

```
String jdbcUrl = System.getProperty("JDBC_CONNECTION_STRING");
```

In a Java SE environment, environment properties are provided as environment variables. If you use the Java SE platform, read environment properties with `System.getenv()`:

```
String jdbcUrl = System.getenv("JDBC_CONNECTION_STRING");
```

## Adding an Amazon RDS Database to Your Elastic Beanstalk Environment

You can use an Amazon Relational Database Service (Amazon RDS) DB instance to store data gathered and modified by your application. The database can be attached to your environment and managed by Elastic Beanstalk, or created and managed externally.

If you are using Amazon RDS for the first time, add a DB instance to a test environment with the Elastic Beanstalk Management Console and verify that your application is able to connect to it.

### To add a DB instance to your environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. Under **Data Tier**, choose **Create a new RDS database**.
5. Choose a DB engine, enter a user name and password, and then choose **Apply**.

Adding a DB instance takes about 10 minutes. When the environment update is complete, the DB instance's hostname and other connection information are available to your application through the following environment properties:

- **RDS\_HOSTNAME** – The hostname of the DB instance.
- **RDS\_DB\_NAME** – The database name, `ebdb`.
- **RDS\_USERNAME** – The username that you configured for your database.
- **RDS\_PASSWORD** – The password that you configured for your database.
- **RDS\_PORT** – The port on which the DB instance accepts connections. The default value varies between DB engines.

For more information about configuring an internal DB instance, see [Configuring Databases with Elastic Beanstalk \(p. 243\)](#). For instructions on configuring an external database for use with Elastic Beanstalk, see [Using Elastic Beanstalk with Amazon RDS \(p. 380\)](#).

To connect to the database, add the appropriate driver JAR to your application, load the driver class in your code, and create a connection object with the environment properties provided by Elastic Beanstalk.

### Sections

- [Downloading the JDBC Driver \(p. 615\)](#)
- [Connecting to a Database \(Java SE Platforms\) \(p. 615\)](#)
- [Connecting to a Database \(Tomcat Platforms\) \(p. 616\)](#)
- [Troubleshooting Database Connections \(p. 618\)](#)

## Downloading the JDBC Driver

You will need the JAR of the JDBC driver for the DB engine that you chose. Save the JAR file in your source code and include it in your classpath when you compile the class that creates connections to the database.

You can find the latest driver for your DB engine in the following locations:

- **MySQL** – [MySQL Connector/J](#)
- **Oracle SE-1** – [Oracle JDBC Driver](#)
- **Postgres** – [PostgreSQL JDBC Driver](#)
- **SQL Server** – [Microsoft JDBC Driver](#)

To use the JDBC driver, call `Class.forName()` to load it prior to creating the connection with `DriverManager.getConnection()` in your code.

JDBC uses a connection string in the following format:

```
jdbc:driver://hostname:port/dbName?user=userName&password=password
```

You can retrieve the hostname, port, database name, username and password from the environment variables that Elastic Beanstalk provides to your application. The driver name is specific to your database type and driver version. The following are some example driver names:

- `mysql` for MySQL
- `postgresql` for PostgreSQL
- `oracle:thin` for Oracle Thin
- `oracle:oci` for Oracle OCI
- `oracle:oci8` for Oracle OCI 8
- `oracle:kprb` for Oracle KPRB
- `sqlserver` for SQL Server

## Connecting to a Database (Java SE Platforms)

In a Java SE environment, use `System.getenv()` to read the connection variables from the environment. The following example code shows a class that creates a connection to a PostgreSQL database:

```
private static Connection getRemoteConnection() {
 if (System.getenv("RDS_HOSTNAME") != null) {
 try {
 Class.forName("org.postgresql.Driver");
 String dbName = System.getenv("RDS_DB_NAME");
 String userName = System.getenv("RDS_USERNAME");
 String password = System.getenv("RDS_PASSWORD");
 String hostname = System.getenv("RDS_HOSTNAME");
 String port = System.getenv("RDS_PORT");
 String jdbcUrl = "jdbc:postgresql://" + hostname + ":" + port + "/" +
 dbName + "?user=" + userName + "&password=" + password;
 logger.trace("Getting remote connection with connection string from
 environment variables.");
 Connection con = DriverManager.getConnection(jdbcUrl);
 logger.info("Remote connection successful.");
 }
 }
}
```

```
 return con;
 }
 catch (ClassNotFoundException e) { logger.warn(e.toString());}
 catch (SQLException e) { logger.warn(e.toString());}
 }
 return null;
}
```

## Connecting to a Database (Tomcat Platforms)

In a Tomcat environment, environment properties are provided as system properties accessible with `System.getProperty()`.

The following example code shows a class that creates a connection to a PostgreSQL database:

```
private static Connection getRemoteConnection() {
 if (System.getProperty("RDS_HOSTNAME") != null) {
 try {
 Class.forName("org.postgresql.Driver");
 String dbName = System.getProperty("RDS_DB_NAME");
 String userName = System.getProperty("RDS_USERNAME");
 String password = System.getProperty("RDS_PASSWORD");
 String hostname = System.getProperty("RDS_HOSTNAME");
 String port = System.getProperty("RDS_PORT");
 String jdbcUrl = "jdbc:postgresql://" + hostname + ":" + port + "/" +
 dbName + "?user=" + userName + "&password=" + password;
 logger.trace("Getting remote connection with connection string from
 environment variables.");
 Connection con = DriverManager.getConnection(jdbcUrl);
 logger.info("Remote connection successful.");
 return con;
 }
 catch (ClassNotFoundException e) { logger.warn(e.toString());}
 catch (SQLException e) { logger.warn(e.toString());}
 }
 return null;
}
```

If you have trouble getting a connection or running SQL statements, you can try placing the following code in a JSP. This code connects to a DB instance, creates a table and writes to it:

```
<%@ page import="java.sql.*" %>
<%
 // Read RDS connection information from the environment
 String dbName = System.getProperty("RDS_DB_NAME");
 String userName = System.getProperty("RDS_USERNAME");
 String password = System.getProperty("RDS_PASSWORD");
 String hostname = System.getProperty("RDS_HOSTNAME");
 String port = System.getProperty("RDS_PORT");
 String jdbcUrl = "jdbc:mysql://" + hostname + ":" +
 port + "/" + dbName + "?user=" + userName + "&password=" + password;

 // Load the JDBC driver
 try {
 System.out.println("Loading driver...");
 Class.forName("com.mysql.jdbc.Driver");
 System.out.println("Driver loaded!");
 }
```

```
 } catch (ClassNotFoundException e) {
 throw new RuntimeException("Cannot find the driver in the classpath!",
e);
 }

 Connection conn = null;
 Statement setupStatement = null;
 Statement readStatement = null;
 ResultSet resultSet = null;
 String results = "";
 int numresults = 0;
 String statement = null;

 try {
 // Create connection to RDS DB instance
 conn = DriverManager.getConnection(jdbcUrl);

 // Create a table and write two rows
 setupStatement = conn.createStatement();
 String createTable = "CREATE TABLE Beanstalk (Resource char(50));";
 String insertRow1 = "INSERT INTO Beanstalk (Resource) VALUES ('EC2
Instance')";
 String insertRow2 = "INSERT INTO Beanstalk (Resource) VALUES ('RDS
Instance')";

 setupStatement.addBatch(createTable);
 setupStatement.addBatch(insertRow1);
 setupStatement.addBatch(insertRow2);
 setupStatement.executeBatch();
 setupStatement.close();

 } catch (SQLException ex) {
 // handle any errors
 System.out.println("SQLException: " + ex.getMessage());
 System.out.println("SQLState: " + ex.getSQLState());
 System.out.println("VendorError: " + ex.getErrorCode());
 } finally {
 System.out.println("Closing the connection.");
 if (conn != null) try { conn.close(); } catch (SQLException ignore) {}
 }

 try {
 conn = DriverManager.getConnection(jdbcUrl);

 readStatement = conn.createStatement();
 resultSet = readStatement.executeQuery("SELECT Resource FROM
Beanstalk;");

 resultSet.first();
 results = resultSet.getString("Resource");
 resultSet.next();
 results += ", " + resultSet.getString("Resource");

 resultSet.close();
 readStatement.close();
 conn.close();

 } catch (SQLException ex) {
 // Handle any errors
```

```
System.out.println("SQLException: " + ex.getMessage());
System.out.println("SQLState: " + ex.getSQLState());
System.out.println("VendorError: " + ex.getErrorCode());
} finally {
 System.out.println("Closing the connection.");
 if (conn != null) try { conn.close(); } catch (SQLException ignore) {}
}
%>
```

Place the following code in the body of the html portion of the JSP file to display the results:

```
<p>Established connection to RDS. Read first two rows: <%= results %></p>
```

## Troubleshooting Database Connections

If you run into issues connecting to a database from within your application, consult the web container log and database.

### Reviewing Logs

You can view all of the logs from your Elastic Beanstalk environment from within Eclipse. If you don't have the AWS Explorer view open, choose the arrow next to the orange AWS icon in the toolbar, and then choose **Show AWS Explorer View**. Expand **AWS Elastic Beanstalk** and your environment name, and then open the context (right-click) menu for the server, and choose **Open in WTP Server Editor**.

Choose the **Log** tab of the **Server** view to see the aggregate logs from your environment. To open the latest logs, choose the **Refresh** button at the upper right corner of the page .

Scroll down to locate the Tomcat logs in `/var/log/tomcat7/catalina.out`. If you loaded the web page from our earlier example several times, you might see the following:

```

/var/log/tomcat7/catalina.out

INFO: Server startup in 9285 ms
Loading driver...
Driver loaded!
SQLException: Table 'Beanstalk' already exists
SQLState: 42S01
VendorError: 1050
Closing the connection.
Closing the connection.
```

All information that the web application sends to standard output appears in the web container log. In the above example, the application tries to create the table every time the page loads, resulting in catching a SQL exception on every page load after the first one.


As an example, the preceding is acceptable, but in actual applications, keep your database definitions in schema objects, perform transactions from within model classes, and coordinate requests with controller servlets.

### Connecting to an RDS DB Instance

You can connect directly to the RDS DB instance in your Elastic Beanstalk environment using the My SQL client application.



First, open the security group to your RDS DB instance to allow traffic from your computer.

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. Under **Network Tier**, in the **RDS** section, choose  (the gear icon).
5. Next to the **DB endpoint**, choose **View in RDS Console**.
6. On the **RDS Dashboard** instance details page, under **Security and Network**, choose the security group starting with *rds-* next to **Security Groups**.

**Note**

The database might have multiple entries labelled **Security Groups**. Use the first, which starts with *awseb*, only if you have an older account that does not have a default VPC.

7. In **Security group details**, choose the **Inbound** tab, and then choose **Edit**.
8. Add a rule for My SQL (port 3306) that allows traffic from your IP address, specified in CIDR format.
9. Choose **Save**. The changes take effect immediately.

Return to the Elastic Beanstalk configuration details for your environment and note the endpoint. You will use the domain name to connect to the RDS DB instance.

Install the MySQL client and initiate a connection to the database on port 3306. In Windows, install MySQL Workbench from the MySQL home page and follow the prompts.

In Linux, install the MySQL client using the package manager for your distribution. The following example works on Ubuntu and other Debian derivatives:

```
// Install My SQL client
$ sudo apt-get install mysql-client-5.5
...
// Connect to database
$ mysql -h aas839jo2vwhwb.cnubrrfwfka8.us-west-2.rds.amazonaws.com -
u username -ppassword ebdb
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 117
Server version: 5.5.40-log Source distribution
...
```

After you have connected, you can run SQL commands to see the status of the database, whether your tables and rows have been created, and other information.

```
mysql> SELECT Resource from Beanstalk;
+-----+
| Resource |
+-----+
| EC2 Instance |
| RDS Instance |
+-----+
2 rows in set (0.01 sec)
```

## Using the AWS Toolkit for Eclipse

The AWS Toolkit for Eclipse integrates AWS Elastic Beanstalk management features with your Tomcat development environment to facilitate environment creation, configuration, and code deployment. The toolkit includes support for multiple AWS accounts, managing existing environments, and connecting directly to instances in your environment for troubleshooting.

### Note

The AWS Toolkit for Eclipse only supports projects that use the Java with Tomcat platform, not the Java SE platform.

For more information about prerequisites and installing the AWS Toolkit for Eclipse, go to <http://aws.amazon.com/eclipse>. You can also check out the [Using AWS Elastic Beanstalk with the AWS Toolkit for Eclipse](#) video. This topic also provides useful information covering tools, how-to topics, and additional resources for Java developers.

## Importing Existing Environments into Eclipse

You can import existing environments that you created in the AWS Management Console into Eclipse.

To import existing environments, expand the **AWS Elastic Beanstalk** node and double-click on an environment in the **AWS Explorer** inside Eclipse. You can now deploy your Elastic Beanstalk applications to this environment.

## Managing Elastic Beanstalk Application Environments

### Topics

- [Changing Environment Configuration Settings \(p. 620\)](#)
- [Changing Environment Type \(p. 621\)](#)
- [Configuring EC2 Server Instances Using AWS Toolkit for Eclipse \(p. 621\)](#)
- [Configuring Elastic Load Balancing Using AWS Toolkit for Eclipse \(p. 624\)](#)
- [Configuring Auto Scaling Using AWS Toolkit for Eclipse \(p. 626\)](#)
- [Configuring Notifications Using AWS Toolkit for Eclipse \(p. 628\)](#)
- [Configuring Java Containers Using AWS Toolkit for Eclipse \(p. 628\)](#)
- [Setting System Properties with AWS Toolkit for Eclipse \(p. 629\)](#)

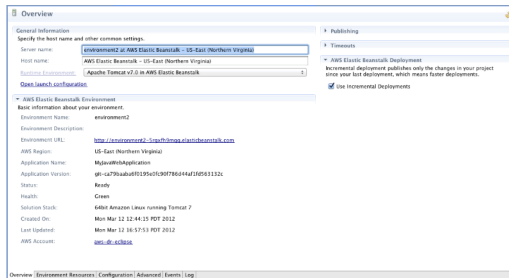
With the AWS Toolkit for Eclipse, you can change the provisioning and configuration of the AWS resources that are used by your application environments. For information on how to manage your application environments using the AWS Management Console, see [Managing Environments \(p. 51\)](#). This section discusses the specific service settings you can edit in the AWS Toolkit for Eclipse as part of your application environment configuration. For more about AWS Toolkit for Eclipse, see [AWS Toolkit for Eclipse Getting Started Guide](#).

## Changing Environment Configuration Settings

When you deploy your application, Elastic Beanstalk configures a number of AWS cloud computing services. You can control how these individual services are configured using the AWS Toolkit for Eclipse.

## To edit an application's environment settings

1. If Eclipse isn't displaying the **AWS Explorer** view, in the menu click **Window > Show View > AWS Explorer**. Expand the Elastic Beanstalk node and your application node.
2. In **AWS Explorer**, double-click your Elastic Beanstalk environment.
3. At the bottom of the pane, click the **Configuration** tab.

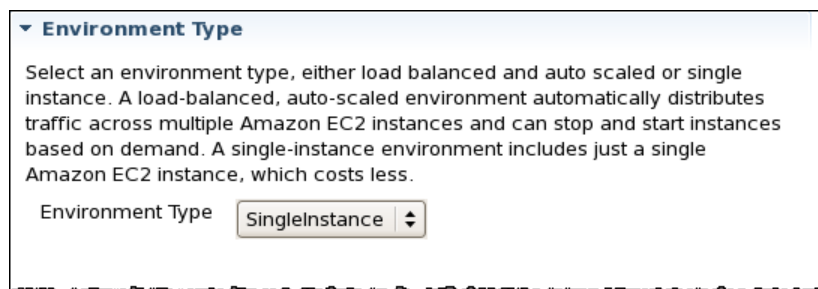


You can now configure settings for the following:

- EC2 server instances
- Load balancer
- Autoscaling
- Notifications
- Environment types
- Environment properties

## Changing Environment Type

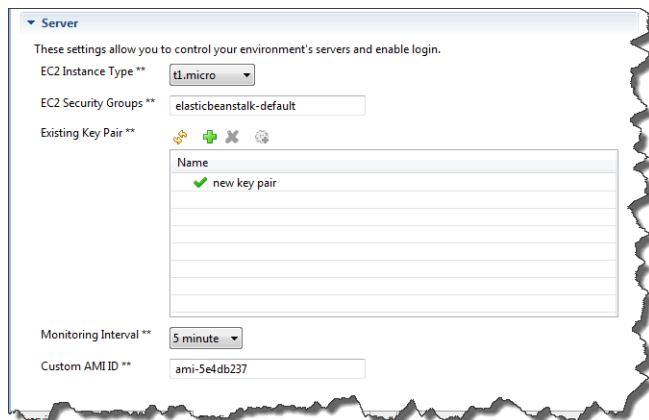
In AWS Toolkit for Eclipse, the **Environment Type** section of your environment's **Configuration** tab lets you select either **Load balanced, auto scaled** or a **Single instance** environment, depending on the requirements of the application that you deploy. For an application that requires scalability, select **Load balanced, auto scaled**. For a simple, low traffic application, select **Single instance**. For more information, see [Environment Types \(p. 120\)](#).



## Configuring EC2 Server Instances Using AWS Toolkit for Eclipse

Amazon Elastic Compute Cloud (EC2) is a web service for launching and managing server instances in Amazon's data centers. You can use Amazon EC2 server instances at any time, for as long as you need, and for any legal purpose. Instances are available in different sizes and configurations. For more information, go to the [Amazon EC2 product page](#).

Under **Server**, on your environment's **Configuration** tab inside the Toolkit for Eclipse, you can edit the Elastic Beanstalk environment's Amazon EC2 instance configuration.



## Amazon EC2 Instance Types

**Instance type** displays the instance types available to your Elastic Beanstalk application. Change the instance type to select a server with the characteristics (including memory size and CPU power) that are most appropriate to your application. For example, applications with intensive and long-running operations may require more CPU or memory. Elastic Beanstalk regularly checks your running instances to ensure they are healthy. If your application consumes 95 percent or greater of the CPU, Elastic Beanstalk will trigger an event. For more information about this event, see [CPU Utilization Exceeds 95.00%](#) (p. 810).

### Note

You cannot change between 32-bit and 64-bit instance types. For example, if your application is built on a 32-bit platform, only 32-bit instance types appear in the list.

For more information about the Amazon EC2 instance types available for your Elastic Beanstalk application, see [Instance Types](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Amazon EC2 Security Groups

You can control access to your Elastic Beanstalk application using an *Amazon EC2 Security Group*. A security group defines firewall rules for your instances. These rules specify which ingress (i.e., incoming) network traffic should be delivered to your instance. All other ingress traffic will be discarded. You can modify rules for a group at any time. The new rules are automatically enforced for all running instances and instances launched in the future.

You can set up your Amazon EC2 security groups using the AWS Management Console or by using the AWS Toolkit for Eclipse. You can specify which Amazon EC2 security groups control access to your Elastic Beanstalk application by entering the names of one or more Amazon EC2 security group names (delimited by commas) into the **EC2 Security Groups** box.

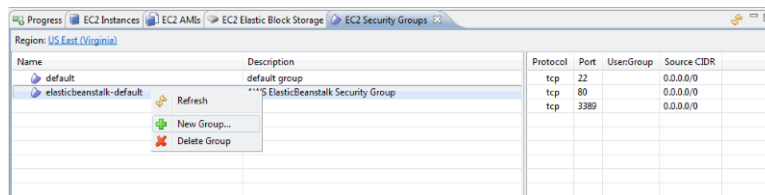
### Note

If you are running your application using a legacy container type, make sure port 80 (HTTP) is accessible from 0.0.0.0/0 as the source CIDR range if you want to enable health checks for your application. For more information about health checks, see [Health Checks](#) (p. 625). To check if you are using a legacy container type, see [Why are some container types marked legacy?](#) (p. 117).

### To create a security group using the AWS Toolkit for Eclipse

1. In the AWS Toolkit for Eclipse, click **AWS Explorer** tab. Expand the **Amazon EC2** node, and then double-click **Security Groups**.

2. Right-click anywhere in the left table, and then click **New Group**.



3. In the **Security Group** dialog box, type the security group name and description and then click **OK**.

For more information on Amazon EC2 Security Groups, see [Using Security Groups](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Amazon EC2 Key Pairs

You can securely log in to the Amazon EC2 instances provisioned for your Elastic Beanstalk application with an Amazon EC2 key pair.

### Important

You must create an Amazon EC2 key pair and configure your Elastic Beanstalk-provisioned Amazon EC2 instances to use the Amazon EC2 key pair before you can access your Elastic Beanstalk-provisioned Amazon EC2 instances. You can create your key pair using the **Publish to Beanstalk Wizard** inside AWS Toolkit for Eclipse when you deploy your application to Elastic Beanstalk. Alternatively, you can set up your Amazon EC2 key pairs using the [AWS Management Console](#). For instructions on creating a key pair for Amazon EC2, see the [Amazon Elastic Compute Cloud Getting Started Guide](#).

For more information on Amazon EC2 key pairs, go to [Using Amazon EC2 Credentials](#) in the *Amazon Elastic Compute Cloud User Guide*. For more information on connecting to Amazon EC2 instances, go to [Connecting to Instances](#) and [Connecting to a Linux/UNIX Instance from Windows using PuTTY](#) in the *Amazon Elastic Compute Cloud User Guide*.

## CloudWatch Metrics

By default, only basic Amazon CloudWatch metrics are enabled; they return data in five-minute periods. You can enable more granular one-minute CloudWatch metrics by selecting **1 minute** for the **Monitoring Interval** in the **Server** section of the **Configuration** tab for your environment in the AWS Toolkit for Eclipse.

### Note

Amazon CloudWatch service charges can apply for one-minute interval metrics. See [Amazon CloudWatch](#) for more information.

## Custom AMI ID

You can override the default AMI used for your Amazon EC2 instances with your own custom AMI by entering the identifier of your custom AMI into the **Custom AMI ID** box in the **Server** section of the **Configuration** tab for your environment in the AWS Toolkit for Eclipse.

### Important

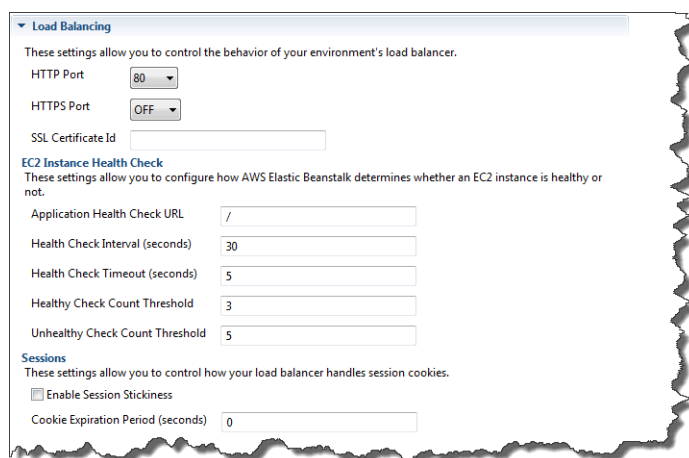
Using your own AMI is an advanced task and should be done with care. If you need a custom AMI, we recommend you start with the default Elastic Beanstalk AMI and then modify it. To be considered healthy, Elastic Beanstalk expects Amazon EC2 instances to meet a set of requirements, including having a running host manager. If these requirements are not met, your environment might not work properly.

## Configuring Elastic Load Balancing Using AWS Toolkit for Eclipse

Elastic Load Balancing is an Amazon web service that improves the availability and scalability of your application. With Elastic Load Balancing, you can distribute application loads between two or more Amazon EC2 instances. Elastic Load Balancing improves availability through redundancy, and it supports traffic growth for your application.

Elastic Load Balancing automatically distributes and balances incoming application traffic among all the EC2 server instances you are running. The service also makes it easy to add new instances when you need to increase the capacity of your application.

Elastic Beanstalk automatically provisions Elastic Load Balancing when you deploy an application. Under **Load Balancing**, on the **Configuration** tab for your environment inside the Toolkit for Eclipse, you can edit the Elastic Beanstalk environment's load balancing configuration.



**Load Balancing**

These settings allow you to control the behavior of your environment's load balancer.

HTTP Port: 80

HTTPS Port: OFF

SSL Certificate Id:

**EC2 Instance Health Check**

These settings allow you to configure how AWS Elastic Beanstalk determines whether an EC2 instance is healthy or not.

Application Health Check URL: /

Health Check Interval (seconds): 30

Health Check Timeout (seconds): 5

Healthy Check Count Threshold: 3

Unhealthy Check Count Threshold: 5

**Sessions**

These settings allow you to control how your load balancer handles session cookies.

Enable Session Stickiness

Cookie Expiration Period (seconds): 0

The following sections describe the Elastic Load Balancing parameters you can configure for your application.

### Ports

The load balancer provisioned to handle requests for your Elastic Beanstalk application sends requests to the Amazon EC2 instances that are running your application. The provisioned load balancer can listen for requests on HTTP and HTTPS ports and route requests to the Amazon EC2 instances in your AWS Elastic Beanstalk application. By default, the load balancer handles requests on the HTTP port. At least one of the ports (either HTTP or HTTPS) must be turned on.



These settings allow you to control the behavior of your environment's load balancer.

HTTP Port: 80

HTTPS Port: 443

SSL Certificate Id: arn:aws:iam::123456789012:/server-ce

**EC2 Instance Health Check**

### Important

Make sure that the port you specified is not locked down; otherwise, users will not be able to connect to your Elastic Beanstalk application.

### Controlling the HTTP port

To turn off the HTTP port, you select OFF for **HTTP Listener Port**. To turn on the HTTP port, you select an HTTP port (for example, **80**).

### Note

If you want to access your environment using a different port other than the default port 80 (e.g., port 8080), you can add a listener to the existing load balancer and configure the new listener to listen on that port. For example, using the [Elastic Load Balancing API Tools](#), type the following command replacing `<yourloadbalancename>` with the name of your load balancer for Elastic Beanstalk.

```
elb-create-lb-listeners --lb <yourloadbalancename> --listener
"protocol=http, lb-port=8080, instance-port=80"
```

If you want Elastic Beanstalk to monitor your environment, do not remove the listener on port 80.

## Controlling the HTTPS port

Elastic Load Balancing supports the HTTPS/TLS protocol to enable traffic encryption for client connections to the load balancer. Connections from the load balancer to the EC2 instances are done using plain text. By default, the HTTPS port is turned off.

### To turn on the HTTPS port

1. Create and upload a certificate and key to the AWS Identity and Access Management (IAM) service. The IAM service will store the certificate and provide an Amazon Resource Name (ARN) for the SSL certificate you've uploaded. For more information on creating and uploading certificates, see the [Managing Server Certificates](#) section of *Using AWS Identity and Access Management*.
2. Specify the HTTPS port by selecting a port from the **HTTPS Listener Port** drop-down list.
3. In the **SSL Certificate ID** text box, enter the Amazon Resources Name (ARN) of your SSL certificate (e.g., `arn:aws:iam::123456789012:server-certificate/abc/certs/build`). Use the SSL certificate that you created and uploaded in step 1. For information on viewing the certificate's ARN, see [Verify the Certificate Object](#) topic in the *Creating and Uploading Server Certificates* section of the *Using IAM Guide*.

To turn off the HTTPS port, select **OFF** for **HTTPS Listener Port**.

## Health Checks

You can control the settings for the health check using the **EC2 Instance Health Check** section of the **Load Balancing** panel.

EC2 Instance Health Check	
These settings allow you to configure how AWS Elastic Beanstalk determines whether an EC2 instance is healthy or not.	
Application Health Check URL	/
Health Check Interval (seconds)	30
Health Check Timeout (seconds)	5
Healthy Check Count Threshold	3
Unhealthy Check Count Threshold	5

The following list describes the health check parameters you can set for your application.

- To determine instance health, Elastic Beanstalk looks for a 200 response code on a URL it queries. By default, Elastic Beanstalk checks TCP:80 for nonlegacy containers and HTTP:80 for legacy containers. You can override to match an existing resource in your application (e.g., `/myapp/index.jsp`) by entering it in the **Application Health Check URL** box. If you override the default

URL, Elastic Beanstalk uses HTTP to query the resource. To check if you are using a legacy container type, see [Why are some container types marked legacy? \(p. 117\)](#).

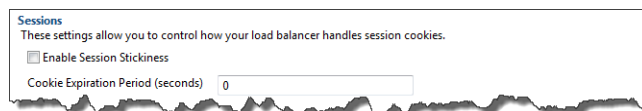
- For **Health Check Interval (seconds)**, enter the number of seconds between your application's Amazon EC2 instances health checks.
- For **Health Check Timeout**, specify the number of seconds for Elastic Load Balancing to wait for a response before it considers an instance unresponsive.
- Use the **Healthy Check Count Threshold** and **Unhealthy Check Count Threshold** boxes, specify the number of consecutive successful or unsuccessful URL probes before Elastic Load Balancing changes the instance health status. For example, specifying 5 in the **Unhealthy Check Count Threshold** text box means that the URL would have to return an error message or timeout five consecutive times before Elastic Load Balancing considers the health check "failed."

## Sessions

By default, a load balancer routes each request independently to the server instance with the smallest load. By comparison, a sticky session binds a user's session to a specific server instance so that all requests coming from the user during the session are sent to the same server instance.

Elastic Beanstalk uses load balancer-generated HTTP cookies when sticky sessions are enabled for an application. The load balancer uses a special load balancer-generated cookie to track the application instance for each request. When the load balancer receives a request, it first checks to see if this cookie is present in the request. If so, the request is sent to the application instance specified in the cookie. If it finds no cookie, the load balancer chooses an application instance based on the existing load balancing algorithm. A cookie is inserted into the response for binding subsequent requests from the same user to that application instance. The policy configuration defines a cookie expiry, which establishes the duration of validity for each cookie.

Under **Load Balancer** in the **Sessions** section, specify whether or not the load balancer for your application allows session stickiness and the duration for each cookie.



For more information on Elastic Load Balancing, go to the [Elastic Load Balancing Developer Guide](#).

## Configuring Auto Scaling Using AWS Toolkit for Eclipse

Auto Scaling is an Amazon web service designed to automatically launch or terminate Amazon EC2 instances based on user-defined triggers. Users can set up *Auto Scaling groups* and associate *triggers* with these groups to automatically scale computing resources based on metrics such as bandwidth usage or CPU utilization. Auto Scaling works with Amazon CloudWatch to retrieve metrics for the server instances running your application.

Auto Scaling lets you take a group of Amazon EC2 instances and set various parameters to have this group automatically increase or decrease in number. Auto Scaling can add or remove Amazon EC2 instances from that group to help you seamlessly deal with traffic changes to your application.

Auto Scaling also monitors the health of each Amazon EC2 instance that it launches. If any instance terminates unexpectedly, Auto Scaling detects the termination and launches a replacement instance. This capability enables you to maintain a fixed, desired number of Amazon EC2 instances automatically.

Elastic Beanstalk provisions Auto Scaling for your application. Under **Auto Scaling**, on your environment's **Configuration** tab inside the Toolkit for Eclipse, you can edit the Elastic Beanstalk environment's Auto Scaling configuration.



**Auto Scaling**

Auto-scaling automatically launches or terminates EC2 instances based on defined metrics and thresholds called triggers. Auto-scaling will also launch a new EC2 instance in the event of a failure. These settings allow you to control auto-scaling behavior.

Minimum Instance Count	1
Maximum Instance Count	4
Availability Zones	Any 1
Scaling Cooldown Time (seconds)	360

**Scaling Trigger**

Trigger Measurement	NetworkOut
Trigger Statistic	Average
Unit of Measurement	Bytes
Measurement Period (seconds)	5
Breach Duration (seconds)	5
Upper Threshold	6000000
Scale-up Increment	1
Lower Threshold	2000000
Scale-down Increment	-1

The following sections discuss how to configure Auto Scaling parameters for your application.

## Launch Configuration

You can edit the launch configuration to control how your Elastic Beanstalk application provisions Auto Scaling resources.

Use the **Minimum Instance Count** and **Maximum Instance Count** settings to specify the minimum and maximum size of the Auto Scaling group that your Elastic Beanstalk application uses.

Minimum Instance Count	1
Maximum Instance Count	4
Availability Zones	Any 1
Scaling Cooldown Time (seconds)	360

### Note

To maintain a fixed number of Amazon EC2 instances, set the **Minimum Instance Count** and **Maximum Instance Count** text boxes to the same value.

For **Availability Zones**, specify the number of Availability Zones you want your Amazon EC2 instances to be in. It is important to set this number if you want to build fault-tolerant applications: If one Availability Zone goes down, your instances will still be running in your other Availability Zones.

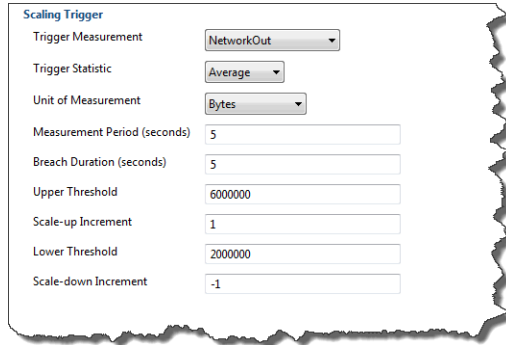
### Note

Currently, it is not possible to specify which Availability Zone your instance will be in.

## Triggers

A *trigger* is an Auto Scaling mechanism that you set to tell the system when to increase (*scale out*) and decrease (*scale in*) the number of instances. You can configure triggers to *fire* on any metric published to Amazon CloudWatch, such as CPU utilization, and determine whether the specified conditions have been met. When your upper or lower thresholds for the metric have been breached for the specified period of time, the trigger launches a long-running process called a *scaling activity*.

You can define a scaling trigger for your Elastic Beanstalk application using the AWS Toolkit for Eclipse.



Scaling Trigger	
Trigger Measurement	NetworkOut
Trigger Statistic	Average
Unit of Measurement	Bytes
Measurement Period (seconds)	5
Breach Duration (seconds)	5
Upper Threshold	6000000
Scale-up Increment	1
Lower Threshold	2000000
Scale-down Increment	-1

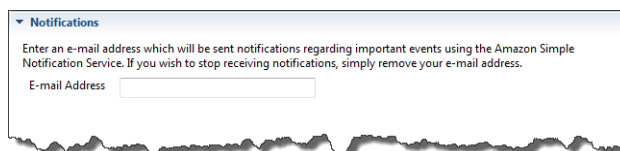
You can configure the following list of trigger parameters in the **Scaling Trigger** section of the **Configuration** tab for your environment inside the Toolkit for Eclipse.

- For **Trigger Measurement**, specify the metric for your trigger.
- For **Trigger Statistic**, specify which statistic the trigger will use—**Minimum**, **Maximum**, **Sum**, or **Average**.
- For **Unit of Measurement**, specify the units for the trigger measurement.
- For **Measurement Period**, specify how frequently Amazon CloudWatch measures the metrics for your trigger. For **Breach Duration**, specify the amount of time a metric can be beyond its defined limit (as specified for **Upper Threshold** and **Lower Threshold**) before the trigger fires.
- For **Scale-up Increment** and **Scale-down Increment**, specify how many Amazon EC2 instances to add or remove when performing a scaling activity.

For more information on Auto Scaling, go to the [Auto Scaling documentation](#).

## Configuring Notifications Using AWS Toolkit for Eclipse

Elastic Beanstalk uses the Amazon Simple Notification Service (Amazon SNS) to notify you of important events affecting your application. To enable Amazon SNS notifications, simply enter your email address in the **Email Address** text box under **Notifications** on the **Configuration** tab for your environment inside the Toolkit for Eclipse. To disable Amazon SNS notifications, remove your email address from the text box.



▼ Notifications

Enter an e-mail address which will be sent notifications regarding important events using the Amazon Simple Notification Service. If you wish to stop receiving notifications, simply remove your e-mail address.

E-mail Address

## Configuring Java Containers Using AWS Toolkit for Eclipse

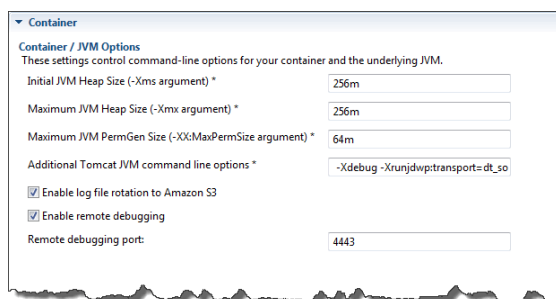
The **Container/JVM Options** panel lets you fine-tune the behavior of the Java Virtual Machine on your Amazon EC2 instances and enable or disable Amazon S3 log rotation. You can use the AWS Toolkit for Eclipse to configure your container information. For more information on the options available for Tomcat environments, see [Configuring Your Tomcat Environment in the AWS Management Console](#) (p. 601)

### Note

You can modify your configuration settings with zero downtime by swapping the CNAME for your environments. For more information, see [Blue/Green Deployments with AWS Elastic Beanstalk](#) (p. 103).

### To access the Container/JVM Options panel for your Elastic Beanstalk application

1. If Eclipse isn't displaying the **AWS Explorer** view, in the menu click **Window > Show View > AWS Explorer**. Expand the Elastic Beanstalk node and your application node.
2. In the **AWS Explorer**, double-click your Elastic Beanstalk environment.
3. At the bottom of the pane, click the **Configuration** tab.
4. Under **Container**, you can configure container options.



## Remote Debugging

To test your application remotely, you can run your application in debug mode.

### To enable remote debugging

1. Select **Enable remote debugging**.
2. For **Remote debugging port**, specify the port number to use for remote debugging.

The **Additional Tomcat JVM command line options** setting is filled automatically.

### To start remote debugging

1. In the AWS Toolkit for Eclipse menu, click **Window > Show View > Other**.
2. Expand the **Server** folder, and then click **Servers**. Click **OK**.
3. In the **Servers** pane, right-click the server your application is running on, and then click **Restart in Debug**.

## Setting System Properties with AWS Toolkit for Eclipse

The following example sets the `JDBC_CONNECTION_STRING` system property in the AWS Toolkit for Eclipse. After you set this properties, it becomes available to your Elastic Beanstalk application as system properties called `JDBC_CONNECTION_STRING`.

### Note

The AWS Toolkit for Eclipse does not yet support modifying environment configuration, including system properties, for environments in a VPC. Unless you have an older account using EC2 Classic, you must use the AWS Management Console (described in the next section) or the [EB CLI \(p. 416\)](#)

### Note

Environment configuration settings can contain any printable ASCII character except the grave accent ( ` , ASCII 96) and cannot exceed 200 characters in length.

### To set system properties for your Elastic Beanstalk application

1. If Eclipse isn't displaying the **AWS Explorer** view, choose **Window, Show View, Other**. Expand **AWS Toolkit** and then click **AWS Explorer**.
2. In the **AWS Explorer** pane, expand **Elastic Beanstalk**, expand the node for your application, and then double-click your Elastic Beanstalk environment.
3. At the bottom of the pane for your environment, click the **Advanced** tab.
4. Under **aws:elasticbeanstalk:application:environment**, click **JDBC\_CONNECTION\_STRING** and then type a connection string. For example, the following JDBC connection string would connect to a MySQL database instance on port 3306 of localhost, with a user name of `me` and a password of `mypassword`:

```
jdbc:mysql://localhost:3306/mydatabase?user=me&password=mypassword
```

This will be accessible to your Elastic Beanstalk application as a system property called `JDBC_CONNECTION_STRING`.

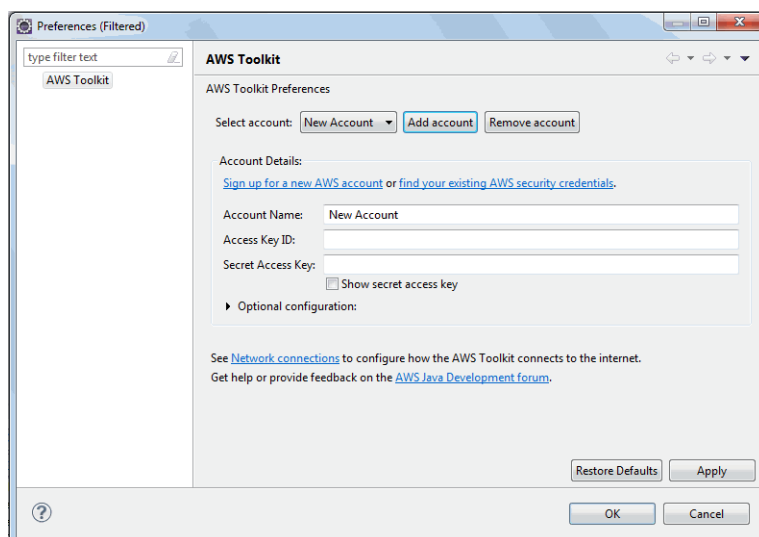
5. Press **Ctrl+S** on the keyboard or choose **File, Save** to save your changes to the environment configuration. Changes are reflected in about one minute.

## Managing Multiple AWS Accounts

You might want to set up different AWS accounts to perform different tasks, such as testing, staging, and production. You can use the AWS Toolkit for Eclipse to add, edit, and delete accounts easily.

### To add an AWS account with the AWS Toolkit for Eclipse

1. In Eclipse, make sure the toolbar is visible. On the toolbar, click the arrow next to the AWS icon and select **Preferences**.
2. Click **Add account**.



3. In the **Account Name** text box, type the display name for the account.
4. In the **Access Key ID** text box, type your AWS access key ID.
5. In the **Secret Access Key** text box, type your AWS secret key.

For API access, you need an access key ID and secret access key. Use IAM user access keys instead of AWS root account access keys. IAM lets you securely control access to AWS services and resources in your AWS account. For more information about creating access keys, see [How Do I Get Security Credentials?](#) in the *AWS General Reference*.

6. Click **OK**.

### To use a different account to deploy an application to Elastic Beanstalk

1. In the Eclipse toolbar, click the arrow next to the AWS icon and select **Preferences**.
2. For **Default Account**, select the account you want to use to deploy applications to Elastic Beanstalk.
3. Click **OK**.
4. In the **Project Explorer** pane, right-click the application you want to deploy, and then select **Amazon Web Services > Deploy to Elastic Beanstalk**.

## Viewing Events

You can use the AWS Toolkit for Eclipse to access events and notifications associated with your application. For more details on the most common events, see [Understanding Environment Events \(p. 809\)](#).

### To view application events

1. If Eclipse isn't displaying the **AWS Explorer** view, in the menu click **Window > Show View > AWS Explorer**. Expand the Elastic Beanstalk node and your application node.
2. In the AWS Explorer, double-click your Elastic Beanstalk environment.
3. At the bottom of the pane, click the **Events** tab.

A list of the events for all environments for your application is displayed.

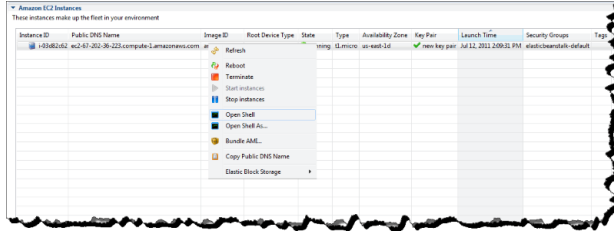
Message	Version	Date
Successfully launched environment: myjavawebappenv.	First Release	Tue Jul 12 12:18:41 PDT 2011
Application available at myjavawebappenv.elasticbeanstalk.com.	First Release	Tue Jul 12 12:18:39 PDT 2011
Adding instance i-0d0a86c to your environment.	First Release	Tue Jul 12 12:18:17 PDT 2011
Added EC2 instance i-0d0a86c to Auto Scaling Group 'awselb-myjavawebappenv-dPpEoFom'.	First Release	Tue Jul 12 12:17:08 PDT 2011
An EC2 instance has been launched. Waiting for it to be added to Auto Scaling...	First Release	Tue Jul 12 12:17:00 PDT 2011
Waiting for an EC2 instance to be launched...	First Release	Tue Jul 12 12:16:38 PDT 2011
Added Elastic Load Balancer 'awselb-myjavawebappenv' to your environment.	First Release	Tue Jul 12 12:16:37 PDT 2011
Added URLCheck healthcheck for 'http://myjavawebappenv.elasticbeanstalk.com/80/'	First Release	Tue Jul 12 12:16:37 PDT 2011
Adding Auto Scaling Group 'awselb-myjavawebappenv-dPpEoFom' to your environment.	First Release	Tue Jul 12 12:16:36 PDT 2011
Created Auto Scaling trigger named: awselb-myjavawebappenv-dPpEoFom.	First Release	Tue Jul 12 12:16:35 PDT 2011
Created Auto Scaling group named: awselb-myjavawebappenv-dPpEoFom.	First Release	Tue Jul 12 12:16:34 PDT 2011
Created Auto Scaling launch configuration named: awselb-myjavawebappenv-DKMT8VQJL.	First Release	Tue Jul 12 12:16:32 PDT 2011
Created load balancer named: awselb-myjavawebappenv.	First Release	Tue Jul 12 12:16:31 PDT 2011
Using elasticbeanstalk-us-east-1-049020475370 as Amazon S3 storage bucket for environment data.	First Release	Tue Jul 12 12:16:29 PDT 2011
createEnvironment is starting.	First Release	Tue Jul 12 12:16:27 PDT 2011

## Listing and Connecting to Server Instances

You can view a list of Amazon EC2 instances running your Elastic Beanstalk application environment through the AWS Toolkit for Eclipse or from the AWS Management Console. You can connect to these instances using Secure Shell (SSH). For information about listing and connecting to your server instances using the AWS Management Console, see [Listing and Connecting to Server Instances \(p. 318\)](#). The following section steps you through viewing and connecting you to your server instances using the AWS Toolkit for Eclipse.

### To view and connect to Amazon EC2 instances for an environment

1. In the AWS Toolkit for Eclipse, click **AWS Explorer**. Expand the **Amazon EC2** node, and then double-click **Instances**.
2. In the Amazon EC2 Instances window, in the **Instance ID** column, right-click the **Instance ID** for the Amazon EC2 instance running in your application's load balancer. Then click **Open Shell**.



Eclipse automatically opens the SSH client and makes the connection to the EC2 instance.

For more information on connecting to an Amazon EC2 instance, see the [Amazon Elastic Compute Cloud Getting Started Guide](#).

## Terminating an Environment

To avoid incurring charges for unused AWS resources, you can use the AWS Toolkit for Eclipse to terminate a running environment.

### Note

You can always launch a new environment using the same version later.

### To terminate an environment

1. In the AWS Toolkit for Eclipse, click the **AWS Explorer** pane. Expand the **Elastic Beanstalk** node.
2. Expand the Elastic Beanstalk application and right-click on the Elastic Beanstalk environment.
3. Click **Terminate Environment**. It will take a few minutes for Elastic Beanstalk to terminate the AWS resources running in the environment.

## Resources

There are several places you can go to get additional help when developing your Java applications.

Resource	Description
<a href="#">The AWS Java Development Forum</a>	Post your questions and get feedback.
<a href="#">Java Developer Center</a>	One-stop shop for sample code, documentation, tools, and additional resources.

# Creating and Deploying Elastic Beanstalk Applications in .NET Using AWS Toolkit for Visual Studio

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Elastic Beanstalk for .NET makes it easier to deploy, manage, and scale your ASP.NET web applications that use Amazon Web Services. Elastic Beanstalk for .NET is available to anyone who is developing or hosting a web application that uses IIS.

**Get started now:** To get started with a tutorial, you can go directly to [Tutorial: How to Deploy a .NET Sample Application Using AWS Elastic Beanstalk \(p. 645\)](#). In this tutorial, you will deploy a sample ASP.NET Web Application to an AWS Elastic Beanstalk application container.

The rest of this section presents instructions for creating, testing, deploying, and redeploying your ASP.NET web application to Elastic Beanstalk using the AWS Toolkit for Visual Studio. The second part explains how to manage and configure your applications and environments using the AWS Toolkit for Visual Studio. For more information about prerequisites, installation instructions, and running code samples, go to the [AWS Toolkit for Microsoft Visual Studio](#). This site also provides useful information about tools, how-to topics, and additional resources for ASP.NET developers.

**Note**

This platform does not support worker environments, enhanced health reporting, managed updates, bundle logs or immutable updates.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

**Topics**

- [Getting Started with .NET on Elastic Beanstalk \(p. 634\)](#)
- [Setting Up your .NET Development Environment \(p. 636\)](#)
- [Configuring .NET Environments with Elastic Beanstalk \(p. 636\)](#)
- [Tutorial: How to Deploy a .NET Sample Application Using AWS Elastic Beanstalk \(p. 645\)](#)
- [Deploying an ASP.NET Core Application with AWS Elastic Beanstalk \(p. 658\)](#)
- [Adding a Database \(p. 666\)](#)

- [The AWS Toolkit for Visual Studio \(p. 668\)](#)
- [Resources \(p. 693\)](#)

## Getting Started with .NET on Elastic Beanstalk

To get started with .NET applications on AWS Elastic Beanstalk, all you need is an application [source bundle \(p. 43\)](#) to upload as your first application version and to deploy to an environment. When you create an environment, Elastic Beanstalk allocates all of the AWS resources needed to run a highly scalable web application.

### Launching an Environment with a Sample .NET Application

Elastic Beanstalk provides single page sample applications for each platform as well as more complex examples that show the use of additional AWS resources such as Amazon RDS and language or platform-specific features and APIs.

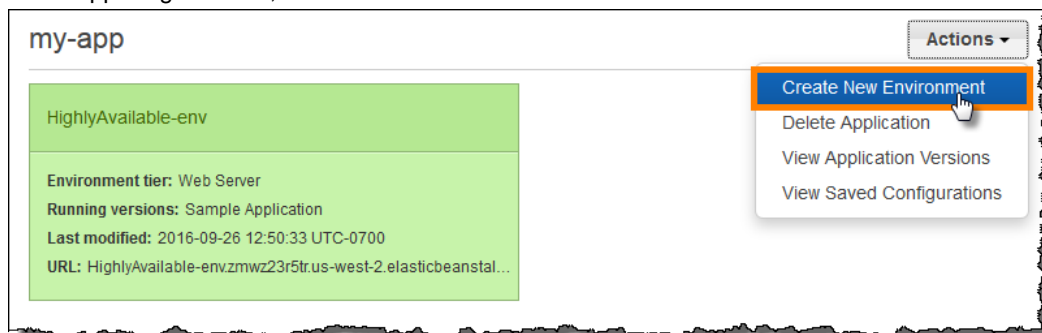
#### Samples

Name	Supported Configurations	Environment Type	Source	Description
.NETWS 2012 R2 Default	WS 2012 R2 Server Core WS 2012 WS 2008 R2	Web Server	dotnet-asp-v1.zip	ASP.NET web application with a single page configured to be displayed at the website root.
ASP.NET MVC5	WS 2012 R2	Web Server	dotnet-aspmvc5-v1.zip	

Download any of the sample applications and deploy it to Elastic Beanstalk by following these steps:

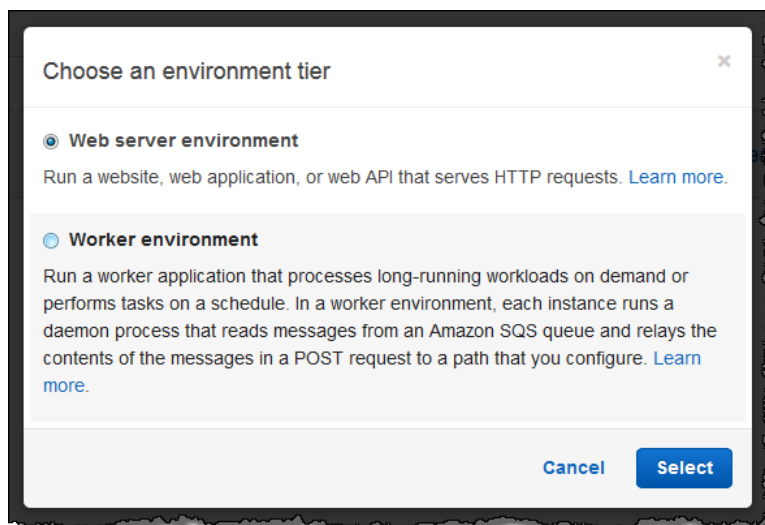
#### To launch an environment with a sample application (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one \(p. 36\)](#).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.





4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

**Note**

Elastic Beanstalk supports multiple [configurations](#) (p. 24) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk](#) (p. 24). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Sample application**.
7. If you would like to further customize your environment, choose **Configure more options**. The following options can only be set during environment creation:
  - Environment name
  - Domain name
  - Platform configuration
  - VPC
  - Tier

The following settings can be changed after environment creation, but require new instances or other resources to be provisioned and can take a long time to apply:

- Instance type, root volume, key pair, and IAM role
- Internal RDS database
- Load balancer

For details on all available settings, see [The Create New Environment Wizard](#) (p. 63).

8. Choose **Create environment**.

## Next Steps

After you have an environment running an application, you can [deploy a new version](#) (p. 98) of the application or a completely different application at any time. Deploying a new application version is very quick because it doesn't require provisioning or restarting EC2 instances.

After you've deployed a sample application or two and are ready to start developing locally, see [the next section \(p. 636\)](#) to set up a .NET development environment.

## Setting Up your .NET Development Environment

Set up a .NET development environment to test your application locally prior to deploying it to AWS Elastic Beanstalk. This topic outlines development environment setup steps and links to installation pages for useful tools.

For common setup steps and tools that apply to all languages, see [Configuring your development environment for use with AWS Elastic Beanstalk \(p. 413\)](#).

### Sections

- [Installing an IDE \(p. 636\)](#)
- [Installing the AWS Toolkit for Visual Studio \(p. 636\)](#)

If you need to manage AWS resources from within your application, install the AWS SDK for .NET. For example, you can use Amazon S3 to store and retrieve data.

With the AWS SDK for .NET, you can get started in minutes with a single, downloadable package complete with Visual Studio project templates, the AWS .NET library, C# code samples, and documentation. Practical examples are provided in C# for how to use the libraries to build applications. Online video tutorials and reference documentation are provided to help you learn how to use the libraries and code samples.

Visit the [AWS SDK for .NET homepage](#) for more information and installation instructions.

## Installing an IDE

Integrated development environments (IDEs) provide a wide range of features that facilitate application development. If you haven't used an IDE for .NET development, try Visual Studio Community to get started.

Visit the [Visual Studio Community homepage](#) to download and install Visual Studio Community.

## Installing the AWS Toolkit for Visual Studio

The [AWS Toolkit for Visual Studio \(p. 668\)](#) is an open source plug-in for the Visual Studio IDE that makes it easier for developers to develop, debug, and deploy .NET applications using AWS. Visit the [Toolkit for Visual Studio homepage](#) for installation instructions.

## Configuring .NET Environments with Elastic Beanstalk

### Migrating to v1 Elastic Beanstalk Windows Server Platforms

Version 1.0.0 of AWS Elastic Beanstalk's Windows Server based platforms was released in October 2015. This version changes the order in which Elastic Beanstalk processes commands in [\(configuration files \(p. 178\)\)](#) during environment creation and updates.

Previous platform versions do not have a version number in the solution stack name:

- 64bit Windows Server 2012 R2 running IIS 8.5
- 64bit Windows Server Core 2012 R2 running IIS 8.5
- 64bit Windows Server 2012 running IIS 8
- 64bit Windows Server 2008 R2 running IIS 7.5

In previous versions, the processing order for configuration files is inconsistent. During environment creation, `Container Commands` run after the application source is deployed to IIS. During a deployment to a running environment, container commands run before the new version is deployed. During a scale up, configuration files are not processed at all.

In addition to this, IIS starts up before container commands run. This behavior has led some customers to implement workarounds in container commands, pausing the IIS server prior to commands running and starting it again after they complete.

Version 1 fixes the inconsistency and brings the Windows Server platforms' behavior in line with Elastic Beanstalk's Linux-based platforms. In v1 platforms, Elastic Beanstalk always runs container commands prior to starting the IIS server.

Version 1 platforms have a `v1` after the Windows Server version:

- 64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5
- 64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5
- 64bit Windows Server 2012 v1.1.0 running IIS 8
- 64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5

Additionally, v1 platforms extract the contents of your application source bundle to `C:\staging\` prior to running container commands. After container commands complete, the contents of this folder are zipped up and deployed to IIS. This workflow allows you to modify the contents of your application source bundle with commands or a script prior to deployment.

If you currently use container commands on an older platform, remove any commands that you added to work around the processing inconsistencies when you move to v1. In v1, container commands are guaranteed to run completely prior to the application source being deployed and IIS starting up, so you can make any changes to source in `C:\staging` and modify IIS configuration files during this step without issue.

For example, you can use the AWS CLI to download a DLL file to your application source from Amazon S3:

```
.ebextensions\copy-dll.config
```

```
container_commands:
 copy-dll:
 command: aws s3 cp s3://my-bucket/dlls/large-dll.dll .\lib\
```

For more information on using configuration files, see [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178).

## Running Multiple Applications and ASP.NET Core Applications with a Deployment Manifest

You can use a deployment manifest to tell Elastic Beanstalk how to deploy your application. For example, instead of using MSDeploy to generate a source bundle for a single ASP.NET application that runs at the root path of your website, you can use a manifest file to run multiple applications at

different paths, or tell Elastic Beanstalk to deploy and run the app with ASP.NET Core. You can also use a deployment manifest to configure an application pool in which to run your applications.

Deployment manifests add support for [.NET Core applications \(p. 638\)](#) to Elastic Beanstalk. You can deploy a .NET Standard application without a deployment manifest, but .NET Core applications require a deployment manifest to run on Elastic Beanstalk. When you use a deployment manifest, you create a site archive for each application and then bundle the site archives in a second ZIP archive that contains the deployment manifest.

Deployment manifests also add the ability to [run multiple applications at different paths \(p. 640\)](#). A deployment manifest defines an array of deployment targets, each with a site archive and a path at which IIS should run it. For example, you could run a web API at the `/api` path to serve asynchronous requests, and a web app at the root path that consumes the API.

You can also use a deployment manifest to [create application pools in IIS \(p. 641\)](#) in which to run one or more applications. You can configure an application pool to restart your applications periodically, run 32-bit applications, or use a specific version of the .NET Framework runtime.

For full customization, you can [write your own deployment scripts \(p. 642\)](#) in Windows PowerShell and tell Elastic Beanstalk which scripts to run to install, uninstall, and restart your application.

Deployment manifests and related features require a Windows Server platform configuration [version 1.2.0 or newer \(p. 636\)](#).

#### Sections

- [.NET Core Apps \(p. 638\)](#)
- [Run Multiple Applications \(p. 640\)](#)
- [Configure Application Pools \(p. 641\)](#)
- [Define Custom Deployments \(p. 642\)](#)

## .NET Core Apps

You can use a deployment manifest to run .NET Core applications on Elastic Beanstalk. .NET Core is a cross-platform version of .NET that comes with a commandline tool (`dotnet`) that you can use to generate an application, run it locally, and prepare it for publishing.

#### Note

See [Deploying an ASP.NET Core Application with AWS Elastic Beanstalk \(p. 658\)](#) for a tutorial and sample application that use a deployment manifest to run a .NET Core application on Elastic Beanstalk.

To run a .NET Core application on Elastic Beanstalk, run `dotnet publish` and package the output in a ZIP archive, not including any containing directories. Place the site archive in a source bundle with a deployment manifest with a deployment target of type `aspNetCoreWeb`.

The following deployment manifest runs a .NET Core application from a site archive named `dotnet-core-app.zip` at the root path.

### Example aws-windows-deployment-manifest.json - .NET Core

```
{
 "manifestVersion": 1,
 "deployments": {
 "aspNetCoreWeb": [
 {
 "name": "my-dotnet-core-app",
 "parameters": {
 "archive": "dotnet-core-app.zip",
 "iisPath": "/"
 }
 }
]
 }
}
```

Bundle the manifest and site archive in a ZIP archive to create a source bundle.

### Example dotnet-core-bundle.zip

```
.
|-- aws-windows-deployment-manifest.json
`-- dotnet-core-app.zip
```

The site archive contains the compiled application code, dependencies, and `web.config` file.

### Example dotnet-core-app.zip

```
.
|-- Microsoft.AspNetCore.Hosting.Abstractions.dll
|-- Microsoft.AspNetCore.Hosting.Server.Abstractions.dll
|-- Microsoft.AspNetCore.Hosting.dll
|-- Microsoft.AspNetCore.Http.Abstractions.dll
|-- Microsoft.AspNetCore.Http.Extensions.dll
|-- Microsoft.AspNetCore.Http.Features.dll
|-- Microsoft.AspNetCore.Http.dll
|-- Microsoft.AspNetCore.HttpOverrides.dll
|-- Microsoft.AspNetCore.Server.IISIntegration.dll
|-- Microsoft.AspNetCore.Server.Kestrel.dll
|-- Microsoft.AspNetCore.WebUtilities.dll
|-- Microsoft.Extensions.Configuration.Abstractions.dll
|-- Microsoft.Extensions.Configuration.EnvironmentVariables.dll
|-- Microsoft.Extensions.Configuration.dll
|-- Microsoft.Extensions.DependencyInjection.Abstractions.dll
|-- Microsoft.Extensions.DependencyInjection.dll
|-- Microsoft.Extensions.FileProviders.Abstractions.dll
|-- Microsoft.Extensions.FileProviders.Physical.dll
|-- Microsoft.Extensions.FileSystemGlobbing.dll
|-- Microsoft.Extensions.Logging.Abstractions.dll
|-- Microsoft.Extensions.Logging.dll
|-- Microsoft.Extensions.ObjectPool.dll
|-- Microsoft.Extensions.Options.dll
|-- Microsoft.Extensions.PlatformAbstractions.dll
|-- Microsoft.Extensions.Primitives.dll
|-- Microsoft.Net.Http.Headers.dll
|-- System.Diagnostics.Contracts.dll
|-- System.Net.WebSockets.dll
|-- System.Text.Encodings.Web.dll
|-- dotnet-core-app.deps.json
|-- dotnet-core-app.dll
|-- dotnet-core-app.pdb
|-- dotnet-core-app.runtimeconfig.json
`-- web.config
```

See [the tutorial \(p. 658\)](#) for a full example.

## Run Multiple Applications

You can run multiple applications with a deployment manifest by defining multiple deployment targets.

The following deployment manifest runs a .NET Standard web application at the root path using MS Deploy, and an ASP.NET Core web application at `/admin`. The front-end web application is a standard [MS Deploy source bundle \(p. 49\)](#) named `webapp.zip`, and the admin application is a .NET Core site archive named `admin.zip`.

### Example aws-windows-deployment-manifest.json - multiple apps

```
{
 "manifestVersion": 1,
 "deployments": {
 "msDeploy": [
 {
 "name": "Web app",
 "parameters": {
 "appBundle": "webapp.zip",
 "iisPath": "/",
 "iisWebSite": "Default Web Site"
 }
 }
],
 "aspNetCoreWeb": [
 {
 "name": "Admin app",
 "parameters": {
 "appBundle": "admin.zip",
 "iisPath": "/admin",
 "iisWebSite": "Default Web Site"
 }
 }
]
 }
}
```

A sample application with multiple applications is available here:

- **Deployable source bundle** - [dotnet-multiapp-sample-bundle-v1.zip](#)
- **Source code** - [dotnet-multiapp-sample-source-v1.zip](#)

## Configure Application Pools

You can use a deployment manifest to configure an application pool in IIS and use it to run one or more applications.

The following deployment manifest configures an application pool that restarts its applications every 10 minutes, and attaches it to a .NET Standard web application that runs at the root path.

### Example aws-windows-deployment-manifest.json - app pool

```
{
 "manifestVersion": 1,
 "iisConfig": {
 "appPools": [
 {
 "name": "App pool",
 "recycling": {
 "regularTimeInterval": 10
 }
 }
]
 },
 "deployments": {
 "msDeploy": [
 {
 "name": "Web app",
 "parameters": {
 "archive": "site.zip",
 "iisPath": "/",
 "appPool": "MyPool"
 }
 }
]
 }
}
```

The `appPools` block under `iisConfig` defines the application pool.

Each deployment in the `deployments` block specifies an archive, a path to run it at, and an `appPool` in which to run it.

## Define Custom Deployments

For even more control, you can completely customize an application deployment by defining a *custom deployment*.

The following deployment manifest tells Elastic Beanstalk to run an `install` script named `siteInstall.ps1` to install the website during instance launch and deployments, run an `uninstall` script prior to installing a new version during a deployment, and a `restart` script to restart the application when you choose [Restart App Server \(p. 54\)](#) in the management console.



### Example aws-windows-deployment-manifest.json - custom deployment

```
{
 "manifestVersion": 1,
 "deployments": {
 "custom": [
 {
 "name": "Custom site",
 "scripts": {
 "install": {
 "file": "siteInstall.ps1"
 },
 "restart": {
 "file": "siteRestart.ps1"
 },
 "uninstall": {
 "file": "siteUninstall.ps1"
 }
 }
 }
]
 }
}
```


Include any artifacts required to run the application in your source bundle with the manifest and scripts.

### Example custom-site-bundle.zip

```
.
|-- aws-windows-deployment-manifest.json
|-- siteInstall.ps1
|-- siteRestart.ps1
|-- siteUninstall.ps1
`-- site-contents.zip
```

When deploying your .NET application, you might want to customize and configure the behavior of your Amazon EC2 instances. You can easily customize your instances at the same time that you deploy your application version by including a configuration file with your source bundle. You might also want to customize your environment resources that are part of your Elastic Beanstalk environment (for example, Amazon SQS queues or Amazon ElastiCache clusters). For example, you might want to add an Amazon SQS queue and an alarm on queue depth, or you might want to add an Amazon ElastiCache cluster. This section walks you through the process of creating a configuration file and bundling it with your source.

### To access the software configuration for your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .

For your application's version Framework, you can choose either 2.0 or 4.0. Select **Enable 32-bit Applications** if you plan to run 32-bit applications.

Elastic Beanstalk can copy the log files for your application's Amazon EC2 instances to the Amazon S3 bucket associated with your application on an hourly basis. To enable this feature, select **Enable log file rotation to Amazon S3**.

The **Environment Properties** section lets you specify environment variables that you can read from your application code. This setting enables greater portability by eliminating the need to recompile your source code as you move between environments.

### To customize and configure your .NET environment

1. Create a configuration file with the extension `.config` (for example, `myapp.config`) and place it in an `.ebextensions` top-level directory of your source bundle. You can have multiple configuration files in your `.ebextensions` directory. For information about the file format and contents of the configuration file, see [Configuration Files \(.ebextensions\)](#) (p. 131).

#### Note

For Visual Studio, `.ebextensions` needs to be part of the project to be included in the archive. Alternatively, instead of including the configuration files in the project, you can use Visual Studio to deploy all files in the project folder. In **Solution Explorer**, right-click the project name, and then click **Properties**. Click the **Package/Publish Web** tab. In the **Items to deploy** section, select **All Files in the Project Folder** in the drop-down list.

The following is an example snippet of a configuration file.

```
If you do not specify a namespace, the default used is
aws:elasticbeanstalk:application:environment
container_commands:
 foo:
 command: set > c:\\myapp\\set.txt
 leader_only: true
 waitAfterCompletion: 0

option_settings:
 - option_name: PARAM1
 value: somevalue
```

#### Note

You can specify any key-value pairs in the `aws:elasticbeanstalk:application:environment` namespace, and they will be passed in as environment variables on your Amazon EC2 instances.

2. Deploy your application version.

## Accessing Environment Configuration Settings

The parameters specified in the `option_settings` section of the configuration file are passed in and used as application settings.

You might have a code snippet that looks similar to the following to access the keys and parameters:

```
NameValueCollection appConfig = ConfigurationManager.AppSettings;

string param1 = appConfig["PARAM1"];
```

#### Note

Environment configuration settings can contain any printable ASCII character except the grave accent ( ` , ASCII 96) and cannot exceed 200 characters in length.

For a list of configuration settings, see [.NET Platform Options](#) (p. 170).

# Tutorial: How to Deploy a .NET Sample Application Using AWS Elastic Beanstalk

In this tutorial, you will learn how to deploy a .NET sample application to AWS Elastic Beanstalk using the AWS Toolkit for Visual Studio.

## Note

This tutorial uses a sample ASP.NET Web application that you can download [here](#). It also uses the [Toolkit for Visual Studio](#) and was tested using Visual Studio Professional 2012.

## Create the Environment

First, use the Create New Application wizard in the Elastic Beanstalk console to create the application environment.

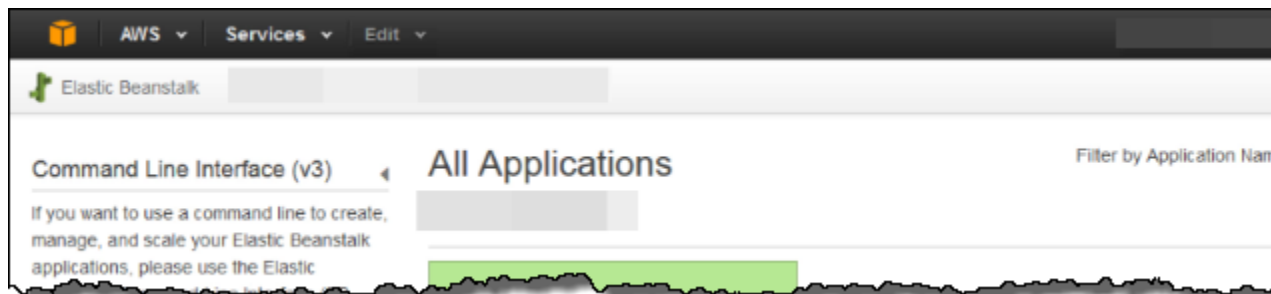
### To create the environment

1. Open the [Elastic Beanstalk console](#).

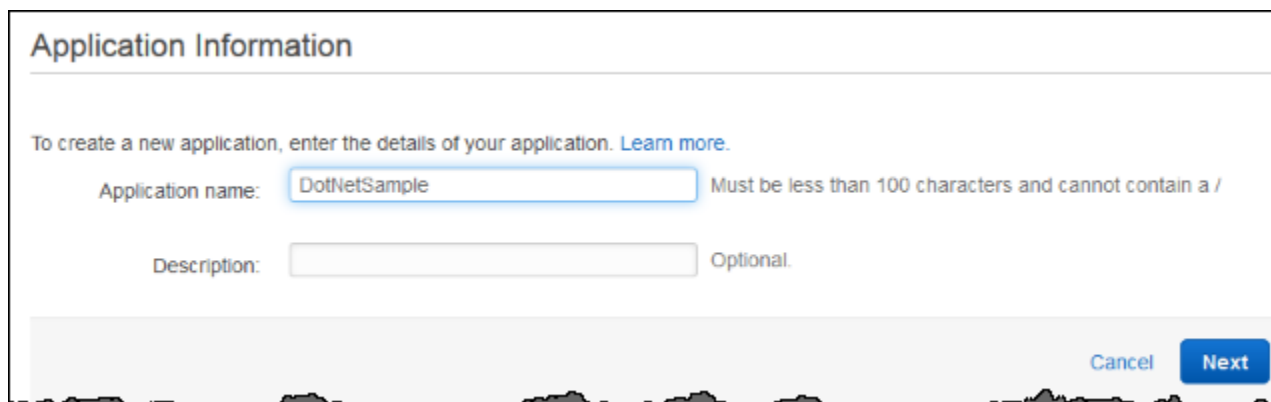
## Note

If the New Environment wizard does not show the screens described below, see [The Old New Environment Wizard](#) (p. 63).

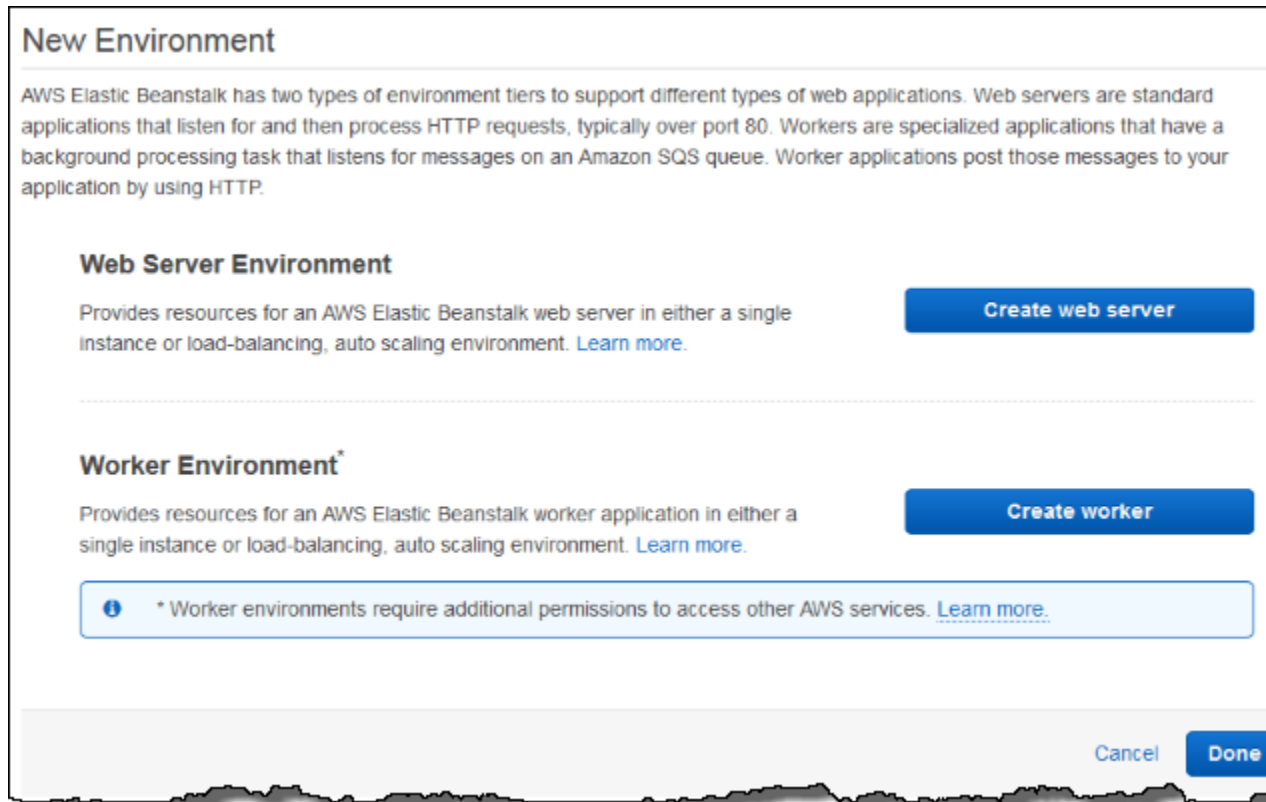
2. Choose **Create New Application**.



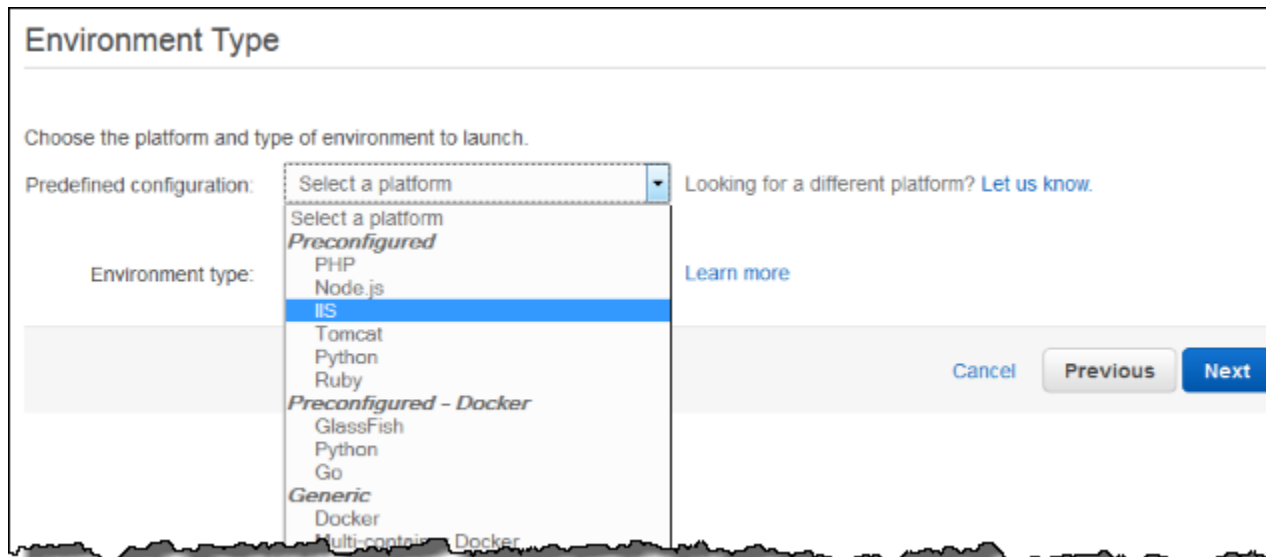
3. On the **Application Information** page, enter an **Application name**, and then choose **Next**.



4. On the **New Environment** page, choose **Create web server**.



5. On the **Environment Type** page, for **Predefined configuration**, choose **IIS**.



6. For **Environment type**, accept the default, **Load balancing, auto scaling**, and then choose **Next**.

The screenshot shows the 'Environment Type' configuration page. At the top, it says 'Choose the platform and type of environment to launch.' Below this, there are two main sections. The first is 'Predefined configuration:' with a dropdown menu set to 'IIS'. To the right of this dropdown is a link that says 'Looking for a different platform? Let us know.' Below this is a line of text: 'AWS Elastic Beanstalk will create an environment running IIS 8.5 on 64bit Windows Server 2012 R2. Change platform version'. The second section is 'Environment type:' with a dropdown menu set to 'Load balancing, auto scaling' and a 'Learn more' link. At the bottom right of the page, there are three buttons: 'Cancel', 'Previous', and 'Next'.

7. On the **Application Version** page, for **Source**, choose **Sample application**, and then choose **Next**.

The screenshot shows the 'Application Version' configuration page. At the top, it says 'Select a source for your application version.' Below this, there are three radio button options for 'Source': 'Sample application' (which is selected), 'Upload your own (Learn more)', and 'S3 URL'. Under 'Upload your own', there is a 'Browse...' button and the text 'No file selected.' Under 'S3 URL', there is a text input field and an example '(e.g. https://s3.amazonaws.com/s3Bucket/s3Key)'. Below the source options is a section titled 'Deployment Limits'. It says 'Elastic Beanstalk will update your application in batches so as to avoid downtime when deploying. Learn more'. Under 'Batch size:', there are two radio button options: 'Percentage' (selected) and 'Fixed'. Under 'Percentage', there is a spinner box set to '30' and the text '% of the fleet at a time'. Under 'Fixed', there is a spinner box set to '1' and the text 'instances at a time'. At the bottom right of the page, there are three buttons: 'Cancel', 'Previous', and 'Next'.

8. On the **Environment Information** page, accept all defaults, and then choose **Next**.

Environment Information

Enter your environment information. [Learn more](#).

Environment name:

Environment URL:  .elasticbeanstalk.com

Description:  Optional: 200 character maximum

9. On the **Additional Resources** page, choose **Create an RDS DB instance with this environment**, and then choose **Next**.

DotNetSample

Additional Resources

Select additional resources for this environment.

Create an RDS DB Instance with this environment [Learn more](#)

Create this environment inside a VPC [Learn more](#)

10. On the **Configuration Details** page, for **Instance type**, choose **t2.micro**.  
Accept the default values for the other fields, and then choose **Next**.

The screenshot shows the 'Configuration Details' page. It includes the following fields and options:

- Instance type:** A dropdown menu set to 't2.micro'. Below it, text reads: 'Determines the processing power of the servers in your environment.'
- EC2 key pair:** A dropdown menu with 'Select a key pair' and a 'Refresh' button. Below it, text reads: 'Optional: Enables remote login to your instances.'
- Email address:** A text input field. To its right, text reads: 'Optional: Get notified about any major changes to your environment.'
- Application health check URL:** A text input field. To its right, text reads: 'Enter the relative URL that ELB continually monitors to ensure your application is available.'
- Enable rolling updates:** A checked checkbox. To its right, text reads: 'Lets you control how changes to the environment's instances are propagated.' Below this is a dropdown menu set to 'Health'. Further text reads: 'Specifies whether to wait to deploy updates and deployments according to a set period of time or instance health.'
- Cross zone load balancing:** A checked checkbox. To its right, text reads: 'Enables load balancing across multiple Availability Zones.'
- Connection draining:** A checked checkbox. To its right, text reads: 'Enables the load balancer to maintain connections to an Amazon EC2 instance to complete in-progress requests while also stopping new requests.'
- Connection draining timeout:** A dropdown menu set to '20' and a 'seconds' label. Below it, text reads: 'Maximum time that the load balancer maintains connections to an Amazon EC2 instance before forcibly closing connections.'

11. On the **Environment Tags** page, leave both the **Key** and the **Value** fields blank, and then choose **Next**.

The screenshot shows the 'Environment Tags' page. It includes the following elements:

- Text: 'You can specify tags (key-value pairs) for your Environment. You can add up to 7 unique key-value pairs for each Environment.'
- A table with two columns: 'Key (128 characters maximum)' and 'Value (256 characters maximum)'. The first row is numbered '1.' and has two empty input fields.
- Text: '7 remaining'.
- Buttons: 'Cancel', 'Previous', and 'Next'.

12. Choose **Next** on the **Permissions** page. If you don't have a default [instance profile and service role](#) (p. 17), Elastic Beanstalk creates them for you.
13. On the **RDS Configuration** page, for **DB engine**, choose **sqlserver-ex**. For **Instance class**, choose **db.t2.micro**, and then increase the **Allocated storage** to 20 GB.

**RDS Configuration**

Specify your RDS settings. [Learn more.](#)

Snapshot: None Refresh

DB engine: sqlserver-ex Refresh

Instance class: db.t2.micro

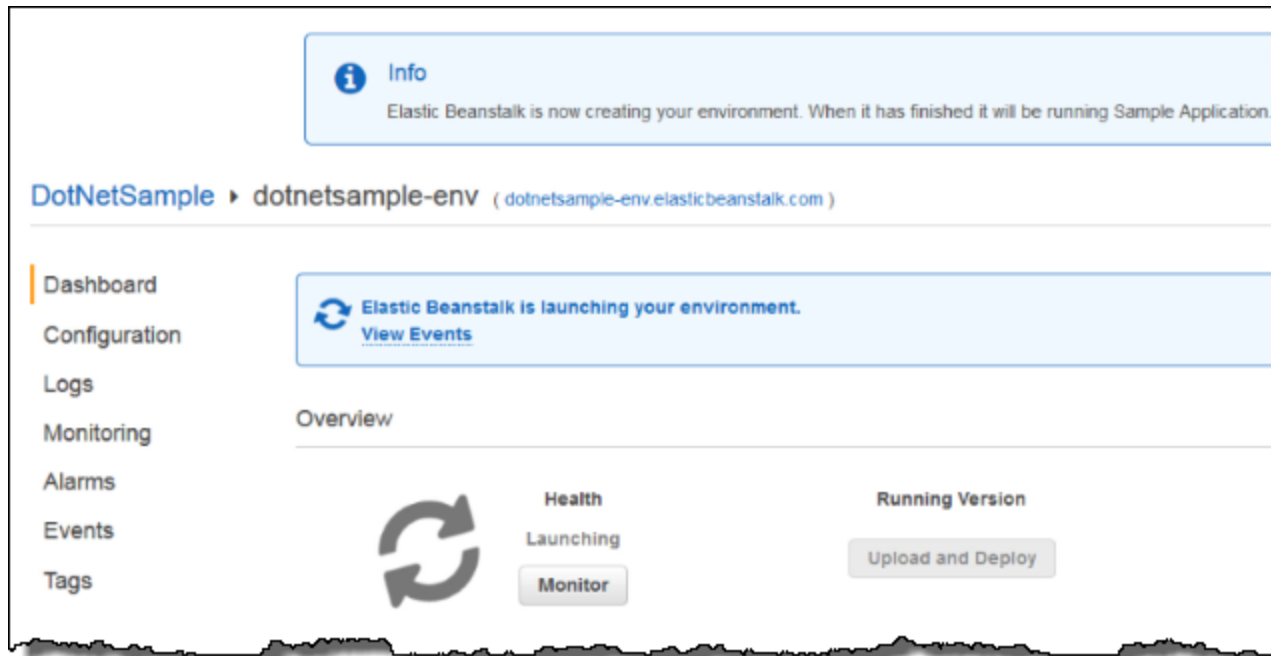
Allocated storage: 20 GB  
You must specify a value from 5 GB to 1024 GB

Username:

Password:

14. Create a **Username** and **Password**, and then choose **Next**.
15. On the **Review Information** page, review the settings, and then choose **Launch**.

To check launch status, see the **Dashboard** page in the Elastic Beanstalk console.



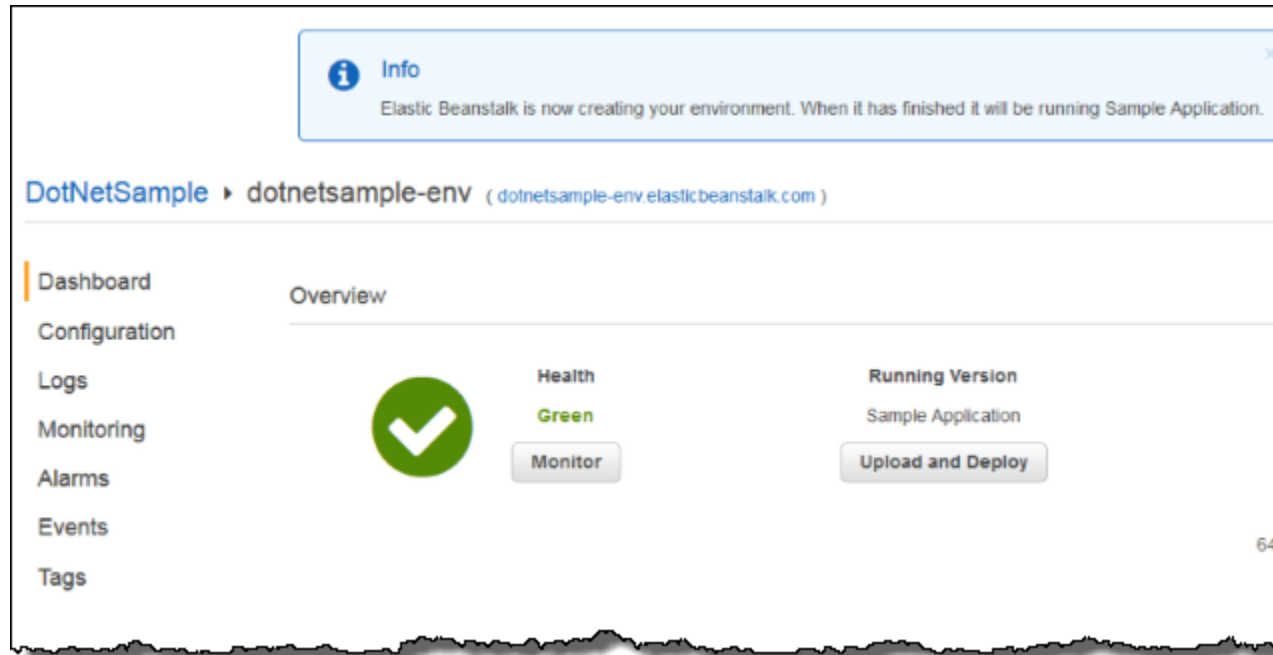
## Publish Your Application to Elastic Beanstalk

Use the AWS Toolkit for Visual Studio to publish your application to Elastic Beanstalk.



## To publish your application to Elastic Beanstalk

1. Ensure that your environment launched successfully by checking the **Health** status in the Elastic Beanstalk console. It should be **Green**.

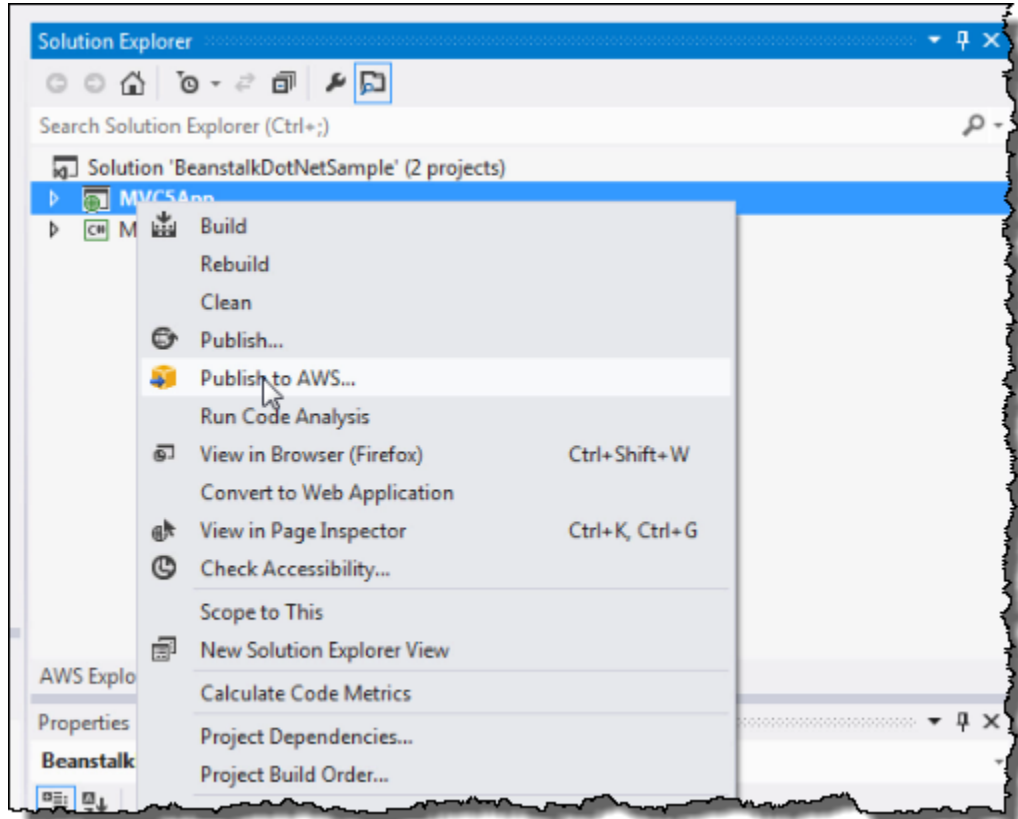


2. In Visual Studio, open **BeanstalkDotNetSample.sln**.

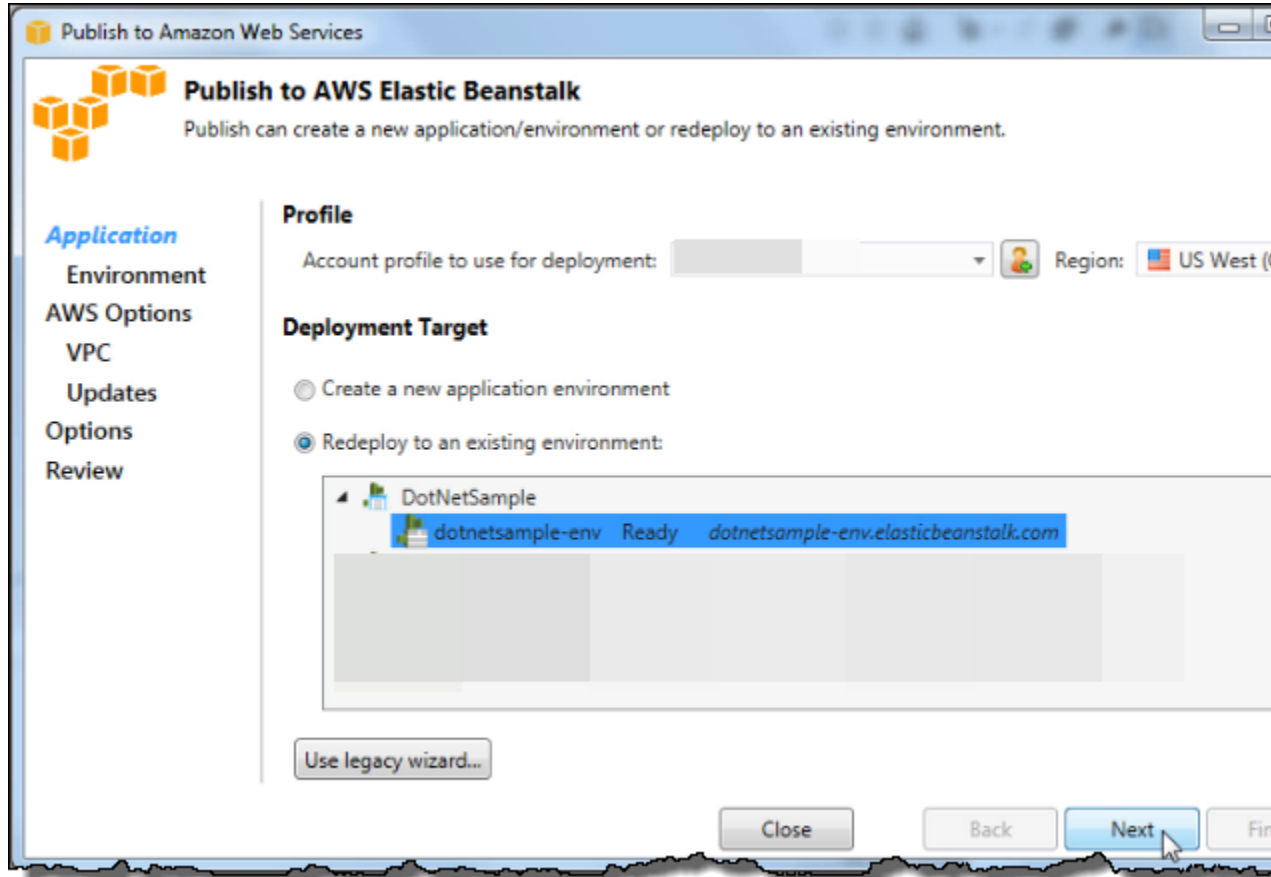
**Note**

If you haven't done so already, you can get the sample [here](#).

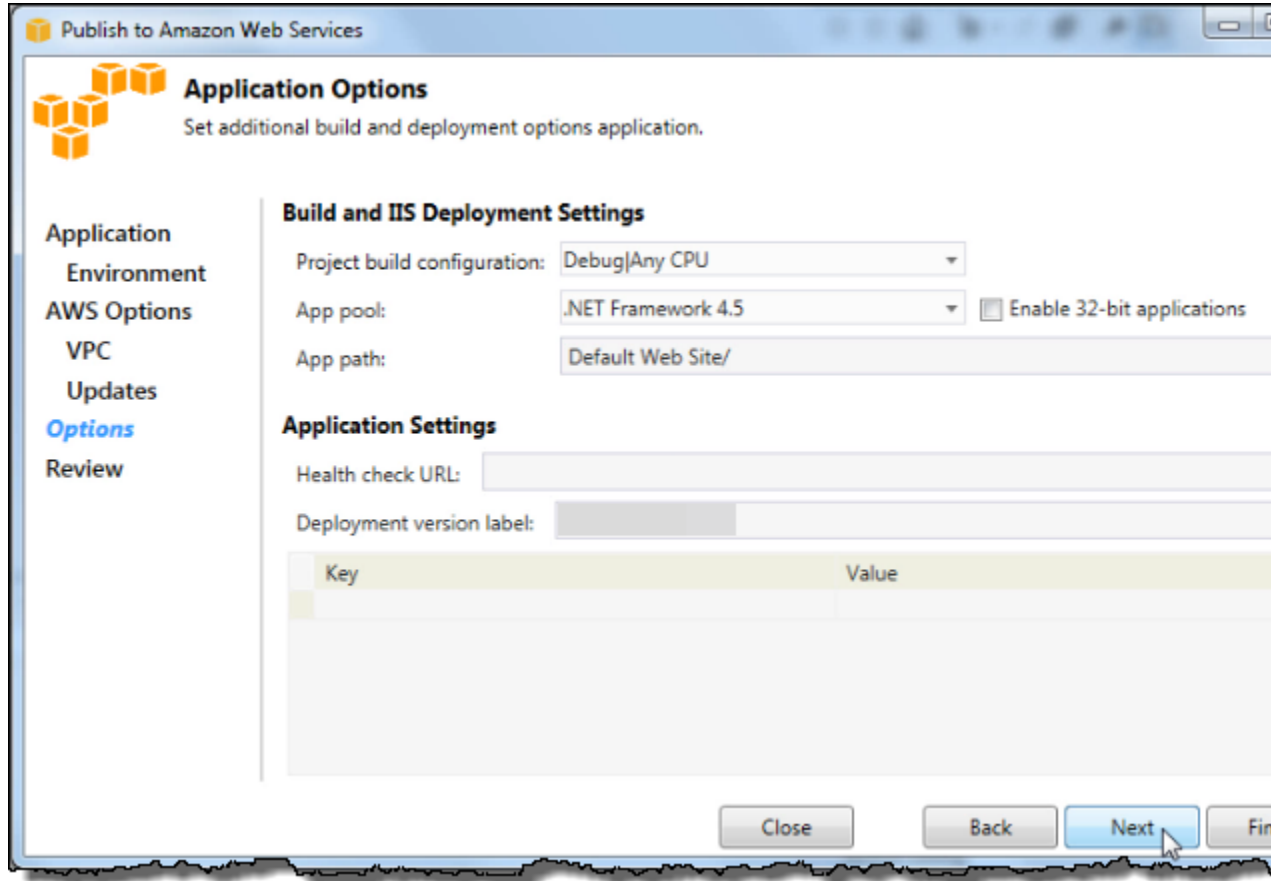
3. On the **View** menu, choose **Solution Explorer**.
4. Expand **Solution 'BeanstalkDotNetSample' (2 projects)**.
5. Open the context (right-click) menu for **MVC5App**, and then choose **Publish to AWS**.



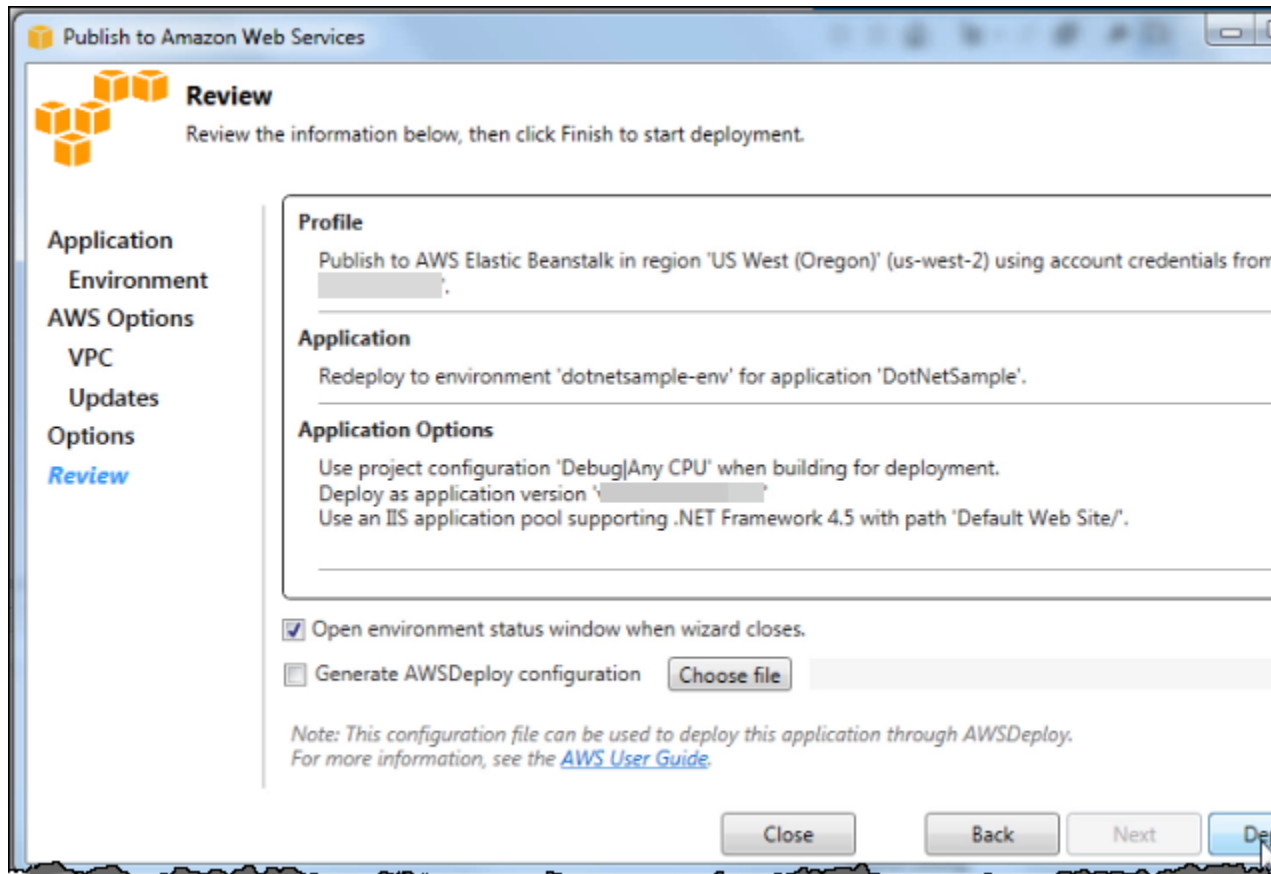
6. On the **Publish to AWS Elastic Beanstalk** page, for **Deployment Target**, choose the environment that you just created, and then choose **Next**.



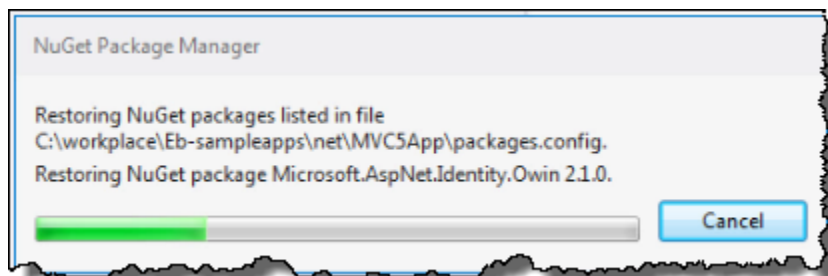
7. On the **Application Options** page, accept all of the defaults, and then choose **Next**.



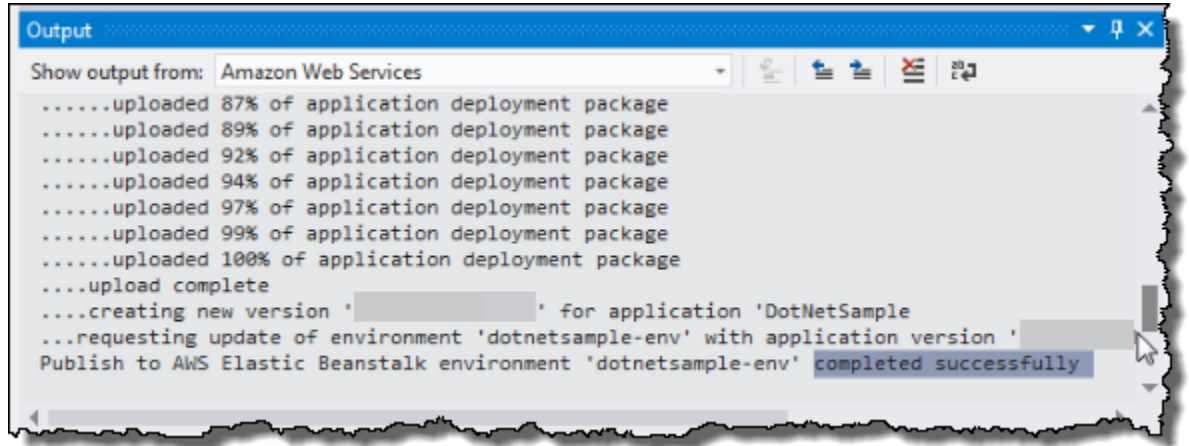
8. On the **Review** page, choose **Deploy**.



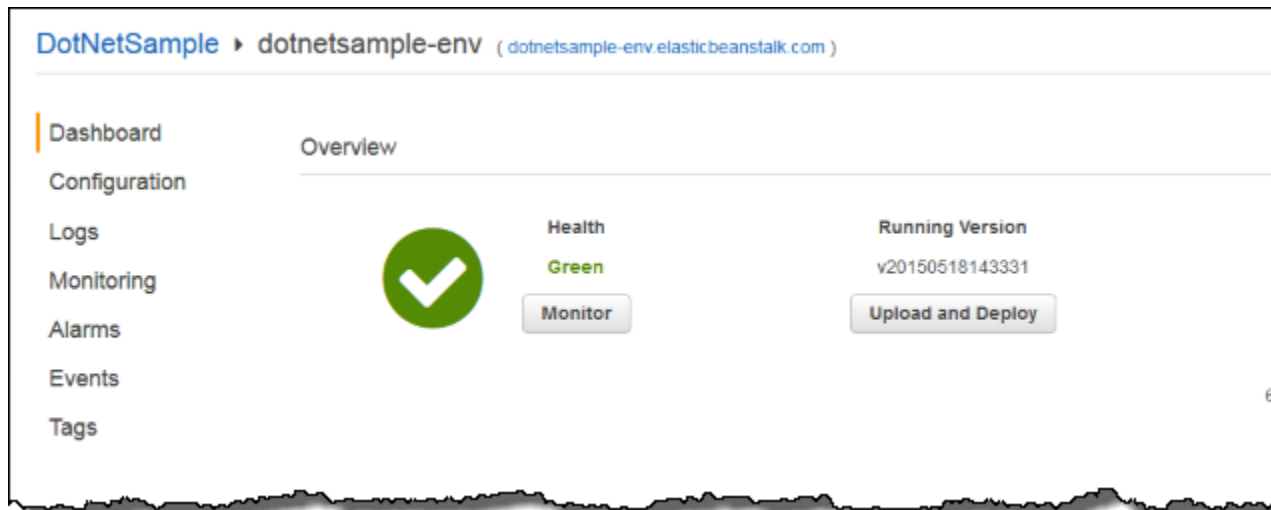
9. If you want to monitor deployment status, use the **NuGet Package Manager** in Visual Studio.



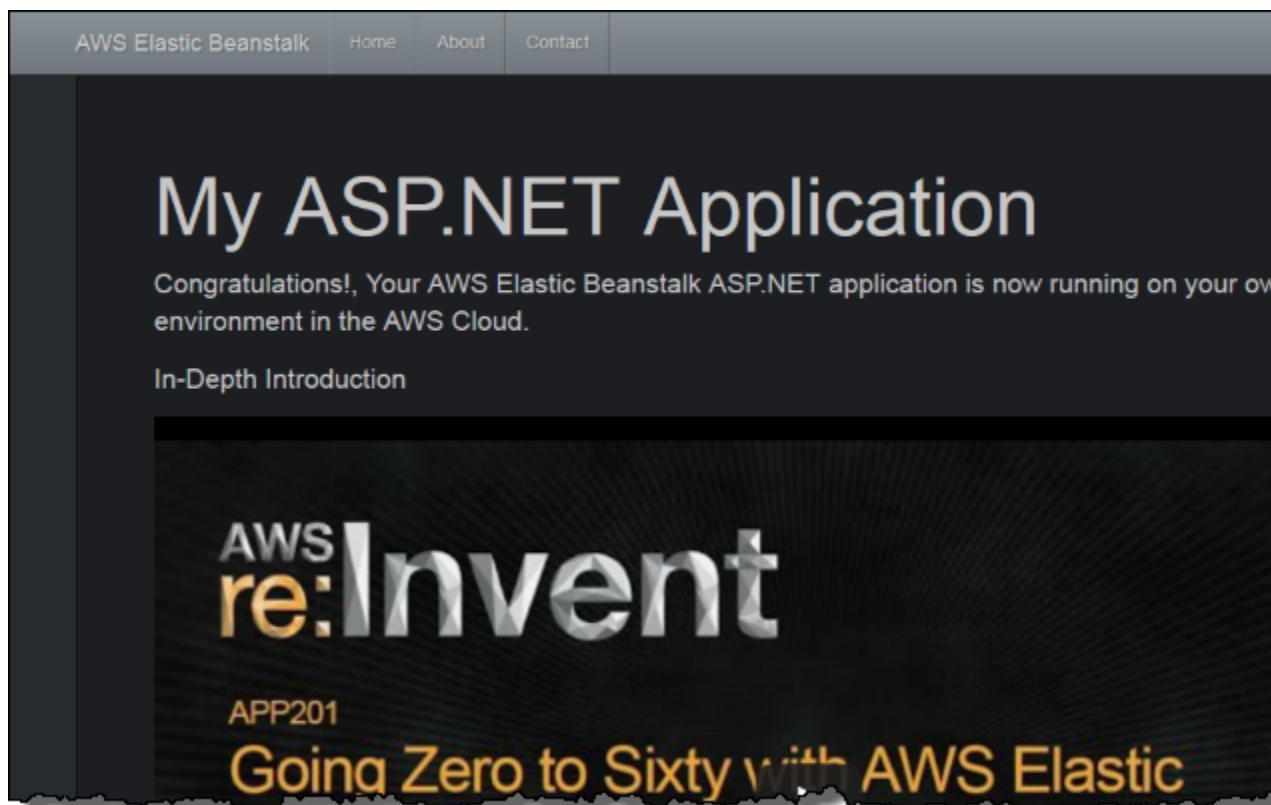
When the application has successfully been deployed, the **Output** box displays **completed successfully**.



10. Return to the Elastic Beanstalk console and choose the name of the application, which appears next to the environment name.



Your ASP.NET application opens in a new tab.



## Clean Up Your AWS Resources

After your application has deployed successfully, learn more about Elastic Beanstalk by [watching the video](#) in the application.

If you are done working with Elastic Beanstalk for now, you can terminate your .NET environment.

### To terminate your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Actions** and then choose **Terminate Environment**.

Elastic Beanstalk cleans up all AWS resources associated with your environment, including EC2 instances, DB instance, load balancer, security groups, CloudWatch alarms, etc.

For more information, see [Creating and Deploying Elastic Beanstalk Applications in .NET Using AWS Toolkit for Visual Studio \(p. 633\)](#), the [AWS .NET Development Blog](#), or the [AWS Application Management Blog](#).

# Deploying an ASP.NET Core Application with AWS Elastic Beanstalk

In this tutorial, you walk through the process of building a new ASP.NET Core application and deploying it to Elastic Beanstalk. You will use the .NET Core SDK's `dotnet` command line tool to generate a basic command-line .NET Core application, install dependencies, compile code, and run applications locally.

Next, you modify the default `Program` class, and add an ASP.NET `Startup` class and configuration files to make an application that serves HTTP requests with ASP.NET and IIS. The `dotnet publish` command generates compiled classes and dependencies that you can bundle with a `web.config` file to create a *site archive* that you can deploy to an Elastic Beanstalk environment.

Elastic Beanstalk uses a [deployment manifest \(p. 637\)](#) to configure deployments for .NET Core applications, custom applications, and multiple .NET Core or MSBuild applications on a single server. To deploy a .NET Core application to a Windows Server environment, you add the site archive to an application source bundle with a deployment manifest. The deployment manifest tells Elastic Beanstalk the path at which the site should run and can be used to configure application pools and run multiple applications at different paths.

## Note

The application source code is available here: [dotnet-core-tutorial-source-v1.zip](#)

The deployable source bundle is available here: [dotnet-core-tutorial-bundle-v1.zip](#)

## Sections

- [Prerequisites \(p. 658\)](#)
- [Generate a .NET Core Project \(p. 659\)](#)
- [Launch an Elastic Beanstalk Environment \(p. 660\)](#)
- [Update the Source Code \(p. 660\)](#)
- [Deploy Your Application \(p. 665\)](#)
- [Clean Up \(p. 666\)](#)
- [Next Steps \(p. 666\)](#)

## Prerequisites

This tutorial uses the .NET Core SDK version 1.0.0-preview2 to generate a basic .NET Core application, run it locally, and build a deployable package.

### To install the .NET Core SDK

1. Download the installer from [microsoft.com/net/core](https://microsoft.com/net/core). Look for the link labeled **.NET Core SDK for Windows**.
2. Run the installer and follow the instructions.

This tutorial uses a command line ZIP utility to create a source bundle that you can deploy to Elastic Beanstalk. To use the `zip` command in Windows, you can install UnxUtils, a lightweight collection of useful command-line utilities like `zip` and `ls`. (Alternatively, you can [use Windows Explorer \(p. 44\)](#) or any other ZIP utility to create source bundle archives.)

### To install UnxUtils

1. Download [UnxUtils](#).
2. Extract the archive to a local directory. For example, `C:\Program Files (x86)`.



3. Add the path to the binaries to your Windows PATH user variable. For example, C:\Program Files (x86)\UnxUtils\usr\local\wbin.
4. Open a new command prompt window and run the `zip` command to verify that it works:

```
> zip
Copyright (C) 1990-1999 Info-ZIP
Type 'zip "-L"' for software license.
...
```

## Generate a .NET Core Project

Use the `dotnet` command line tool to generate a new C# .NET Core project and run it locally. The default .NET Core application is a command line utility that prints `Hello World!` and then exits.

### To generate a new .NET Core project

1. Open a new command prompt and navigate to your user folder.

```
> cd %USERPROFILE%
```

2. Create a directory for the project.

```
~> mkdir dotnet-core-tutorial
~> cd dotnet-core-tutorial
```

3. Use the `dotnet new` command to generate a new .NET Core project.

```
~\dotnet-core-tutorial> dotnet new
Created new C# project in C:\Users\me\dotnet-core-tutorial.
```

4. Use the `dotnet restore` command to install dependencies.

```
~\dotnet-core-tutorial> dotnet restore
log : Restoring packages for C:\Users\me\dotnet-core-tutorial
\project.json...
log : Writing lock file to disk. Path: C:\Users\me\dotnet-core-tutorial
\project.lock.json
log : C:\Users\me\dotnet-core-tutorial\project.json
log : Restore completed in 18101ms.
```

5. Use the `dotnet run` command to build and run the application locally.

```
~\dotnet-core-tutorial> dotnet run
Project dotnet-core-tutorial (.NETCoreApp,Version=v1.0) will be compiled
because expected outputs are missing
Compiling dotnet-core-tutorial for .NETCoreApp,Version=v1.0

Compilation succeeded.
 0 Warning(s)
 0 Error(s)

Time elapseded 00:00:08.3036217

Hello World!
```

The default application prints `Hello World!` to the console and exits. Before you deploy the application to Elastic Beanstalk, you will update it to serve HTTP requests with ASP.NET and IIS.

## Launch an Elastic Beanstalk Environment

Use the AWS Management Console to launch an Elastic Beanstalk environment. Choose the **Windows Server 2012R2 v1.2.0** platform configuration and accept the default settings and sample code. After you launch and configure your environment, you can deploy new source code at any time.

### To launch an environment (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one](#) (p. 36).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.

#### Note

If the New Environment wizard does not show the screens described below, see [The Old New Environment Wizard](#) (p. 63).

4. Choose **Web server environment** and then choose **Select**.
5. For **Platform**, choose the platform that matches the language used by your application.
6. For **App code**, choose **Sample application**.
7. Choose **Create environment**.

Environment creation takes about 10 minutes. During this time you can update your source code.

## Update the Source Code

Update the default application to use ASP.NET and IIS. ASP.NET is the website framework for .NET. IIS is the web server that runs the application on the EC2 instances in your Elastic Beanstalk environment.

#### Note

The source code is available here: [dotnet-core-tutorial-source-v1.zip](#)

### To add ASP.NET and IIS support to your code

1. Update `Program.cs` to run a web host builder.

### Example ~\dotnet-core-tutorial\Program.cs

```
using System;
using Microsoft.AspNetCore.Hosting;
using System.IO;

namespace aspnetcoreapp
{
 public class Program
 {
 public static void Main(string[] args)
 {
 var host = new WebHostBuilder()
 .UseKestrel()
 .UseContentRoot(Directory.GetCurrentDirectory())
 .UseIISIntegration()
 .UseStartup<Startup>()
 .Build();

 host.Run();
 }
 }
}
```

2. Add a Startup.cs file to run an ASP.NET website.

### Example ~\dotnet-core-tutorial\Startup.cs

```
using System;
using Microsoft.AspNetCore.Builder;
using Microsoft.AspNetCore.Hosting;
using Microsoft.AspNetCore.Http;

namespace aspnetcoreapp
{
 public class Startup
 {
 public void Configure(IApplicationBuilder app)
 {
 app.Run(context =>
 {
 return context.Response.WriteAsync("Hello from ASP.NET Core!");
 });
 }
 }
}
```

3. Add a web.config file to configure the IIS server.

### Example `~\dotnet-core-tutorial\web.config`

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
 <system.webServer>
 <handlers>
 <add name="aspNetCore" path="*" verb="*" modules="AspNetCoreModule"
resourceType="Unspecified" />
 </handlers>
 <aspNetCore processPath="dotnet" arguments=".\\dotnet-core-
tutorial.dll" stdoutLogEnabled="false" stdoutLogFile=".\logs\stdout"
forwardWindowsAuthToken="false" />
 </system.webServer>
</configuration>
```

4. Update `project.json` to include IIS middleware and include the `web.config` file in the output of `dotnet publish`.

### Example `~\dotnet-core-tutorial\project.json`

```
{
 "version": "1.0.0-*",
 "buildOptions": {
 "debugType": "portable",
 "emitEntryPoint": true
 },
 "dependencies": {},
 "frameworks": {
 "netcoreapp1.0": {
 "dependencies": {
 "Microsoft.NETCore.App": {
 "type": "platform",
 "version": "1.0.0"
 },
 "Microsoft.AspNetCore.Server.Kestrel": "1.0.0",
 "Microsoft.AspNetCore.Server.IISIntegration": "1.0.0"
 },
 "imports": "dnxcore50"
 }
 },
 "publishOptions": {
 "include": [
 "web.config"
]
 }
}
```

Next, you will install the new dependencies and run the ASP.NET website locally.

### To run the website locally

1. Use the `dotnet restore` command to install dependencies.
2. Use the `dotnet run` command to build and run the app locally.
3. Open [localhost:5000](http://localhost:5000) to view the site.

To run the application on a web server, you need to bundle the compiled source code with a `web.config` configuration file and runtime dependencies. The `dotnet` tool provides a `publish` command that gathers these files in a directory based on the configuration in `project.json`.

### To build your website

- Use the `dotnet publish` command to output compiled code and dependencies to a folder named `site`.

```
~\dotnet-core-tutorial> dotnet publish -o site
```

To deploy the application to Elastic Beanstalk, bundle the site archive with a [deployment manifest \(p. 637\)](#) that tells Elastic Beanstalk how to run it.

### To create a source bundle

1. Add the files in the `site` folder to a ZIP archive.

```
~\dotnet-core-tutorial> cd site
~\dotnet-core-tutorial\site> zip ../site.zip *
 adding: dotnet-core-tutorial.deps.json (164 bytes security) (deflated
 81%)
 adding: dotnet-core-tutorial.dll (164 bytes security) (deflated 58%)
 adding: dotnet-core-tutorial.pdb (164 bytes security) (deflated 30%)
 adding: dotnet-core-tutorial.runtimeconfig.json (164 bytes security)
(deflated 25%)
 adding: Microsoft.AspNetCore.Hosting.Abstractions.dll (164 bytes
security) (deflated 48%)
 adding: Microsoft.AspNetCore.Hosting.dll (164 bytes security) (deflated
54%)
 adding: Microsoft.AspNetCore.Hosting.Server.Abstractions.dll (164 bytes
security) (deflated 45%)
 adding: Microsoft.AspNetCore.Http.Abstractions.dll (164 bytes security)
(deflated 52%)
 adding: Microsoft.AspNetCore.Http.dll (164 bytes security) (deflated
55%)
 adding: Microsoft.AspNetCore.Http.Extensions.dll (164 bytes security)
(deflated 50%)
 adding: Microsoft.AspNetCore.Http.Features.dll (164 bytes security)
(deflated 50%)
 adding: Microsoft.AspNetCore.HttpOverrides.dll (164 bytes security)
(deflated 47%)
 adding: Microsoft.AspNetCore.Server.IISIntegration.dll (164 bytes
security) (deflated 47%)
 adding: Microsoft.AspNetCore.Server.Kestrel.dll (164 bytes security)
(deflated 62%)
 adding: Microsoft.AspNetCore.WebUtilities.dll (164 bytes security)
(deflated 55%)
 adding: Microsoft.Extensions.Configuration.Abstractions.dll (164 bytes
security) (deflated 48%)
 adding: Microsoft.Extensions.Configuration.dll (164 bytes security)
(deflated 45%)
 adding: Microsoft.Extensions.Configuration.EnvironmentVariables.dll (164
bytes security) (deflated 47%)
 adding: Microsoft.Extensions.DependencyInjection.Abstractions.dll (164
bytes security) (deflated 55%)
```

```
adding: Microsoft.Extensions.DependencyInjection.dll (164 bytes security) (deflated 50%)
adding: Microsoft.Extensions.FileProviders.Abstractions.dll (164 bytes security) (deflated 46%)
adding: Microsoft.Extensions.FileProviders.Physical.dll (164 bytes security) (deflated 46%)
adding: Microsoft.Extensions.FileSystemGlobbing.dll (164 bytes security) (deflated 48%)
adding: Microsoft.Extensions.Logging.Abstractions.dll (164 bytes security) (deflated 55%)
adding: Microsoft.Extensions.Logging.dll (164 bytes security) (deflated 43%)
adding: Microsoft.Extensions.ObjectPool.dll (164 bytes security) (deflated 45%)
adding: Microsoft.Extensions.Options.dll (164 bytes security) (deflated 46%)
adding: Microsoft.Extensions.PlatformAbstractions.dll (164 bytes security) (deflated 45%)
adding: Microsoft.Extensions.Primitives.dll (164 bytes security) (deflated 49%)
adding: Microsoft.Net.Http.Headers.dll (164 bytes security) (deflated 52%)
adding: System.Diagnostics.Contracts.dll (164 bytes security) (deflated 46%)
adding: System.Net.WebSockets.dll (164 bytes security) (deflated 47%)
adding: System.Text.Encodings.Web.dll (164 bytes security) (deflated 57%)
adding: web.config (164 bytes security) (deflated 39%)
~\dotnet-core-tutorial\site> cd ../
```

2. Add a deployment manifest that points to the site archive.

**Example** `~\dotnet-core-tutorial\aws-windows-deployment-manifest.json`

```
{
 "manifestVersion": 1,
 "deployments": {
 "aspNetCoreWeb": [
 {
 "name": "test-dotnet-core",
 "parameters": {
 "appBundle": "site.zip",
 "iisPath": "/",
 "iisWebSite": "Default Web Site"
 }
 }
]
 }
}
```

3. Use the `zip` command to create a source bundle named `dotnet-core-tutorial.zip`.

```
~\dotnet-core-tutorial> zip dotnet-core-tutorial.zip site.zip aws-windows-deployment-manifest.json
adding: site.zip (164 bytes security) (stored 0%)
adding: aws-windows-deployment-manifest.json (164 bytes security) (deflated 50%)
```

## Deploy Your Application

Deploy the source bundle to the Elastic Beanstalk environment that you created earlier.

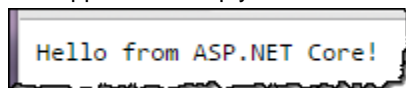
### Note

You can download the source bundle here: [dotnet-core-tutorial-bundle-v1.zip](#)

### To deploy a source bundle

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Upload and Deploy**.
4. Choose **Browse** and upload the source bundle.
5. Choose **Deploy**.
6. When the deployment completes, choose the site URL to open your website in a new tab.

The application simply writes `Hello from ASP.NET Core!` to the response and returns.



Launching an environment creates the following resources:

- **EC2 instance** – An Amazon Elastic Compute Cloud (Amazon EC2) virtual machine configured to run web apps on the platform that you choose.

Each platform runs a different set of software, configuration files, and scripts to support a specific language version, framework, web container, or combination thereof. Most platforms use either Apache or nginx as a reverse proxy that sits in front of your web app, forwards requests to it, serves static assets, and generates access and error logs.

- **Instance security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the load balancer reach the EC2 instance running your web app. By default, traffic is not allowed on other ports.
- **Load balancer** – An Elastic Load Balancing load balancer configured to distribute requests to the instances running your application. A load balancer also eliminates the need to expose your instances directly to the Internet.
- **Load balancer security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the Internet reach the load balancer. By default, traffic is not allowed on other ports.
- **Auto Scaling group** – An Auto Scaling group configured to replace an instance if it is terminated or becomes unavailable.
- **Amazon S3 bucket** – A storage location for your source code, logs, and other artifacts that are created when you use Elastic Beanstalk.
- **Amazon CloudWatch alarms** – Two Amazon CloudWatch alarms that monitor the load on the instances in your environment and are triggered if the load is too high or too low. When an alarm is triggered, your Auto Scaling group scales up or down in response.
- **AWS CloudFormation stack** – Elastic Beanstalk uses AWS CloudFormation to launch the resources in your environment and propagate configuration changes. The resources are defined in a template that you can view in the [AWS CloudFormation management console](#).
- **Domain name** – A domain name that routes to your web app in the form `subdomain.region.elasticbeanstalk.com`.

All of these resources are managed by Elastic Beanstalk. When you terminate your environment, Elastic Beanstalk terminates all of the resources that it contains.

**Note**

The S3 bucket that Elastic Beanstalk creates is shared between environments and is not deleted during environment termination. For more information, see [Using Elastic Beanstalk with Amazon S3 \(p. 389\)](#).

## Clean Up

When you finish working with Elastic Beanstalk, you can terminate your Windows Server environment.

### To terminate your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Actions**, and then choose **Terminate Environment**.

Elastic Beanstalk terminates all AWS resources associated with your environment, including EC2 instances, the load balancer, security groups, Amazon CloudWatch alarms, etc.

## Next Steps

As you continue to develop your application, you'll probably want to manage environments and deploy your application without manually creating a .zip file and uploading it to the Elastic Beanstalk console. The [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) provides easy-to-use commands for creating, configuring, and deploying applications to Elastic Beanstalk environments from the command line.

For development and testing, you might want to use Elastic Beanstalk's functionality for adding a managed DB instance directly to your environment. For instructions on setting up a database inside your environment, see [Configuring Databases with Elastic Beanstalk \(p. 243\)](#).

Finally, if you plan on using your application in a production environment, [configure a custom domain name \(p. 248\)](#) for your environment and [enable HTTPS \(p. 250\)](#) for secure connections.

## Adding a Database

With Amazon Relational Database Service (Amazon RDS), you can quickly and easily provision and maintain a MySQL, Oracle, PostgreSQL, or Microsoft SQL Server instance in the cloud. For more information, go to [Amazon Relational Database](#).

You can use Amazon RDS with your Elastic Beanstalk .NET application using the AWS Management Console. You can also use the AWS Toolkit for Visual Studio to create your Amazon RDS DB instance. For an example walkthrough using SQL Server, see [Tutorial: How to Deploy a .NET Sample Application Using AWS Elastic Beanstalk \(p. 645\)](#).

To use Amazon RDS from your Elastic Beanstalk application, you need to do the following:

1. Create an Amazon RDS DB instance.
2. Download and install a database driver.
3. Establish a database connection in your code by using the connectivity information for your Amazon RDS DB instance.



#### 4. Deploy your application to Elastic Beanstalk.

This topic walks you through the following:

- Using a new Amazon RDS DB instance with your application
- Using an existing Amazon RDS DB instance with your application

## Using a New Amazon RDS DB Instance with .NET

You can create a new Amazon RDS DB instance using the console or use the RDS connection information with your .NET application.

### To create an Amazon RDS DB instance with .NET

1. Create an Amazon RDS DB instance. You can create an RDS DB instance in one of the following ways:
  - Create an Amazon RDS DB instance when you launch a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).
  - Create an Amazon RDS DB instance when you launch a new environment with an existing application version. For instructions using the AWS Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).
  - If you already deployed an application to AWS Elastic Beanstalk, you can create an RDS DB instance and attach it to an existing environment. For instructions using the AWS Elastic Beanstalk console, see [Configuring Databases with Elastic Beanstalk \(p. 243\)](#).
2. Download and install a database driver for your development environment.
3. Establish a database connection in your code using your Amazon RDS DB instance's connectivity information. You can access your connectivity information using application settings. The following shows how you would connect to the database on an RDS instance.

```
NameValueCollection appConfig = ConfigurationManager.AppSettings;

string dbname = appConfig["RDS_DB_NAME"];
string username = appConfig["RDS_USERNAME"];
string password = appConfig["RDS_PASSWORD"];
string hostname = appConfig["RDS_HOSTNAME"];
string port = appConfig["RDS_PORT"];
```

Build your connection string:

```
string cs = "server=" + hostname + ";user=" + username + ";database=" +
dbname + ";port=" + port + ";password=" + password + ";";
```

The following connection string is an example using MySQL.

```
"server=mydbinstance.abcdefghijkl.us-
west-2.rds.amazonaws.com;user=sa;database=mydb;port=3306;password=*****";
```

4. Deploy your updated application to your existing Elastic Beanstalk environment. For information on how to deploy a new application version to an existing environment using the Elastic Beanstalk Console, see [Step 4: Deploy a New Application Version \(p. 6\)](#). For information on how to deploy your application using Visual Studio, see [The AWS Toolkit for Visual Studio \(p. 668\)](#).

## Using an Existing Amazon RDS DB Instance with .NET

Amazon Relational Database Service (Amazon RDS) lets you quickly and easily provision and maintain a MySQL Server instance in the cloud. This topic discusses how you can use Amazon RDS and the MySQL .NET Connector with your Elastic Beanstalk application.

### To use an existing Amazon RDS DB instance and .NET from your Elastic Beanstalk application

1. Create an Elastic Beanstalk environment in one of the following ways:
  - Create a new application with a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). For instructions using Visual Studio, see [The AWS Toolkit for Visual Studio \(p. 668\)](#). You do not need to create an RDS DB instance with this environment because you already have an existing RDS DB instance.
  - Launch a new environment with an existing application version. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). You do not need to create an Amazon RDS DB instance with this environment because you already have an existing Amazon RDS DB instance.
2. Configure your Amazon RDS DB security group to allow access from the Amazon EC2 security group used by your Elastic Beanstalk application. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see [Security Groups \(p. 233\)](#). For more information, go to the "Authorizing Network Access to an Amazon EC2 Security Group" section of [Working with DB Security Groups](#) in the *Amazon Relational Database Service User Guide*.
3. Download and install a database driver for your development environment.
4. Create a connection string using your Amazon RDS DB instance's public DNS name, port number, and (optionally) database name and login credentials. The following example shows a connection string that would connect to a database, mydb, on an RDS instance at mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com using port 3306, with the user name sa and the password mypassword.

```
string cs = "server=mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com;user=sa;database=mydb;port=3306;password=*****";
```

5. Deploy your updated application to your existing Elastic Beanstalk environment. For information on how to deploy a new application version to an existing environment using the Elastic Beanstalk Console, see [Step 4: Deploy a New Application Version \(p. 6\)](#). For information on how to deploy your application using Visual Studio, see [The AWS Toolkit for Visual Studio \(p. 668\)](#).

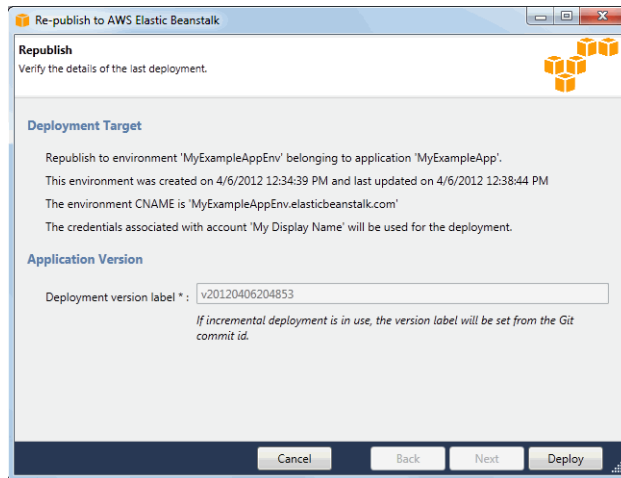
## The AWS Toolkit for Visual Studio

### Deploying to Your Environment

Now that you have tested your application, it is easy to edit and redeploy your application and see the results in moments.

#### To edit and redeploy your ASP.NET web application

1. In **Solution Explorer**, right-click your application, and then click **Republish to Environment <your environment name>**. The **Re-publish to AWS Elastic Beanstalk** wizard opens.



2. Review your deployment details and click **Deploy**.

**Note**

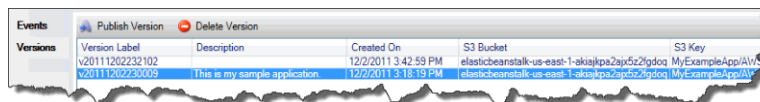
If you want to change any of your settings, you can click **Cancel** and use the **Publish to AWS** wizard instead. For instructions, see [Create an Elastic Beanstalk Environment](#) (p. 684).

Your updated ASP.NET web project will be exported as a web deploy file with the new version label, uploaded to Amazon S3, and registered as a new application version with Elastic Beanstalk. The Elastic Beanstalk deployment feature monitors your existing environment until it becomes available with the newly deployed code. On the **env:<environment name>** tab, you will see the status of your environment.

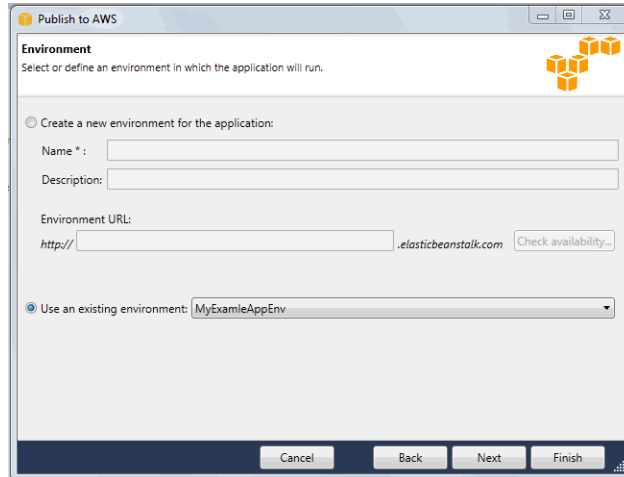
You can also deploy an existing application to an existing environment if, for instance, you need to roll back to a previous application version.

**To deploy an application version to an existing environment**

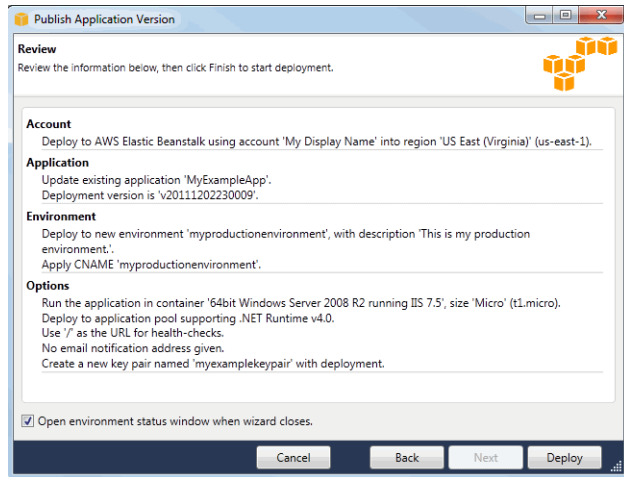
1. Right-click your Elastic Beanstalk application by expanding the Elastic Beanstalk node in **AWS Explorer**. Select **View Status**.
2. In the **App: <application name>** tab, click **Versions**.



3. Click the application version you want to deploy and click **Publish Version**.
4. In the **Publish Application Version** wizard, click **Next**.



5. Review your deployment options, and click **Deploy**.



Your ASP.NET project will be exported as a web deploy file and uploaded to Amazon S3. The Elastic Beanstalk deployment feature will monitor your environment until it becomes available with the newly deployed code. On the **env:<environment name>** tab, you will see status for your environment.

## Managing Your Elastic Beanstalk Application Environments

With the AWS Toolkit for Visual Studio and the AWS Management Console, you can change the provisioning and configuration of the AWS resources used by your application environments. For information on how to manage your application environments using the AWS Management Console, see [Managing Environments \(p. 51\)](#). This section discusses the specific service settings you can edit in the AWS Toolkit for Visual Studio as part of your application environment configuration.

## Changing Environment Configurations Settings

When you deploy your application, Elastic Beanstalk configures a number of AWS cloud computing services. You can control how these individual services are configured using the AWS Toolkit for Visual Studio.

### To edit an application's environment settings

- Expand the Elastic Beanstalk node and your application node. Then right-click your Elastic Beanstalk environment in **AWS Explorer**. Select **View Status**.

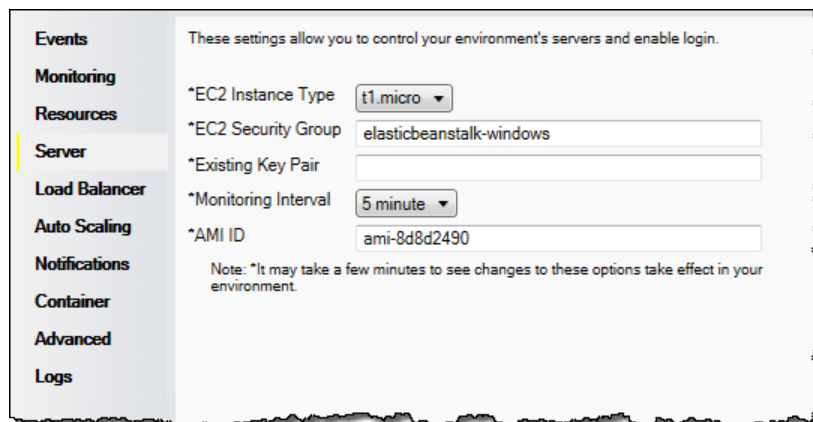
You can now configure settings for the following:

- Server
- Load balancing
- Autoscaling
- Notifications
- Environment properties

## Configuring EC2 Server Instances Using the AWS Toolkit for Visual Studio

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that you use to launch and manage server instances in Amazon's data centers. You can use Amazon EC2 server instances at any time, for as long as you need, and for any legal purpose. Instances are available in different sizes and configurations. For more information, go to [Amazon EC2](#).

You can edit the Elastic Beanstalk environment's Amazon EC2 instance configuration with the **Server** tab inside your application environment tab in the AWS Toolkit for Visual Studio.



### Amazon EC2 Instance Types

**Instance type** displays the instance types available to your Elastic Beanstalk application. Change the instance type to select a server with the characteristics (including memory size and CPU power) that are most appropriate to your application. For example, applications with intensive and long-running operations may require more CPU or memory. Elastic Beanstalk regularly checks your running instances to ensure they are healthy. If your application consumes 95 percent or greater of the CPU, Elastic Beanstalk will trigger an event. For more information about this event, see [CPU Utilization Exceeds 95.00%](#) (p. 810).

### Note

You cannot change between 32-bit and 64-bit instance types. For example, if your application is built on a 32-bit platform, only 32-bit instance types appear in the list.

For more information about the Amazon EC2 instance types available for your Elastic Beanstalk application, see [Instance Types](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Amazon EC2 Security Groups

You can control access to your Elastic Beanstalk application using an *Amazon EC2 Security Group*. A security group defines firewall rules for your instances. These rules specify which ingress (i.e., incoming) network traffic should be delivered to your instance. All other ingress traffic will be discarded. You can modify rules for a group at any time. The new rules are automatically enforced for all running instances and instances launched in the future.

You can set up your Amazon EC2 security groups using the AWS Management Console or by using the AWS Toolkit for Visual Studio. You can specify which Amazon EC2 Security Groups control access to your Elastic Beanstalk application by entering the names of one or more Amazon EC2 security group names (delimited by commas) into the **EC2 Security Groups** text box.

### Note

Make sure port 80 (HTTP) is accessible from 0.0.0.0/0 as the source CIDR range if you want to enable health checks for your application. For more information about health checks, see [Health Checks](#) (p. 675).

### To create a security group using the AWS Toolkit for Visual Studio

1. In Visual Studio, in **AWS Explorer**, expand the **Amazon EC2** node, and then double-click **Security Groups**.
2. Click **Create Security Group**, and enter a name and description for your security group.
3. Click **OK**.

For more information on Amazon EC2 Security Groups, see [Using Security Groups](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Amazon EC2 Key Pairs

You can securely log in to the Amazon EC2 instances provisioned for your Elastic Beanstalk application with an Amazon EC2 key pair.

### Important

You must create an Amazon EC2 key pair and configure your Elastic Beanstalk–provisioned Amazon EC2 instances to use the Amazon EC2 key pair before you can access your Elastic Beanstalk–provisioned Amazon EC2 instances. You can create your key pair using the **Publish to AWS** wizard inside the AWS Toolkit for Visual Studio when you deploy your application to Elastic Beanstalk. If you want to create additional key pairs using the Toolkit, follow the steps below. Alternatively, you can set up your Amazon EC2 key pairs using the [AWS Management Console](#). For instructions on creating a key pair for Amazon EC2, see the [Amazon Elastic Compute Cloud Getting Started Guide](#).

The **Existing Key Pair** text box lets you specify the name of an Amazon EC2 key pair you can use to securely log in to the Amazon EC2 instances running your Elastic Beanstalk application.

### To specify the name of an Amazon EC2 key pair

1. Expand the **Amazon EC2** node and double-click **Key Pairs**.
2. Click **Create Key Pair** and enter the key pair name.
3. Click **OK**.

For more information about Amazon EC2 key pairs, go to [Using Amazon EC2 Credentials](#) in the *Amazon Elastic Compute Cloud User Guide*. For more information about connecting to Amazon EC2 instances, see [Listing and Connecting to Server Instances](#) (p. 679).

## Monitoring Interval

By default, only basic Amazon CloudWatch metrics are enabled; they return data in five-minute periods. You can enable more granular one-minute CloudWatch metrics by selecting **1 minute** for the **Monitoring Interval** in the **Server** section of the **Configuration** tab for your environment in the AWS Toolkit for Eclipse.

### Note

Amazon CloudWatch service charges can apply for one-minute interval metrics. See [Amazon CloudWatch](#) for more information.

## Custom AMI ID

You can override the default AMI used for your Amazon EC2 instances with your own custom AMI by entering the identifier of your custom AMI into the **Custom AMI ID** box in the **Server** section of the **Configuration** tab for your environment in the AWS Toolkit for Eclipse.

### Important

Using your own AMI is an advanced task and should be done with care. If you need a custom AMI, we recommend you start with the default Elastic Beanstalk AMI and then modify it. To be considered healthy, Elastic Beanstalk expects Amazon EC2 instances to meet a set of requirements, including having a running host manager. If these requirements are not met, your environment might not work properly.

## Configuring Elastic Load Balancing Using the AWS Toolkit for Visual Studio

Elastic Load Balancing is an Amazon web service that helps you improve the availability and scalability of your application. This service makes it easy for you to distribute application loads between two or more Amazon EC2 instances. Elastic Load Balancing enables availability through redundancy and supports traffic growth for your application.

Elastic Load Balancing lets you automatically distribute and balance the incoming application traffic among all the instances you are running. The service also makes it easy to add new instances when you need to increase the capacity of your application.

Elastic Beanstalk automatically provisions Elastic Load Balancing when you deploy an application. You can edit the Elastic Beanstalk environment's Amazon EC2 instance configuration with the **Load Balancer** tab inside your application environment tab in AWS Toolkit for Visual Studio.

The screenshot shows the configuration window for Elastic Load Balancing in the AWS Toolkit for Visual Studio. The window is divided into several sections:

- Events:** These settings allow you to control the behavior of your environment's load balancer.
- Monitoring:**
- Resources:** HTTP Listener Port: 80
- Server:** HTTPS Listener Port: OFF
- Load Balancer:** SSL Certificate ID: [Empty field]
- Auto Scaling:** These settings allow you to configure how Elastic Beanstalk determines whether an EC2 instance is healthy or not.
- Notifications:** Application Health Check: 7
- Container:** Health Check Interval (seconds): 30 (5 - 300)
- Advanced:** Health Check Timeout (seconds): 5 (2 - 60)  
Healthy Check Count Threshold: 3 (2 - 10)  
Unhealthy Check Count Threshold: 5 (2 - 10)
- These settings allow you to control how your load balancer handles session cookies.  
 Enable Session Stickiness
- Cookie Expiration Period (seconds): 0 (0 - 1000000)

The following sections describe the Elastic Load Balancing parameters you can configure for your application.

## Ports

The load balancer provisioned to handle requests for your Elastic Beanstalk application sends requests to the Amazon EC2 instances that are running your application. The provisioned load balancer can listen for requests on HTTP and HTTPS ports and route requests to the Amazon EC2 instances in your AWS Elastic Beanstalk application. By default, the load balancer handles requests on the HTTP port. At least one of the ports (either HTTP or HTTPS) must be turned on.



### Important

Make sure that the port you specified is not locked down; otherwise, users will not be able to connect to your Elastic Beanstalk application.

## Controlling the HTTP Port

To turn off the HTTP port, select **OFF** for **HTTP Listener Port**. To turn on the HTTP port, you select an HTTP port (for example, **80**) from the list.

### Note

If you want to access your environment using a different port other than the default port 80 (e.g., port 8080), you can add a listener to the existing load balancer and configure the new listener to listen on that port. For example, using the [Elastic Load Balancing API Tools](#), type the following command replacing `<yourloadbalancename>` with the name of your load balancer for Elastic Beanstalk.

```
elb-create-lb-listeners --lb <yourloadbalancename> --listener
"protocol=http, lb-port=8080, instance-port=80"
```

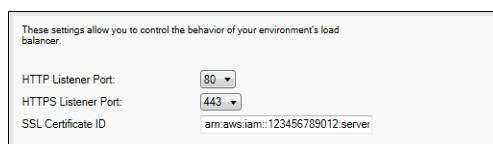
If you want Elastic Beanstalk to monitor your environment, do not remove the listener on port 80.

## Controlling the HTTPS Port

Elastic Load Balancing supports the HTTPS/TLS protocol to enable traffic encryption for client connections to the load balancer. Connections from the load balancer to the EC2 instances use plaintext encryption. By default, the HTTPS port is turned off.

### To turn on the HTTPS port

1. Create and upload a certificate and key to the AWS Identity and Access Management (IAM) service. The IAM service will store the certificate and provide an Amazon Resource Name (ARN) for the SSL certificate you've uploaded. For more information about creating and uploading certificates, see the [Managing Server Certificates](#) section of *Using AWS Identity and Access Management*.
2. Specify the HTTPS port by selecting a port for **HTTPS Listener Port**.





- For **SSL Certificate ID**, enter the Amazon Resources Name (ARN) of your SSL certificate (e.g., `arn:aws:iam::123456789012:server-certificate/abc/certs/build`). Use the SSL certificate that you created and uploaded in step 1. For information on viewing the certificate's ARN, see [Verify the Certificate Object](#) topic in the *Creating and Uploading Server Certificates* section of the *Using IAM Guide*.

To turn off the HTTPS port, select **OFF** for **HTTPS Listener Port**.

## Health Checks

The health check definition includes a URL to be queried for instance health. By default, Elastic Beanstalk uses TCP:80 for nonlegacy containers and HTTP:80 for legacy containers. You can override the default URL to match an existing resource in your application (e.g., `/myapp/default.aspx`) by entering it in the **Application Health Check URL** box. If you override the default URL, then Elastic Beanstalk uses HTTP to query the resource. To check if you are using a legacy container type, see [Why are some container types marked legacy?](#) (p. 117).

You can control the settings for the health check using the **EC2 Instance Health Check** section of the **Load Balancing** panel.

These settings allow you to configure how Elastic Beanstalk determines whether an EC2 instance is healthy or not.

Application Health Check:	<input type="text" value="/"/>	
Health Check Interval (seconds):	<input type="text" value="30"/>	(5 - 300)
Health Check Timeout (seconds):	<input type="text" value="5"/>	(2 - 60)
Healthy Check Count Threshold:	<input type="text" value="3"/>	(2 - 10)
Unhealthy Check Count Threshold:	<input type="text" value="5"/>	(2 - 10)

The health check definition includes a URL to be queried for instance health. Override the default URL to match an existing resource in your application (e.g., `/myapp/index.jsp`) by entering it in the **Application Health Check URL** box.

The following list describes the health check parameters you can set for your application.

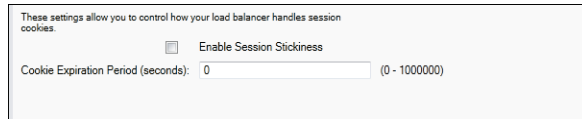
- For **Health Check Interval (seconds)**, enter the number of seconds Elastic Load Balancing waits between health checks for your application's Amazon EC2 instances.
- For **Health Check Timeout (seconds)**, specify the number of seconds Elastic Load Balancing waits for a response before it considers the instance unresponsive.
- For **Healthy Check Count Threshold** and **Unhealthy Check Count Threshold**, specify the number of consecutive successful or unsuccessful URL probes before Elastic Load Balancing changes the instance health status. For example, specifying 5 for **Unhealthy Check Count Threshold** means that the URL would have to return an error message or timeout five consecutive times before Elastic Load Balancing considers the health check failed.

## Sessions

By default, a load balancer routes each request independently to the server instance with the smallest load. By comparison, a sticky session binds a user's session to a specific server instance so that all requests coming from the user during the session are sent to the same server instance.

Elastic Beanstalk uses load balancer-generated HTTP cookies when sticky sessions are enabled for an application. The load balancer uses a special load balancer-generated cookie to track the application instance for each request. When the load balancer receives a request, it first checks to see if this cookie is present in the request. If so, the request is sent to the application instance specified in the cookie. If there is no cookie, the load balancer chooses an application instance based on the existing load balancing algorithm. A cookie is inserted into the response for binding subsequent requests from the same user to that application instance. The policy configuration defines a cookie expiry, which establishes the duration of validity for each cookie.

You can use the **Sessions** section on the **Load Balancer** tab to specify whether or not the load balancer for your application allows session stickiness.



These settings allow you to control how your load balancer handles session cookies.

Enable Session Stickiness

Cookie Expiration Period (seconds):  (0 - 1000000)

For more information on Elastic Load Balancing, go to the [Elastic Load Balancing Developer Guide](#).

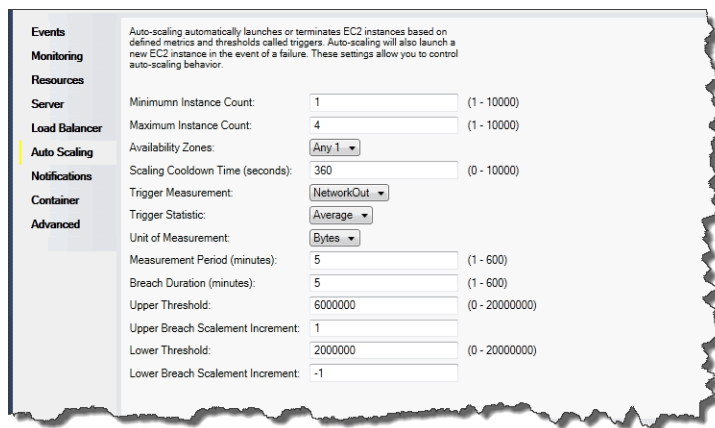
## Configuring Auto Scaling Using the AWS Toolkit for Visual Studio

Auto Scaling is an Amazon web service designed to automatically launch or terminate Amazon EC2 instances based on user-defined triggers. Users can set up *Auto Scaling groups* and associate *triggers* with these groups to automatically scale computing resources based on metrics such as bandwidth usage or CPU utilization. Auto Scaling works with Amazon CloudWatch to retrieve metrics for the server instances running your application.

Auto Scaling lets you take a group of Amazon EC2 instances and set various parameters to have this group automatically increase or decrease in number. Auto Scaling can add or remove Amazon EC2 instances from that group to help you seamlessly deal with traffic changes to your application.

Auto Scaling also monitors the health of each Amazon EC2 instance that it launches. If any instance terminates unexpectedly, Auto Scaling detects the termination and launches a replacement instance. This capability enables you to maintain a fixed, desired number of Amazon EC2 instances automatically.

Elastic Beanstalk provisions Auto Scaling for your application. You can edit the Elastic Beanstalk environment's Amazon EC2 instance configuration with the **Auto Scaling** tab inside your application environment tab in the AWS Toolkit for Visual Studio.



Auto-scaling automatically launches or terminates EC2 instances based on defined metrics and thresholds called triggers. Auto-scaling will also launch a new EC2 instance in the event of a failure. These settings allow you to control auto-scaling behavior.

**Resources**

**Server**

Minimum Instance Count:  (1 - 10000)

**Load Balancer**

Maximum Instance Count:  (1 - 10000)

**Auto Scaling**

Availability Zones:

Scaling Cooldown Time (seconds):  (0 - 10000)

**Notifications**

Trigger Measurement:

Trigger Statistic:

**Advanced**

Unit of Measurement:

Measurement Period (minutes):  (1 - 600)

Breach Duration (minutes):  (1 - 600)

Upper Threshold:  (0 - 20000000)

Upper Breach Scalement Increment:

Lower Threshold:  (0 - 20000000)

Lower Breach Scalement Increment:

The following section discusses how to configure Auto Scaling parameters for your application.

### Launch the Configuration

You can edit the launch configuration to control how your Elastic Beanstalk application provisions Auto Scaling resources.

The **Minimum Instance Count** and **Maximum Instance Count** boxes let you specify the minimum and maximum size of the Auto Scaling group that your Elastic Beanstalk application uses.

Auto-scaling automatically launches or terminates EC2 instances based on defined metrics and thresholds called triggers. Auto-scaling will also launch a new EC2 instance in the event of a failure. These settings allow you to control auto-scaling behavior.

Minimum Instance Count:	<input type="text" value="1"/>	(1 - 10000)
Maximum Instance Count:	<input type="text" value="4"/>	(1 - 10000)
Availability Zones:	<input type="text" value="Any"/>	
Scaling Cooldown Time (seconds):	<input type="text" value="360"/>	(0 - 10000)

**Note**

To maintain a fixed number of Amazon EC2 instances, set **Minimum Instance Count** and **Maximum Instance Count** to the same value.

The **Availability Zones** box lets you specify the number of Availability Zones you want your Amazon EC2 instances to be in. It is important to set this number if you want to build fault-tolerant applications. If one Availability Zone goes down, your instances will still be running in your other Availability Zones.

**Note**

Currently, it is not possible to specify which Availability Zone your instance will be in.

## Triggers

A *trigger* is an Auto Scaling mechanism that you set to tell the system when you want to increase (*scale out*) the number of instances, and when you want to decrease (*scale in*) the number of instances. You can configure triggers to *fire* on any metric published to Amazon CloudWatch, such as CPU utilization, and determine if the conditions you specified have been met. When the upper or lower thresholds of the conditions you have specified for the metric have been breached for the specified period of time, the trigger launches a long-running process called a *Scaling Activity*.

You can define a scaling trigger for your Elastic Beanstalk application using AWS Toolkit for Visual Studio.

Trigger Measurement:	<input type="text" value="NetworkOut"/>
Trigger Statistic:	<input type="text" value="Average"/>
Unit of Measurement:	<input type="text" value="Bytes"/>
Measurement Period (minutes):	<input type="text" value="5"/> (1 - 600)
Breach Duration (minutes):	<input type="text" value="5"/> (1 - 600)
Upper Threshold:	<input type="text" value="6000000"/> (0 - 20000000)
Upper Breach Scalement Increment:	<input type="text" value="1"/>
Lower Threshold:	<input type="text" value="2000000"/> (0 - 20000000)
Lower Breach Scalement Increment:	<input type="text" value="-1"/>

Auto Scaling triggers work by watching a specific Amazon CloudWatch metric for an instance. Triggers include CPU utilization, network traffic, and disk activity. Use the **Trigger Measurement** setting to select a metric for your trigger.

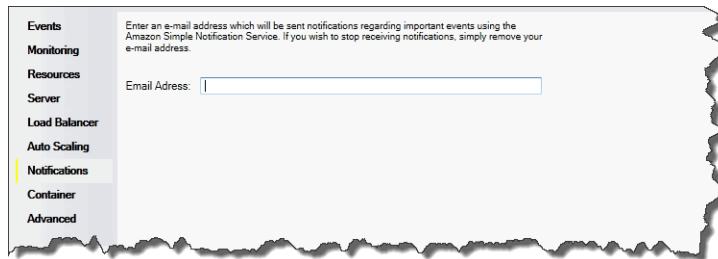
The following list describes the trigger parameters you can configure using the AWS Management Console.

- You can specify which statistic the trigger should use. You can select **Minimum**, **Maximum**, **Sum**, or **Average** for **Trigger Statistic**.
- For **Unit of Measurement**, specify the unit for the trigger measurement.
- The value in the **Measurement Period** box specifies how frequently Amazon CloudWatch measures the metrics for your trigger. The **Breach Duration** is the amount of time a metric can be beyond its defined limit (as specified for the **Upper Threshold** and **Lower Threshold**) before the trigger fires.
- For **Upper Breach Scale Increment** and **Lower Breach Scale Increment**, specify how many Amazon EC2 instances to add or remove when performing a scaling activity.

For more information on Auto Scaling, go to the [Auto Scaling documentation](#).

## Configuring Notifications Using AWS Toolkit for Visual Studio

Elastic Beanstalk uses the Amazon Simple Notification Service (Amazon SNS) to notify you of important events affecting your application. To enable Amazon SNS notifications, simply enter your email address in the **Email Address** box. To disable these notifications, remove your email address from the box.



## Configuring .NET Containers Using the AWS Toolkit for Visual Studio

The **Container/.NET Options** panel lets you fine-tune the behavior of your Amazon EC2 instances and enable or disable Amazon S3 log rotation. You can use the AWS Toolkit for Visual Studio to configure your container information.

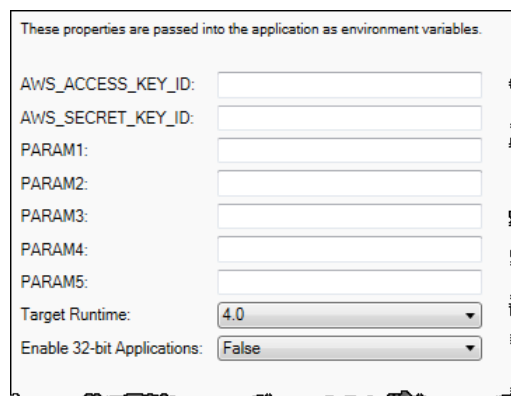
### Note

You can modify your configuration settings with zero downtime by swapping the CNAME for your environments. For more information, see [Blue/Green Deployments with AWS Elastic Beanstalk](#) (p. 103).

If you want to, you can extend the number of parameters. For information about extending parameters, see [Option Settings](#) (p. 179).

### To access the Container/.NET Options panel for your Elastic Beanstalk application

1. In AWS Toolkit for Visual Studio, expand the Elastic Beanstalk node and your application node.
2. In **AWS Explorer**, double-click your Elastic Beanstalk environment.
3. At the bottom of the **Overview** pane, click the **Configuration** tab.
4. Under **Container**, you can configure container options.



## .NET Container Options

You can choose the version of .NET Framework for your application. Choose either 2.0 or 4.0 for **Target runtime**. Select **Enable 32-bit Applications** if you want to enable 32-bit applications.

## Application Settings

The **Application Settings** section lets you specify environment variables that you can read from your application code.

These properties are passed into the application as environment variables.

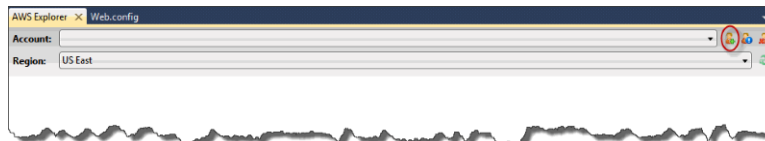
AWS_ACCESS_KEY_ID:	<input type="text"/>
AWS_SECRET_KEY_ID:	<input type="text"/>
PARAM1:	<input type="text"/>
PARAM2:	<input type="text"/>
PARAM3:	<input type="text"/>
PARAM4:	<input type="text"/>
PARAM5:	<input type="text"/>

# Managing Accounts

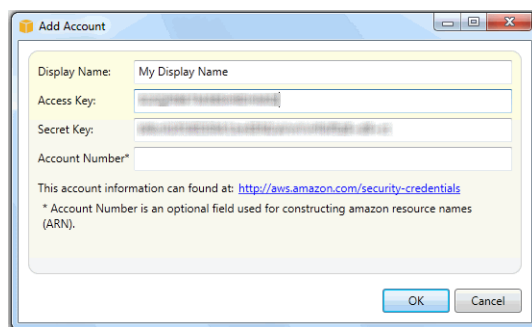
If you want to set up different AWS accounts to perform different tasks, such as testing, staging, and production, you can add, edit, and delete accounts using the AWS Toolkit for Visual Studio.

## To manage multiple accounts

1. In Visual Studio, on the **View** menu, click **AWS Explorer**.
2. Beside the **Account** list, click the **Add Account** button.



The **Add Account** dialog box appears.



Display Name: My Display Name

Access Key:

Secret Key:

Account Number\*

This account information can found at: <http://aws.amazon.com/security-credentials>

\* Account Number is an optional field used for constructing amazon resource names (ARN).

OK Cancel

3. Fill in the requested information.
4. Your account information now appears on the **AWS Explorer** tab. When you publish to Elastic Beanstalk, you can select which account you would like to use.

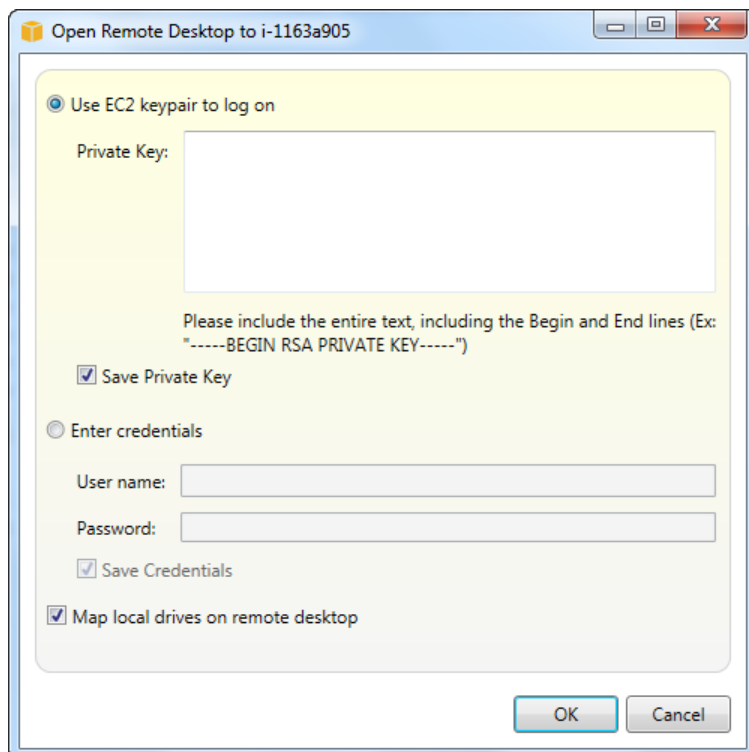
# Listing and Connecting to Server Instances

You can view a list of Amazon EC2 instances running your Elastic Beanstalk application environment through the AWS Toolkit for Visual Studio or from the AWS Management Console. You can connect

to these instances using Remote Desktop Connection. For information about listing and connecting to your server instances using the AWS Management Console, see [Listing and Connecting to Server Instances \(p. 318\)](#). The following section steps you through viewing and connecting you to your server instances using the AWS Toolkit for Visual Studio.

### To view and connect to Amazon EC2 instances for an environment

1. In Visual Studio, in **AWS Explorer**, expand the **Amazon EC2** node and double-click **Instances**.
2. Right-click the instance ID for the Amazon EC2 instance running in your application's load balancer in the **Instance** column and select **Open Remote Desktop** from the context menu.



3. Select **Use EC2 keypair to log on** and paste the contents of your private key file that you used to deploy your application in the **Private key** box. Alternatively, enter your user name and password in the **User name** and **Password** text boxes.

#### Note

If the key pair is stored inside the Toolkit, the text box does not appear.

4. Click **OK**.

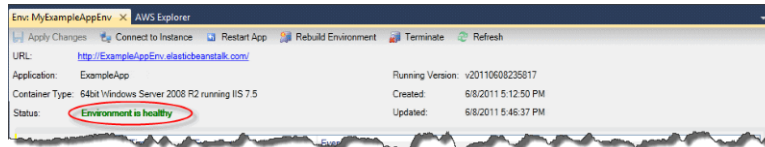
## Monitoring Application Health

When you are running a production website, it is important to know that your application is available and responding to requests. To assist with monitoring your application's responsiveness, Elastic Beanstalk provides features where you can monitor statistics about your application and create alerts that trigger when thresholds are exceeded.

For information about the health monitoring provided by Elastic Beanstalk, see [Basic Health Reporting \(p. 288\)](#).

You can access operational information about your application by using either the AWS Toolkit for Visual Studio or the AWS Management Console.

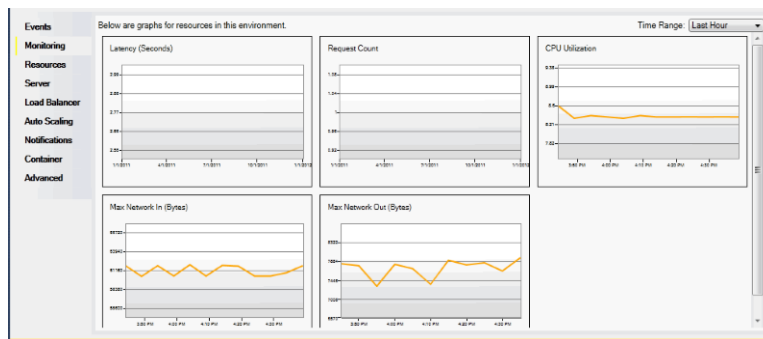
The toolkit displays your environment's status and application health in the **Status** field.



## To monitor application health

1. In the AWS Toolkit for Visual Studio, in **AWS Explorer**, expand the Elastic Beanstalk node, and then expand your application node.
2. Right-click your Elastic Beanstalk environment, and then click **View Status**.
3. On your application environment tab, click **Monitoring**.

The **Monitoring** panel includes a set of graphs showing resource usage for your particular application environment.



### Note

By default, the time range is set to the last hour. To modify this setting, in the **Time Range** list, click a different time range.

You can use the AWS Toolkit for Visual Studio or the AWS Management Console to view events associated with your application.

## To view application events

1. In the AWS Toolkit for Visual Studio, in **AWS Explorer**, expand the Elastic Beanstalk node and your application node.
2. Right-click your Elastic Beanstalk environment in **AWS Explorer** and then click **View Status**.
3. In your application environment tab, click **Events**.

Event Time	Event Type	Version Label	Event Details
12/2/2011 3:43:19 PM	INFO	v20111202232102	Environment update completed successfully.
12/2/2011 3:43:19 PM	INFO	v20111202232102	New application version was deployed to running EC2 instances.
12/2/2011 3:43:06 PM	INFO	v20111202232102	Waiting for 2 seconds while EC2 instances download the updated application version.
12/2/2011 3:43:04 PM	INFO	v20111202232102	Deploying version v20111202232102 to 1 instance(s).
12/2/2011 3:42:59 PM	INFO	v20111202230009	Environment update is starting.
12/2/2011 3:30:38 PM	INFO	v20111202230009	Environment health has transitioned from RED to GREEN.
12/2/2011 3:28:37 PM	INFO	v20111202230009	Environment health has been set to RED.
12/2/2011 3:28:37 PM	INFO	v20111202230009	Launched environment: MyExampleAppEnv. However, there were issues during launch. See event log for details.
12/2/2011 3:28:35 PM	INFO	v20111202230009	Exceeded maximum amount time to wait for the application to become available. Setting environment Ready.
12/2/2011 3:18:13 PM	INFO	v20111202230009	Adding instance 'i-93d5e5f0' to your environment.
12/2/2011 3:18:50 PM	INFO	v20111202230009	Added EC2 instance 'i-93d5e5f0' to Auto Scaling Group 'aws-eb-MyExampleAppEnv-5y33OGV0m'.
12/2/2011 3:18:47 PM	INFO	v20111202230009	An EC2 instance has been launched. Waiting for it to be added to Auto Scaling.
12/2/2011 3:18:34 PM	INFO	v20111202230009	Waiting for an EC2 instance to be launched.
12/2/2011 3:18:33 PM	INFO	v20111202230009	Adding Auto Scaling Group 'aws-eb-MyExampleAppEnv-5y33OGV0m' to your environment.
12/2/2011 3:18:33 PM	INFO	v20111202230009	Added URLCheck healthcheck for 'http://MyExampleAppEnv.elasticbeanstalk.com:80/'
12/2/2011 3:18:31 PM	INFO	v20111202230009	Created Auto Scaling trigger named: aws-eb-MyExampleAppEnv-5y33OGV0m.
12/2/2011 3:18:30 PM	INFO	v20111202230009	Created Auto Scaling group named: aws-eb-MyExampleAppEnv-5y33OGV0m.
12/2/2011 3:18:30 PM	INFO	v20111202230009	Created Auto Scaling launch configuration named: aws-eb-MyExampleAppEnv-5y33OGV0m.
12/2/2011 3:18:29 PM	INFO	v20111202230009	Created load balancer named: aws-eb-MyExampleAppEnv.
12/2/2011 3:18:29 PM	INFO	v20111202230009	Created security group named: elasticbeanstalk-windows.
12/2/2011 3:18:28 PM	INFO	v20111202230009	Using elasticbeanstalk-us-east-1-045020475070 as Amazon S3 storage bucket for environment data.

## Deploying Elastic Beanstalk Applications in .NET Using the Deployment Tool

The AWS Toolkit for Visual Studio includes a deployment tool, a command line tool that provides the same functionality as the deployment wizard in the AWS Toolkit. You can use the deployment tool in your build pipeline or in other scripts to automate deployments to Elastic Beanstalk.

The deployment tool supports both initial deployments and redeployments. If you previously deployed your application using the deployment tool, you can redeploy using the deployment wizard within Visual Studio. Similarly, if you have deployed using the wizard, you can redeploy using the deployment tool.

### Note

The deployment tool does not apply [recommended values \(p. 176\)](#) for configuration options like the console or EB CLI. Use [configuration files \(p. 178\)](#) to ensure that any settings that you need are configured when you launch your environment.

This chapter walks you through deploying a sample .NET application to Elastic Beanstalk using the deployment tool, and then redeploying the application using an incremental deployment. For a more in-depth discussion about the deployment tool, including the parameter options, see [Deployment Tool](#).

## Prerequisites

To use the deployment tool, you need to install the AWS Toolkit for Visual Studio. For information on prerequisites and installation instructions, see [AWS Toolkit for Microsoft Visual Studio](#).

The deployment tool is typically installed in one of the following directories on Windows:

32-bit	64-bit
C:\Program Files\AWS Tools \Deployment Tool\awsdeploy.exe	C:\Program Files (x86)\AWS Tools\Deployment Tool \awsdeploy.exe

## Deploy to Elastic Beanstalk

To deploy the sample application to Elastic Beanstalk using the deployment tool, you first need to modify the `ElasticBeanstalkDeploymentSample.txt` configuration file, which is provided in the `Samples` directory. This configuration file contains the information necessary to deploy your application, including the application name, application version, environment name, and your AWS access credentials. After modifying the configuration file, you then use the command line to deploy the sample application. Your web deploy file is uploaded to Amazon S3 and registered as a new application version with Elastic Beanstalk. It will take a few minutes to deploy your application. Once the environment is healthy, the deployment tool outputs a URL for the running application.

### To deploy a .NET application to Elastic Beanstalk

1. From the `Samples` subdirectory where the deployment tool is installed, open `ElasticBeanstalkDeploymentSample.txt` and enter your AWS access key and AWS secret key as in the following example.

```
AWS Access Key and Secret Key used to create and deploy the
application instance
AWSAccessKey = AKIAIOSFODNN7EXAMPLE
AWSSecretKey = wJalrXUtnFEMI/K7MDENG/bPxrFiCYEXAMPLEKEY
```



**Note**

For API access, you need an access key ID and secret access key. Use IAM user access keys instead of AWS root account access keys. IAM lets you securely control access to AWS services and resources in your AWS account. For more information about creating access keys, see [How Do I Get Security Credentials?](#) in the *AWS General Reference*.

2. At the command line prompt, type the following:

```
C:\Program Files (x86)\AWS Tools\Deployment Tool>awsdeploy.exe /w Samples
\ElasticBeanstalkDeploymentSample.txt
```

It takes a few minutes to deploy your application. If the deployment succeeds, you will see the message, `Application deployment completed; environment health is Green`.

**Note**

If you receive the following error, the CNAME already exists.

```
[Error]: Deployment to AWS Elastic Beanstalk failed with exception:
DNS name (MyAppEnv.elasticbeanstalk.com) is not available.
```

Because a CNAME must be unique, you need to change `Environment.CNAME` in `ElasticBeanstalkDeploymentSample.txt`.

3. In your web browser, navigate to the URL of your running application. The URL will be in the form `<CNAME.elasticbeanstalk.com>` (e.g., `MyAppEnv.elasticbeanstalk.com`).

## Redeploy to Elastic Beanstalk

You can redeploy your application using an incremental deployment. Incremental deployments are faster because you are updating only the files that have changed instead of all the files. This section walks you through redeploying the sample application you deployed in [Deploy to Elastic Beanstalk \(p. 682\)](#).

### To edit and redeploy a .NET application to Elastic Beanstalk

1. Extract `AWSDeploymentSampleApp.zip` from the `Samples` directory to a location on your computer such as `c:\mydeploymentarchive\AWSDeploymentSampleApp`.
2. Modify one of the files in the `AWSDeploymentSampleApp` directory. For example, you can modify the title in `default.aspx`.
3. In the `ElasticBeanstalkDeploymentSample.txt` configuration file, do the following:

- Specify the location where you extracted the files. This means modifying the value for the `DeploymentPackage` key in the `Incremental Deployment Settings` section in `ElasticBeanstalkDeploymentSample.txt`. For example:

```
C:\mydeploymentarchive\AWSDeploymentSampleApp
```

- Remove the `#` in front of `IncrementalPushRepository` and `DeploymentPackage`.
  - Add a `#` in front of `DeploymentPackage` in the `Non-Incremental Deployment Settings`.
4. At the command line, type the following:

```
C:\Program Files (x86)\AWS Tools\Deployment Tool>awsdeploy.exe /r Samples
\ElasticBeanstalkDeploymentSample.txt
```

If this command succeeds, you should see something similar to the following:

```
...environment 'MyAppEnvironment' found and available for redeployment
(configuration parameters not required for redeployment will be ignored)
...starting redeployment to AWS Elastic Beanstalk environment
'MyAppEnvironment'
...starting incremental deployment to environment 'MyAppEnvironment'
...finished incremental deployment in 9199.9199 ms
```

5. In your web browser, navigate to the same URL as in [Deploy to Elastic Beanstalk \(p. 682\)](#). You should see your updated application.

#### Sections

- [Create a Project \(p. 684\)](#)
- [Test Locally \(p. 684\)](#)
- [Create an Elastic Beanstalk Environment \(p. 684\)](#)
- [Terminating an Environment \(p. 692\)](#)

## Create a Project

Visual Studio provides templates for different programming languages and application types. You can start with any of these templates. The AWS Toolkit for Visual Studio also provides three project templates that bootstrap development of your application: AWS Console Project, AWS Web Project, and AWS Empty Project. For this example, you'll create a new ASP.NET Web Application.

#### To create a new ASP.NET Web Application project

1. In Visual Studio, on the **File** menu, click **New** and then click **Project**.
2. In the **New Project** dialog box, click **Installed Templates**, click **Visual C#**, and then click **Web**. Click **ASP.NET Empty Web Application**, type a project name, and then click **OK**.

#### To run a project

Do one of the following:

1. Press **F5**.
2. Select **Start Debugging** from the **Debug** menu.

## Test Locally

Visual Studio makes it easy for you to test your application locally. To test or run ASP.NET web applications, you need a web server. Visual Studio offers several options, such as Internet Information Services (IIS), IIS Express, or the built-in Visual Studio Development Server. To learn about each of these options and to decide which one is best for you, go to [Web Servers in Visual Studio for ASP.NET Web Projects](#).

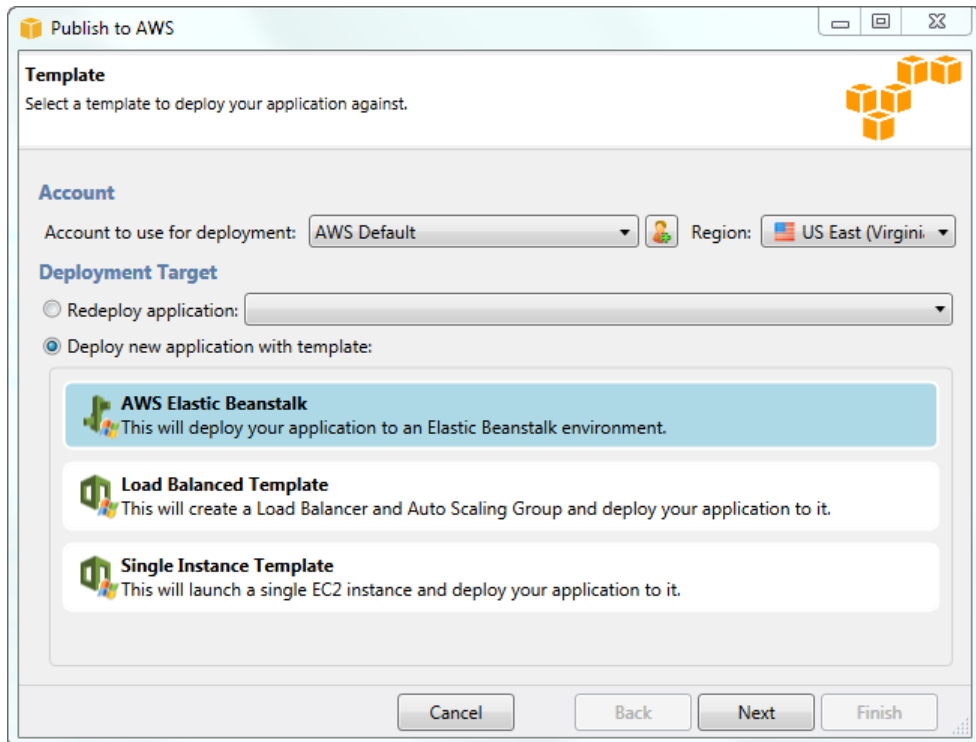
## Create an Elastic Beanstalk Environment

After testing your application, you are ready to deploy it to Elastic Beanstalk.

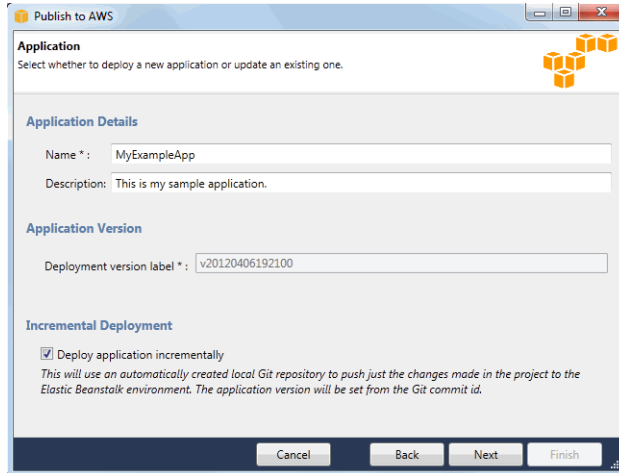
#### To deploy your application to Elastic Beanstalk using the AWS Toolkit for Visual Studio

1. In **Solution Explorer**, right-click your application and then select **Publish to AWS**.

2. In the **Publish to AWS** wizard, enter your account information.
  - a. For **AWS account to use for deployment**, select your account or select **Other** to enter new account information.
  - b. For **Region**, select the region where you want to deploy your application. For information about this product's regions, go to [Regions and Endpoints](#) in the *Amazon Web Services General Reference*. If you select a region that is not supported by Elastic Beanstalk, then the option to deploy to Elastic Beanstalk will become unavailable.
  - c. Click **Deploy new application with template** and select **Elastic Beanstalk**. Then click **Next**.



3. On the **Application** page, enter your application details.
  - a. For **Name**, type the name of the application.
  - b. For **Description**, type a description of the application. This step is optional.
  - c. The version label of the application automatically appears in the **Deployment version label**
  - d. Select **Deploy application incrementally** to deploy only the changed files. An incremental deployment is faster because you are updating only the files that changed instead of all the files. If you choose this option, an application version will be set from the Git commit ID. If you choose to not deploy your application incrementally, then you can update the version label in the **Deployment version label** box.



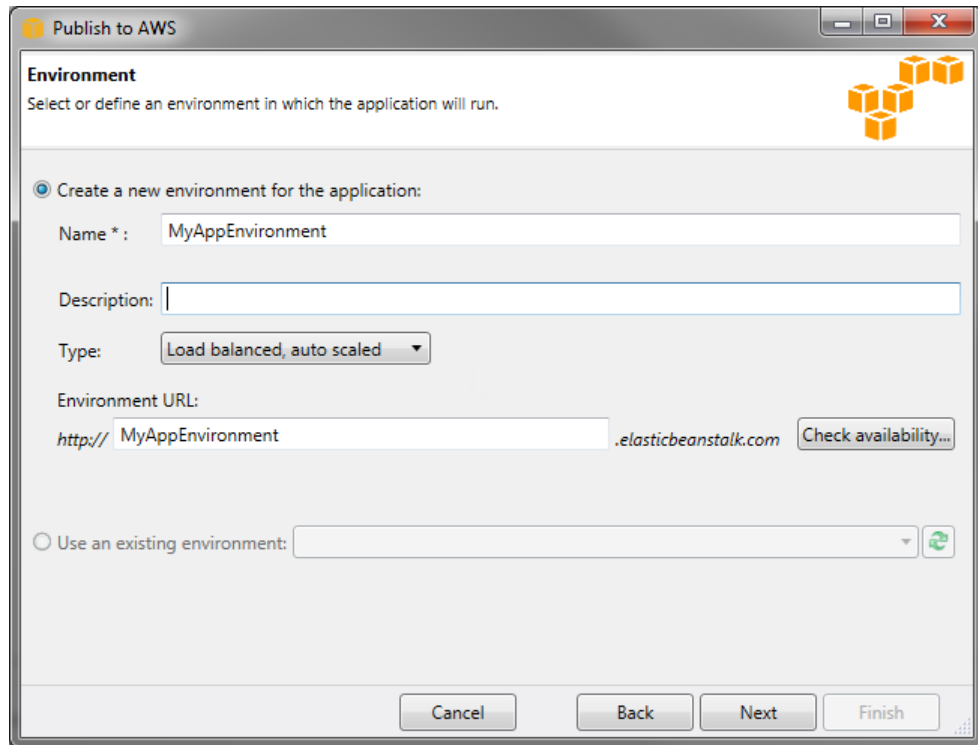
- e. Click **Next**.
4. On the **Environment** page, describe your environment details.
  - a. Select **Create a new environment for this application**.
  - b. For **Name**, type a name for your environment.
  - c. For **Description**, characterize your environment. This step is optional.
  - d. Select the **Type** of environment that you want.

You can select either **Load balanced, auto scaled** or a **Single instance** environment. For more information, see [Environment Types \(p. 120\)](#).

**Note**

For single-instance environments, load balancing, autoscaling, and the health check URL settings don't apply.

- e. The environment URL automatically appears in the **Environment URL** once you move your cursor to that box.
- f. Click **Check availability** to make sure the environment URL is available.



- g. Click **Next**.
5. On the **AWS Options** page, configure additional options and security information for your deployment.
  - a. For **Container Type**, select **64bit Windows Server 2012 running IIS 8** or **64bit Windows Server 2008 running IIS 7.5**.
  - b. For **Instance Type**, select **Micro**.
  - c. For **Key pair**, select **Create new key pair**. Type a name for the new key pair—in this example, we use `myuswestkeypair`—and then click **OK**. A key pair enables remote-desktop access to your Amazon EC2 instances. For more information on Amazon EC2 key pairs, see [Using Credentials](#) in the *Amazon Elastic Compute Cloud User Guide*.
  - d. Select an instance profile.

If you do not have an instance profile, select **Create a default instance profile**. For information about using instance profiles with Elastic Beanstalk, see [Managing Elastic Beanstalk Instance Profiles](#) (p. 333).
  - e. If you have a custom VPC that you would like to use with your environment, click **Launch into VPC**. You can configure the VPC information on the next page. For more information about Amazon VPC, go to [Amazon Virtual Private Cloud \(Amazon VPC\)](#). For a list of supported nonlegacy container types, see [Why are some container types marked legacy?](#) (p. 117).

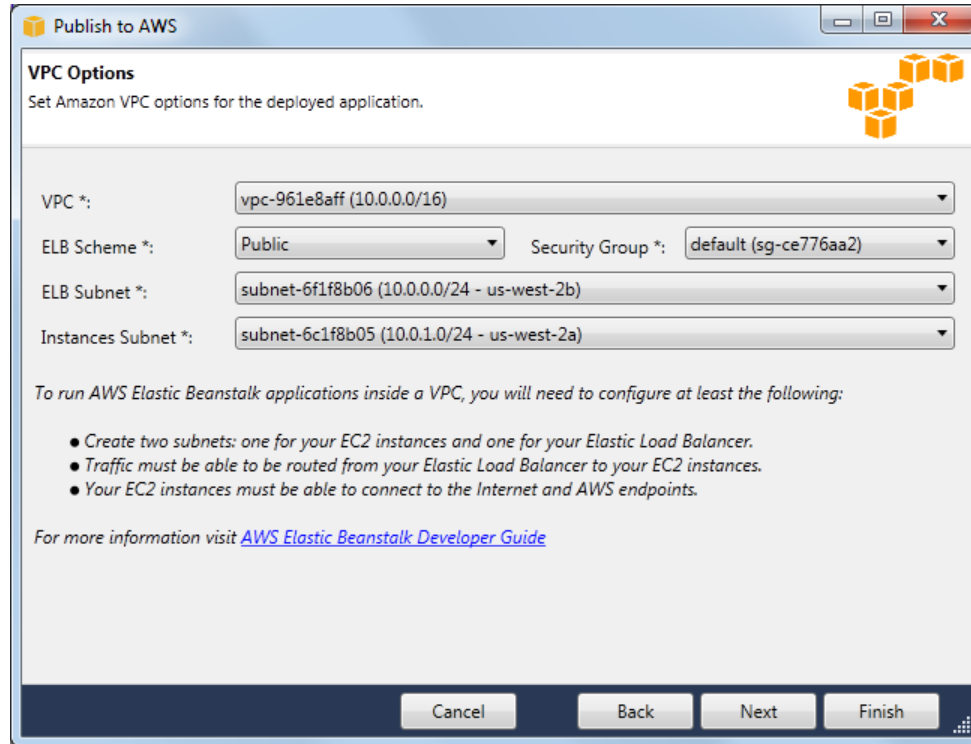
The screenshot shows a 'Publish to AWS' dialog box with the following sections:

- AWS Options**: Set Amazon EC2 options for the deployed application.
- Amazon EC2**:
  - Container type \*: 64bit Windows Server 2012 running IIS 8
  - Use custom AMI: [Empty text box]
  - Instance type \*: Micro
  - Key pair \*: myuswestkeypair
- Launch Configuration**:
  - IAM Role: Use the default role (aws-elasticbeanstalk-ec2-role)
  - If you choose not to use the default role, you must grant the relevant permissions to Elastic Beanstalk. See [AWS Elastic Beanstalk Developer Guide](#) for more details.*
  - Launch into VPC *If you elect to launch instances in a VPC, the next page will enable you to customize the VPC settings.*

Buttons at the bottom: Cancel, Back, Next, Finish.

- f. Click **Next**.
6. If you selected to launch your environment inside a VPC, the **VPC Options** page appears; otherwise, the **Additional Options** page appears. Here you'll configure your VPC options.

## VPC options for load-balanced, autoscaled environment



**Publish to AWS**

**VPC Options**  
Set Amazon VPC options for the deployed application.

VPC \*: vpc-961e8aff (10.0.0.0/16)

ELB Scheme \*: Public Security Group \*: default (sg-ce776aa2)

ELB Subnet \*: subnet-6f1f8b06 (10.0.0.0/24 - us-west-2b)

Instances Subnet \*: subnet-6c1f8b05 (10.0.1.0/24 - us-west-2a)

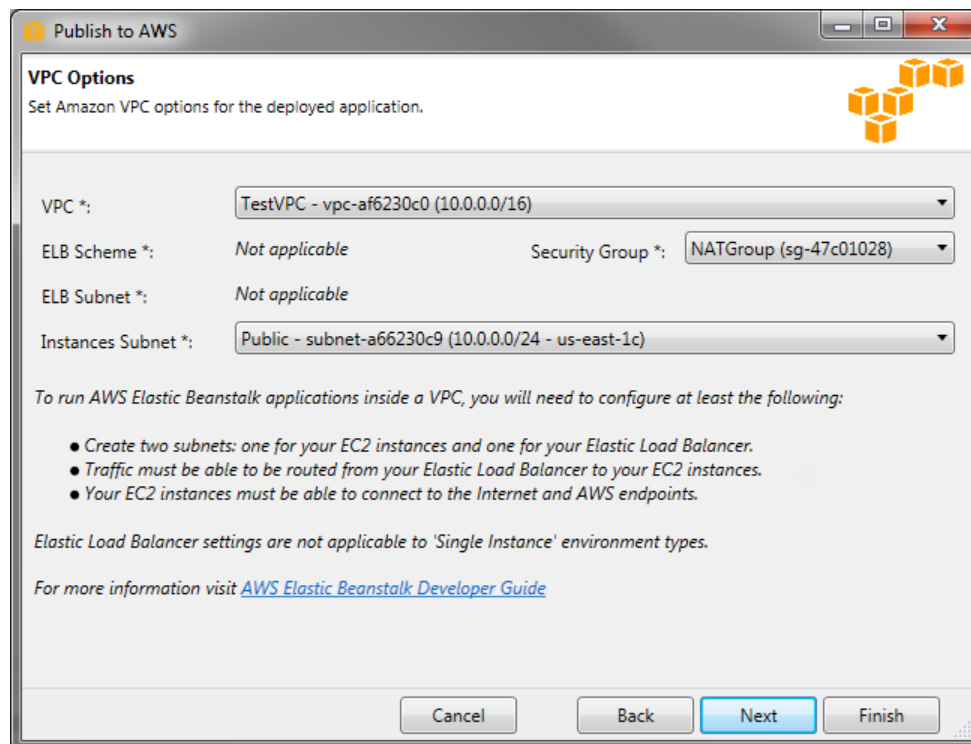
To run AWS Elastic Beanstalk applications inside a VPC, you will need to configure at least the following:

- Create two subnets: one for your EC2 instances and one for your Elastic Load Balancer.
- Traffic must be able to be routed from your Elastic Load Balancer to your EC2 instances.
- Your EC2 instances must be able to connect to the Internet and AWS endpoints.

For more information visit [AWS Elastic Beanstalk Developer Guide](#)

Cancel Back Next Finish

## VPC options for single-instance environment



**Publish to AWS**

**VPC Options**  
Set Amazon VPC options for the deployed application.

VPC \*: TestVPC - vpc-af6230c0 (10.0.0.0/16)

ELB Scheme \*: Not applicable Security Group \*: NATGroup (sg-47c01028)

ELB Subnet \*: Not applicable

Instances Subnet \*: Public - subnet-a66230c9 (10.0.0.0/24 - us-east-1c)

To run AWS Elastic Beanstalk applications inside a VPC, you will need to configure at least the following:

- Create two subnets: one for your EC2 instances and one for your Elastic Load Balancer.
- Traffic must be able to be routed from your Elastic Load Balancer to your EC2 instances.
- Your EC2 instances must be able to connect to the Internet and AWS endpoints.

Elastic Load Balancer settings are not applicable to 'Single Instance' environment types.

For more information visit [AWS Elastic Beanstalk Developer Guide](#)

Cancel Back Next Finish

- a. Select the VPC ID of the VPC in which you would like to launch your environment.
- b. For a load-balanced, autoscaled environment, select **private** for **ELB Scheme** if you do not want your elastic load balancer to be available to the Internet.

For a single-instance environment, this option is not applicable because the environment doesn't have a load balancer. For more information, see [Environment Types \(p. 120\)](#).

- c. For a load-balanced, autoscaled environment, select the subnets for the elastic load balancer and the EC2 instances. If you created public and private subnets, make sure the elastic load balancer and the EC2 instances are associated with the correct subnet. By default, Amazon VPC creates a default public subnet using 10.0.0.0/24 and a private subnet using 10.0.1.0/24. You can view your existing subnets in the Amazon VPC console at <https://console.aws.amazon.com/vpc/>.

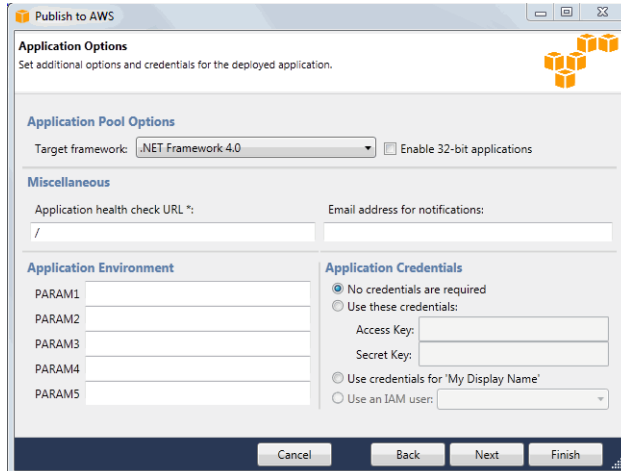
For a single-instance environment, your VPC only needs a public subnet for the instance. Selecting a subnet for the load balancer is not applicable because the environment doesn't have a load balancer. For more information, see [Environment Types \(p. 120\)](#).

- d. For a load-balanced, autoscaled environment, select the security group you created for your instances, if applicable. For more information, see [Create a Security Group for Your Instances \(p. 398\)](#).

For a single-instance environment, you don't need a NAT device. Select the default security group. Elastic Beanstalk assigns an Elastic IP address to the instance that lets the instance access the Internet.

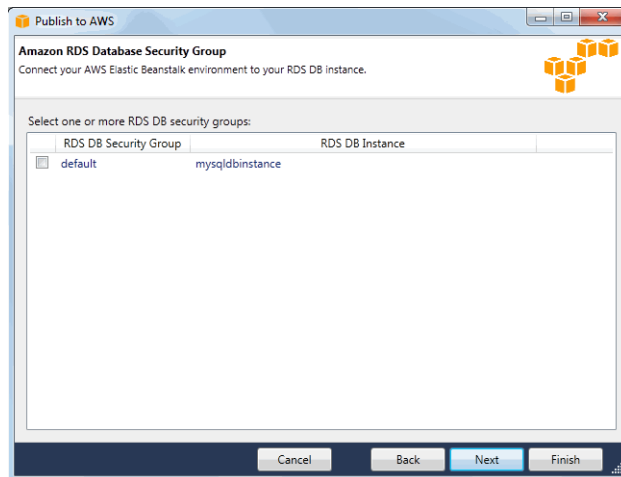
- e. Click **Next**.
7. On the **Application Options** page, configure your application options.
    - a. For Target framework, select **.NET Framework 4.0**.
    - b. Elastic Load Balancing uses a health check to determine whether the Amazon EC2 instances running your application are healthy. The health check determines an instance's health status by probing a specified URL at a set interval. You can override the default URL to match an existing resource in your application (e.g., `/myapp/index.aspx`) by entering it in the **Application health check URL** box. For more information about application health checks, see [Health Check \(p. 241\)](#).
    - c. Type an email address if you want to receive Amazon Simple Notification Service (Amazon SNS) notifications of important events affecting your application.
    - d. The **Application Environment** section lets you specify environment variables on the Amazon EC2 instances that are running your application. This setting enables greater portability by eliminating the need to recompile your source code as you move between environments.
    - e. Select the application credentials option you want to use to deploy your application.



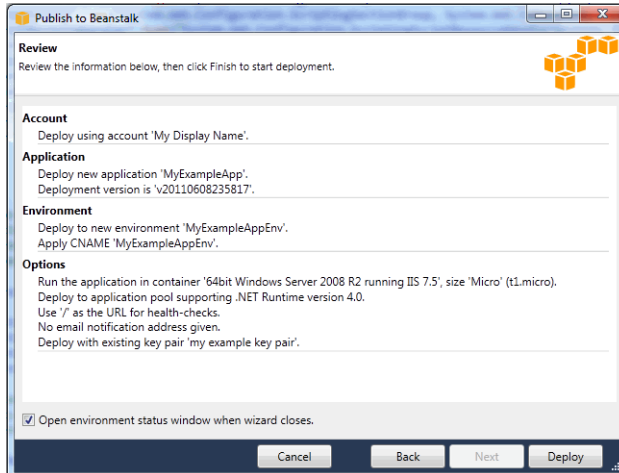


f. Click **Next**.

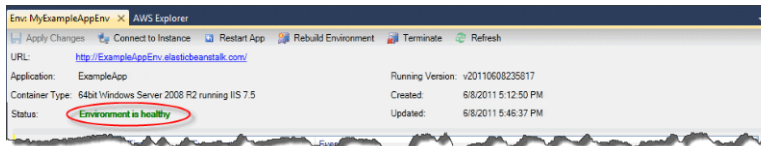
8. If you have previously set up an Amazon RDS database, the **Amazon RDS DB Security Group** page appears. If you want to connect your Elastic Beanstalk environment to your Amazon RDS DB Instance, then select one or more security groups. Otherwise, go on to the next step. When you're ready, click **Next**.



9. Review your deployment options. If everything is as you want, click **Deploy**.



Your ASP.NET project will be exported as a web deploy file, uploaded to Amazon S3, and registered as a new application version with Elastic Beanstalk. The Elastic Beanstalk deployment feature will monitor your environment until it becomes available with the newly deployed code. On the env:<environment name> tab, you will see status for your environment.



## Terminating an Environment

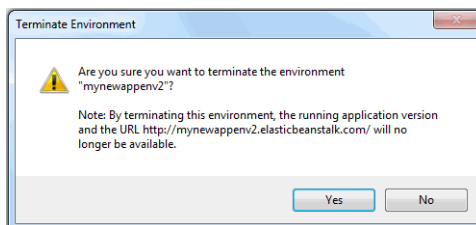
To avoid incurring charges for unused AWS resources, you can terminate a running environment using the AWS Toolkit for Visual Studio.

### Note

You can always launch a new environment using the same version later.

### To terminate an environment

1. Expand the Elastic Beanstalk node and the application node in **AWS Explorer**. Right-click your application environment and select **Terminate Environment**.
2. When prompted, click **Yes** to confirm that you want to terminate the environment. It will take a few minutes for Elastic Beanstalk to terminate the AWS resources running in the environment.



### Note

When you terminate your environment, the CNAME associated with the terminated environment becomes available for anyone to use.

## Resources

There are several places you can go to get additional help when developing your .NET applications:

Resource	Description
<a href="#">.NET Development Forum</a>	Post your questions and get feedback.
<a href="#">.NET Developer Center</a>	One-stop shop for sample code, documentation, tools, and additional resources.
<a href="#">AWS SDK for .NET Documentation</a>	Read about setting up the SDK and running code samples, features of the SDK, and detailed information about the API operations for the SDK.

# Deploying Node.js Applications to AWS Elastic Beanstalk

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## Topics

- [Getting Started with Node.js on Elastic Beanstalk \(p. 695\)](#)
- [Setting Up your Node.js Development Environment \(p. 697\)](#)
- [Using the AWS Elastic Beanstalk Node.js Platform \(p. 699\)](#)
- [Deploying an Express Application to Elastic Beanstalk \(p. 704\)](#)
- [Deploying a Node.js Application with DynamoDB to Elastic Beanstalk \(p. 708\)](#)
- [Deploying a Geddy Application with Clustering to Elastic Beanstalk \(p. 717\)](#)
- [Using Amazon RDS with Node.js \(p. 727\)](#)
- [Resources \(p. 729\)](#)

Elastic Beanstalk for Node.js makes it easy to deploy, manage, and scale your Node.js web applications using Amazon Web Services. Elastic Beanstalk for Node.js is available to anyone developing or hosting a web application using Node.js. This chapter provides step-by-step instructions for deploying your Node.js web application to Elastic Beanstalk using the Elastic Beanstalk management console, and provides walkthroughs for common frameworks such as Express and Geddy.

After you deploy your Elastic Beanstalk application, you can continue to use EB CLI to manage your application and environment, or you can use the Elastic Beanstalk console, AWS CLI, or the APIs.

### **Note**

When support for the version of Node.js that you are using is removed from the platform configuration, you must change or remove the version setting prior to doing a [platform upgrade \(p. 113\)](#). This may occur when a security vulnerability is identified for one or more versions of Node.js

When this occurs, attempting to upgrade to a new version of the platform that does not support the configured [NodeVersion \(p. 171\)](#) will fail. To avoid needing to create a new environment, change the `NodeVersion` configuration option to a version that is supported by both the old configuration version and the new one, or [remove the option setting \(p. 139\)](#), and then perform the platform upgrade.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

# Getting Started with Node.js on Elastic Beanstalk

To get started with Node.js applications on AWS Elastic Beanstalk, all you need is an application [source bundle \(p. 43\)](#) to upload as your first application version and to deploy to an environment. When you create an environment, Elastic Beanstalk allocates all of the AWS resources needed to run a highly scalable web application.

## Launching an Environment with a Sample Node.js Application

Elastic Beanstalk provides single page sample applications for each platform as well as more complex examples that show the use of additional AWS resources such as Amazon RDS and language or platform-specific features and APIs.

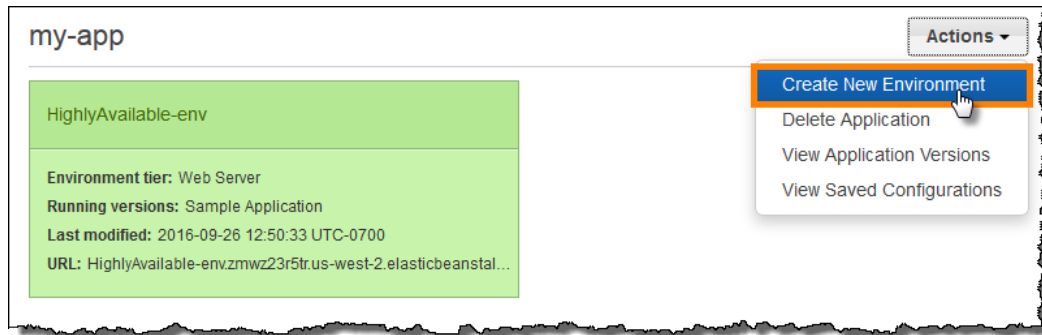
### Samples

Supported Configurations	Environment Type	Source Bundle	Description
Node.js	Web Server	<a href="#">nodejs-v1.zip</a>	Single page express application.
Node.js	Web Server with Amazon RDS	<a href="#">nodejs-express-hiking-v1.zip</a>	Hiking log application that uses the Express framework and an RDS database. <a href="#">Tutorial (p. 704)</a>
Node.js	Web Server with DynamoDB, Amazon SNS and Amazon SQS	<a href="#">eb-node-express-sample-v1.0.zip</a> <a href="#">Clone the repo at GitHub.com</a>	Express web site that collects user contact information for a new company's marketing campaign. Uses the AWS SDK for JavaScript in Node.js to write entries to a DynamoDB table, and Elastic Beanstalk configuration files to create resources in DynamoDB, Amazon SNS and Amazon SQS. <a href="#">Tutorial (p. 708)</a>

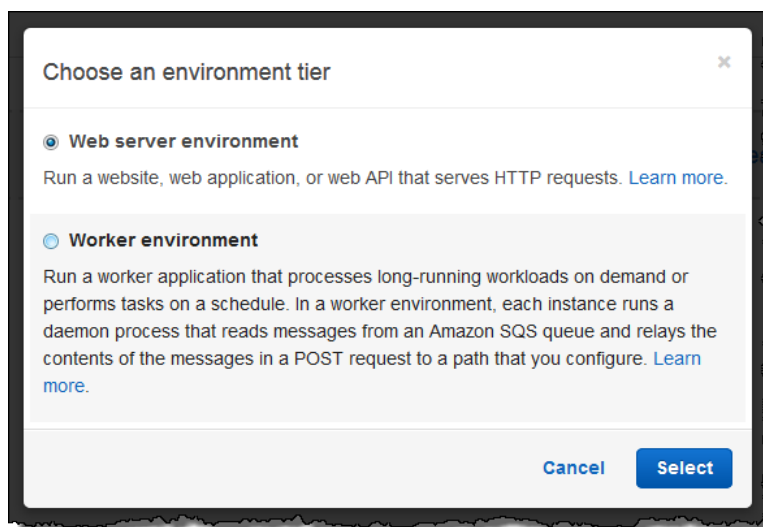
Download any of the sample applications and deploy it to Elastic Beanstalk by following these steps:

### To launch an environment with a sample application (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one \(p. 36\)](#).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

**Note**

Elastic Beanstalk supports multiple [configurations](#) (p. 24) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk](#) (p. 24). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Sample application**.
7. If you would like to further customize your environment, choose **Configure more options**. The following options can only be set during environment creation:
  - Environment name
  - Domain name
  - Platform configuration
  - VPC
  - Tier

The following settings can be changed after environment creation, but require new instances or other resources to be provisioned and can take a long time to apply:

- Instance type, root volume, key pair, and IAM role
- Internal RDS database

- Load balancer

For details on all available settings, see [The Create New Environment Wizard \(p. 63\)](#).

8. Choose **Create environment**.

## Next Steps

After you have an environment running an application, you can deploy a new version of the application or a completely different application at any time. Deploying a new application version is very quick because it doesn't require provisioning or restarting EC2 instances.

After you've deployed a sample application or two and are ready to start developing and running Node.js applications locally, see [the next section \(p. 697\)](#) to set up a Node.js development environment with all of the tools that you will need.

# Setting Up your Node.js Development Environment

Set up a Node.js development environment to test your application locally prior to deploying it to AWS Elastic Beanstalk. This topic outlines development environment setup steps and links to installation pages for useful tools.

For common setup steps and tools that apply to all languages, see [Configuring your development environment for use with AWS Elastic Beanstalk \(p. 413\)](#)

### Topics

- [Installing Node.js \(p. 697\)](#)
- [Installing NPM \(p. 698\)](#)
- [Installing the AWS SDK for Node.js \(p. 698\)](#)
- [Installing Express \(p. 698\)](#)
- [Installing Geddy \(p. 698\)](#)

## Installing Node.js

Install Node.js to run Node.js applications locally. If you don't have a preference, get the latest version supported by Elastic Beanstalk. See [Node.js \(p. 29\)](#) on the supported platforms page for a list of supported versions.

Download Node.js at [nodejs.org](http://nodejs.org).

### Note

When support for the version of Node.js that you are using is removed from the platform configuration, you must change or remove the version setting prior to doing a [platform upgrade \(p. 113\)](#). This may occur when a security vulnerability is identified for one or more versions of Node.js

When this occurs, attempting to upgrade to a new version of the platform that does not support the configured [NodeVersion \(p. 171\)](#) will fail. To avoid needing to create a new environment, change the `NodeVersion` configuration option to a version that is supported by both the old configuration version and the new one, or [remove the option setting \(p. 139\)](#), and then perform the platform upgrade.

## Installing NPM

NPM is a package manager that helps you install tools and frameworks for use in your application. Download NPM at [npmjs.com](http://npmjs.com).

## Installing the AWS SDK for Node.js

If you need to manage AWS resources from within your application, install the AWS SDK for JavaScript in Node.js. Install the SDK with NPM:

```
$ npm install aws-sdk
```

Visit the [AWS SDK for JavaScript in Node.js](#) homepage for more information.

## Installing Express

Express is a web application framework that runs on Node.js.

### To set up your Express development environment on your local computer

1. Install Express globally so that you have access to the `express` command.

```
~/workspace/express-app$ npm install -g express-generator
```

2. Depending on your operating system, you may need to set your path to run the `express` command. If you need to set your path, use the output from the previous step when you installed Express. The following is an example.

```
node-express$ export PATH=$PATH:/usr/local/share/npm/bin/express
```

3. Run the `express` command. This generates `package.json`.

```
node-express$ express
```

When prompted if you want to continue, type `y`.

4. Set up local dependencies.

```
node-express$ npm install
```

5. Verify it works.

```
node-express$ npm start
```

You should see output similar to the following:

```
Express server listening on port 3000
```

Press **Ctrl+C** to stop the server.

## Installing Geddy

Geddy is another web application framework that runs on Node.js.



### To set up your Geddy development environment on your local computer

1. Install Geddy globally so that you have geddy generators or start the server.

```
node-geddy$ npm install -g geddy
```

2. Depending on your operating system, you may need to set your path to run the `geddycode>` command. If you need to set your path, use the output from the previous step when you installed Geddy. The following is an example.

```
node-geddy$ export :PATH=$PATH:/usr/local/share/npm/bin/geddy
```

3. Create the directory for your application.

```
node-geddy$ geddy app myapp
node-geddy$ cd myapp
```

4. Start the server. Verify everything is working, and then stop the server.

```
myapp$ geddy
myapp$ curl localhost:4000 (or use web browser)
```

Press **Ctrl+C** to stop the server.

## Using the AWS Elastic Beanstalk Node.js Platform

The AWS Elastic Beanstalk Node.js platform is an [platform configuration \(p. 29\)](#) for Node.js web applications that can run behind an nginx proxy server, behind an Apache server, or standalone.

Elastic Beanstalk provides [configuration options \(p. 131\)](#) that you can use to customize the software that runs on the EC2 instances in your Elastic Beanstalk environment. You can choose which proxy server to run in front of your application, choose a specific version of Node.js to run, and choose the command used to run your application. You can also configure environment variables needed by your application and enable log rotation to Amazon S3.

Platform-specific configuration options are available in the AWS Management Console for [modifying the configuration of a running environment \(p. 139\)](#). To avoid losing your environment's configuration when you terminate it, you can use [saved configurations \(p. 215\)](#) to save your settings and later apply them to another environment.

To save settings in your source code, you can include [configuration files \(p. 178\)](#). Settings in configuration files are applied every time you create an environment or deploy your application. You can also use configuration files to install packages, run scripts, and perform other instance customization operations during deployments.

You can [include a Package.json file \(p. 701\)](#) in your source bundle to install packages during deployment, and an [npm-shrinkwrap.json file \(p. 702\)](#) to lock down dependency versions.

The Node.js platform includes a proxy server to serve static assets, forward traffic to your application, and compress responses. You can [extend or override the default proxy configuration \(p. 702\)](#) for advanced scenarios.

Settings applied in the AWS Management Console override the same settings in configuration files, if they exist. This lets you have default settings in configuration files, and override them with environment

specific settings in the console. For more information about precedence, and other methods of changing settings, see [Configuration Options](#) (p. 131).


#### Sections

- [Configuring Your Node.js Environment in the AWS Management Console](#) (p. 700)
- [Configuration Files](#) (p. 701)
- [Installing Packages with a Package.json File](#) (p. 701)
- [Locking Dependencies with NPM Shrinkwrap](#) (p. 702)
- [Configuring the Proxy Server](#) (p. 702)

## Configuring Your Node.js Environment in the AWS Management Console

The Node.js settings lets you fine-tune the behavior of your Amazon EC2 instances and enable or disable Amazon S3 log rotation. You can edit the Elastic Beanstalk environment's Amazon EC2 instance configuration using the AWS Management Console.

### To access the Node.js container configurations for your Elastic Beanstalk application

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .

## Container Options

On the configuration page, specify the following:

- **Proxy Server**— Specifies which web server to use to proxy connections to Node.js. By default, nginx is used. If you select **none**, static file mappings do not take affect, and gzip compression is disabled.
- **Node Version**— Specifies the version of Node.js. For information about what versions are supported, see [Supported Platforms](#) (p. 24).

#### Note

When support for the version of Node.js that you are using is removed from the platform configuration, you must change or remove the version setting prior to doing a [platform upgrade](#) (p. 113). This may occur when a security vulnerability is identified for one or more versions of Node.js

When this occurs, attempting to upgrade to a new version of the platform that does not support the configured [NodeVersion](#) (p. 171) will fail. To avoid needing to create a new environment, change the *NodeVersion* configuration option to a version that is supported by both the old configuration version and the new one, or [remove the option setting](#) (p. 139), and then perform the platform upgrade.

- **Gzip Compression**— Specifies whether gzip compression is enabled. By default, gzip compression is enabled.
- **Node Command**— Lets you enter the command used to start the Node.js application. An empty string (the default) means Elastic Beanstalk will use `app.js`, then `server.js`, and then `npm start` in that order.

## Log Options

The Log Options section has two settings:

- **Instance profile**— Specifies the instance profile that has permission to access the Amazon S3 bucket associated with your application.
- **Enable log file rotation to Amazon S3**— Specifies whether log files for your application's Amazon EC2 instances should be copied to your Amazon S3 bucket associated with your application.

## Static Files

To improve performance, you may want to configure nginx or Apache to server static files (for example, HTML or images) from a set of directories inside your web application. You can set the virtual path and directory mapping on the **Container** tab in the **Static Files** section. To add multiple mappings, click **Add Path**. To remove a mapping, click **Remove**.

## Environment Properties

The **Environment Properties** section lets you specify environment configuration settings on the Amazon EC2 instances that are running your application. These settings are passed in as key-value pairs to the application.

Inside the Node.js environment running in AWS Elastic Beanstalk, you can access the environment variables using `process.env.ENV_VARIABLE` similar to the following example.

```
process.env.PARAM1
process.env.PARAM2
```

### Note

Environment configuration settings can contain any printable ASCII character except the grave accent ( ` , ASCII 96) and cannot exceed 200 characters in length.

The Node.js platform sets the PORT environment variable to the port to which the proxy server passes traffic. See [Configuring the Proxy Server \(p. 702\)](#).

## Configuration Files

You can use a [configuration file \(p. 178\)](#) to set configuration options and perform other instance configuration tasks during deployments. The following configuration file tells Elastic Beanstalk to use "npm start" to run the application, sets the proxy type to Apache, enables compression, and configures the proxy to serve static images from the `myimages` directory at the `/images` path.

### Example `.ebextensions/node-settings.config`

```
option_settings:
 aws:elasticbeanstalk:container:nodejs:
 NodeCommand: "npm start"
 ProxyServer: apache
 GzipCompression: true
 aws:elasticbeanstalk:container:nodejs:staticfiles:
 /images: myimages
```

For a list of configuration settings, see [Node.js Platform Options \(p. 171\)](#).

## Installing Packages with a Package.json File

Use a `package.json` file in the root of your project source to use NPM to install packages that your application requires.

### Example package.json

```
{
 "name": "Elastic_Beanstalk_Geddy",
 "version": "0.0.1",
 "dependencies": {
 "geddy": "0.6.x"
 }
}
```

When a `package.json` file is present, Elastic Beanstalk runs `npm install` to install dependencies.

## Locking Dependencies with NPM Shrinkwrap

The Node.js platform runs `npm install` each time you deploy. When new versions of your dependencies are available, they will be installed when you deploy your application, potentially causing the deployment to take a long time.

You can avoid upgrading dependencies by creating an `npm-shrinkwrap.json` file that locks down your application's dependencies to the current version.

```
$ npm install
$ npm shrinkwrap
wrote npm-shrinkwrap.json
```

Include this file in your source bundle to ensure that dependencies are only installed once.

## Configuring the Proxy Server

The Node.js platform uses a reverse proxy to relay requests from port 80 on the instance to your application listening on port 8081. Elastic Beanstalk provides a default proxy configuration that you can either extend or override completely with your own configuration.

To extend the default configuration, add `.conf` files to `/etc/nginx/conf.d` with a configuration file. See [Terminating HTTPS on EC2 Instances Running Node.js \(p. 262\)](#) for an example.

The Node.js platform sets the `PORT` environment variable to the port to which the proxy server passes traffic. Read this variable in your code to configure your application's port.

```
var port = process.env.PORT || 3000;

var server = app.listen(port, function () {
 console.log('Server running at http://127.0.0.1:' + port + '/');
});
```

The default nginx configuration forwards traffic to an upstream server named `nodejs` at `127.0.0.1:8081`. It is possible to remove the default configuration and provide your own in a [configuration file \(p. 178\)](#).

### Example .ebextensions/proxy.config

The following example removes the default configuration and adds a custom configuration that forwards traffic to port 5000 instead of 8081.

```
files:
 /etc/nginx/conf.d/proxy.conf:
 mode: "000644"
 owner: root
 group: root
 content: |
 upstream nodejs {
 server 127.0.0.1:5000;
 keepalive 256;
 }

 server {
 listen 8080;

 if ($time_iso8601 ~ "^(\\d{4})-(\\d{2})-(\\d{2})T(\\d{2})") {
 set $year $1;
 set $month $2;
 set $day $3;
 set $hour $4;
 }

 access_log /var/log/nginx/healthd/application.log.$year-$month-$day-$hour healthd;
 access_log /var/log/nginx/access.log main;

 location / {
 proxy_pass http://nodejs;
 proxy_set_header Connection "";
 proxy_http_version 1.1;
 proxy_set_header Host $host;
 proxy_set_header X-Real-IP $remote_addr;
 proxy_set_header X-Forwarded-For
 $proxy_add_x_forwarded_for;
 }

 gzip on;
 gzip_comp_level 4;
 gzip_types text/html text/plain text/css application/json
 application/x-javascript text/xml application/xml application/xml+rss text/
 javascript;

 location /static {
 alias /var/app/current/static;
 }
 }
 }

container_commands:
 removeconfig:
 command: "rm -f /tmp/deployment/config/
 #etc#nginx#conf.d#00_elastic_beanstalk_proxy.conf /etc/nginx/
 conf.d/00_elastic_beanstalk_proxy.conf"
```

The example configuration uses the default configuration at `/etc/nginx/conf.d/00_elastic_beanstalk_proxy.conf` as a base to include the default server block with compression and log settings, and a static file mapping.

**Note**

The default configuration may change in future versions of the Node.js platform. Use the latest version of the configuration as a base for your customizations to ensure compatibility.

If you override the default configuration, you must define any static file mappings and gzip compression, as the platform will not be able to apply the [standard settings \(p. 701\)](#).

## Deploying an Express Application to Elastic Beanstalk

This section walks you through deploying a sample application to Elastic Beanstalk using EB CLI and git, and then updating the application to use the [Express](#) framework.

### Set Up Your Express Development Environment

Set up Express and create the project structure. The following walks you through setting up Express on a Linux operating system.

#### To set up your Express development environment on your local computer

1. Install Node.js. For instructions, go to <http://nodejs.org/>. Verify you have a successful installation before proceeding to the next step.

```
$ node -v
```

**Note**

For information about the Node.js versions that are currently supported, see [Supported Platforms \(p. 24\)](#).

2. Create a directory for your Express application.

```
~$ mkdir node-express
~$ cd node-express
```

3. Install [npm](#) if you don't already have it installed. Here's one example of how to install npm.

```
~/node-express$ yum install npm
```

4. Install Express globally so that you have access to the `express` command.

```
~/node-express$ npm install -g express-generator
```

5. Depending on your operating system, you may need to set your path to run the `express` command. If you need to set your path, use the output from the previous step when you installed Express. The following is an example.

```
~/node-express$ export:PATH=$PATH:/usr/local/share/npm/bin/express
```

6. Run the `express` command. This generates `package.json`.

```
~/node-express$ express
```

When prompted if you want to continue, type **y**.

7. Set up local dependencies.

```
~/node-express$ npm install
```

8. Verify it works.

```
~/node-express$ npm start
```

You should see output similar to the following:

```
> nodejs@0.0.0 start /home/local/user/node-express
> node ./bin/www
```

Press **Ctrl+c** to stop the server.

9. Initialize the Git repository.

```
~/node-express$ git init
```

10. Create a file named `.gitignore` and add the following files and directories to it. These files will be excluded from being added to the repository. This step is not required, but it is recommended.

**node-express/.gitignore**

```
node_modules/
.gitignore
.elasticbeanstalk/
```

## Create an Elastic Beanstalk Environment

Configure an EB CLI repository for your application and create an Elastic Beanstalk environment running the Node.js platform.

1. Create a repository with the `eb init` command.

```
~/node-express$ eb init --platform node.js --region us-west-2
Application node-express has been created.
```

This command creates a configuration file in a folder named `.elasticbeanstalk` that specifies settings for creating environments for your application, and creates an Elastic Beanstalk application named after the current folder.

2. Create an environment running a sample application with the `eb create` command.

```
~/node-express$ eb create --sample node-express-env
```

This command creates a load balanced environment with the default settings for the Node.js platform and the following resources:

- **EC2 instance** – An Amazon Elastic Compute Cloud (Amazon EC2) virtual machine configured to run web apps on the platform that you choose.

Each platform runs a different set of software, configuration files, and scripts to support a specific language version, framework, web container, or combination thereof. Most platforms use either Apache or nginx as a reverse proxy that sits in front of your web app, forwards requests to it, serves static assets, and generates access and error logs.

- **Instance security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the load balancer reach the EC2 instance running your web app. By default, traffic is not allowed on other ports.
  - **Load balancer** – An Elastic Load Balancing load balancer configured to distribute requests to the instances running your application. A load balancer also eliminates the need to expose your instances directly to the Internet.
  - **Load balancer security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the Internet reach the load balancer. By default, traffic is not allowed on other ports.
  - **Auto Scaling group** – An Auto Scaling group configured to replace an instance if it is terminated or becomes unavailable.
  - **Amazon S3 bucket** – A storage location for your source code, logs, and other artifacts that are created when you use Elastic Beanstalk.
  - **Amazon CloudWatch alarms** – Two Amazon CloudWatch alarms that monitor the load on the instances in your environment and are triggered if the load is too high or too low. When an alarm is triggered, your Auto Scaling group scales up or down in response.
  - **AWS CloudFormation stack** – Elastic Beanstalk uses AWS CloudFormation to launch the resources in your environment and propagate configuration changes. The resources are defined in a template that you can view in the [AWS CloudFormation management console](#).
  - **Domain name** – A domain name that routes to your web app in the form `subdomain.region.elasticbeanstalk.com`.
3. When environment creation completes, use the `eb open` command to open the environment's URL in the default browser.

```
~/node-express$ eb open
```

## Update the Application

After you have created an environment with a sample application, you can update it with your own application. In this step, we update the sample application to use the Express framework.

### To update your application to use Express

1. Add a configuration file that sets the Node Command to "npm start":

```
node-express/.ebextensions/nodecommand.config
```

```
option_settings:
 aws:elasticbeanstalk:container:nodejs:
 NodeCommand: "npm start"
```

For more information, see [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178).

2. Stage the files:



```
~/node-express$ git add .
~/node-express$ git commit -m "First express app"
```

3. Deploy the changes:

```
~/node-express$ eb deploy
```

4. Once the environment is green and ready, refresh the URL to verify it worked. You should see a web page that says **Welcome to Express**.

Next, let's update the Express application to serve static files and add a new page.

### To configure static files and add a new page to your Express application

1. Add a second configuration file with the following content:

**node-express/.ebextensions/staticfiles.config**

```
option_settings:
 aws:elasticbeanstalk:container:nodejs:staticfiles:
 /public: /public
```

2. Comment out the static mapping in `node-express/app.js`. This step is not required, but it is a good test to confirm that static mappings are configured correctly.

```
// app.use(express.static(path.join(__dirname, 'public')));
```

3. Add your updated files to your local repository and commit your changes.

```
~/node-express$ git add .ebextensions/ app.js
~/node-express$ git commit -m "Serve stylesheets statically with nginx."
```

4. Add `node-express/routes/hike.js`. Type the following:

```
exports.index = function(req, res) {
 res.render('hike', {title: 'My Hiking Log'});
};

exports.add_hike = function(req, res) {
};
```

5. Update `node-express/app.js` to include three new lines.

First, add the following line to add a `require` for this route:

```
hike = require('./routes/hike');
```

Your file should look similar to the following snippet:

```
var express = require('express');
var path = require('path');
var hike = require('./routes/hike');
```

Then, add the following two lines to `node-express/app.js` after `var app = express();`

```
app.get('/hikes', hike.index);
app.post('/add_hike', hike.add_hike);
```

Your file should look similar to the following snippet:

```
var app = express();
app.get('/hikes', hike.index);
app.post('/add_hike', hike.add_hike);
```

6. Copy `node-express/views/index.jade` to `node-express/views/hike.jade`.

```
~/node-express$ cp views/index.jade views/hike.jade
```

7. Add your files to the local repository, commit your changes, and deploy your updated application.

```
~/node-express$ git add .
~/node-express$ git commit -m "Add hikes route and template."
~/node-express$ eb deploy
```

8. Your environment will be updated after a few minutes. After your environment is green and ready, verify it worked by refreshing your browser and appending `hikes` at the end of the URL (e.g., `http://node-express-env-syyntcz2q.elasticbeanstalk.com/hikes`).

You should see a web page titled **My Hiking Log**.

## Clean Up

If you are done working with Elastic Beanstalk, you can terminate your environment.

- Use the `eb terminate` command to terminate your environment and all of the resources that it contains.

```
~/node-express$ eb terminate
The environment "node-express-env" and all associated instances will be
terminated.
To confirm, type the environment name: node-express-env
INFO: terminateEnvironment is starting.
...
```

## Deploying a Node.js Application with DynamoDB to Elastic Beanstalk

This tutorial and [sample application](#) walks you through the process of deploying a Node.js application that uses the AWS SDK for JavaScript in Node.js to interact with Amazon DynamoDB. You'll create a DynamoDB table that is external to the AWS Elastic Beanstalk environment, and configure the application to use this external table instead of creating one in the environment. In a production environment, you keep the table independent of the Elastic Beanstalk environment to protect against accidental data loss and enable you to perform [blue/green deployments](#) (p. 103).

The tutorial's sample application uses a DynamoDB table to store user-provided text data. The sample application uses [configuration files](#) (p. 178) to create the table and an Amazon Simple Notification

Service topic. It also shows how to use a [package.json file \(p. 733\)](#) to install packages during deployment.

#### Sections

- [Prerequisites \(p. 709\)](#)
- [Launch an Elastic Beanstalk Environment \(p. 710\)](#)
- [Add Permissions to Your Environment's Instances \(p. 711\)](#)
- [Deploy the Sample Application \(p. 711\)](#)
- [Create a DynamoDB Table \(p. 713\)](#)
- [Update the Application's Configuration Files \(p. 713\)](#)
- [Configure Your Environment for High Availability \(p. 716\)](#)
- [Clean Up \(p. 716\)](#)
- [Next Steps \(p. 716\)](#)

## Prerequisites

- Before you start, download the sample application source bundle from GitHub: [eb-node-express-sample-v1.0.zip](#).
- You will also need a command line terminal or shell to run the commands in the procedures. Example commands are preceded by a prompt symbol (\$) and the name of the current directory, when appropriate:

```
~/eb-project$ this is a command
this is output
```

#### Note

You can run all commands in this tutorial on a Linux virtual machine, and OS X machine, or an Amazon EC2 instance running Amazon Linux. If you need a development environment, you can launch a single-instance Elastic Beanstalk environment and connect to it with SSH.

- This tutorial uses a command line ZIP utility to create a source bundle that you can deploy to Elastic Beanstalk. To use the `zip` command in Windows, you can install UnxUtils, a lightweight collection of useful command-line utilities like `zip` and `ls`. (Alternatively, you can [use Windows Explorer \(p. 44\)](#) or any other ZIP utility to create source bundle archives.)

#### To install UnxUtils

1. Download [UnxUtils](#).
2. Extract the archive to a local directory. For example, `C:\Program Files (x86)`.
3. Add the path to the binaries to your Windows PATH user variable. For example, `C:\Program Files (x86)\UnxUtils\usr\local\wbin`.
4. Open a new command prompt window and run the `zip` command to verify that it works:

```
> zip
Copyright (C) 1990-1999 Info-ZIP
Type 'zip -L' for software license.
...
```

## Launch an Elastic Beanstalk Environment

You use the Elastic Beanstalk console to launch an Elastic Beanstalk environment. You'll choose the **Node.js** platform configuration and accept the default settings and sample code. After you configure the environment's permissions, you deploy the sample application that you downloaded from GitHub.

### To launch an environment (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one](#) (p. 36).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.

#### Note

If the New Environment wizard does not show the screens described below, see [The Old New Environment Wizard](#) (p. 63).

4. Choose **Web server environment** and then choose **Select**.
5. For **Platform**, choose the platform that matches the language used by your application.
6. For **App code**, choose **Sample application**.
7. Choose **Create environment**.

Elastic Beanstalk takes about five minutes to create the environment with the following resources:

- **EC2 instance** – An Amazon Elastic Compute Cloud (Amazon EC2) virtual machine configured to run web apps on the platform that you choose.

Each platform runs a different set of software, configuration files, and scripts to support a specific language version, framework, web container, or combination thereof. Most platforms use either Apache or nginx as a reverse proxy that sits in front of your web app, forwards requests to it, serves static assets, and generates access and error logs.

- **Instance security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the load balancer reach the EC2 instance running your web app. By default, traffic is not allowed on other ports.
- **Load balancer** – An Elastic Load Balancing load balancer configured to distribute requests to the instances running your application. A load balancer also eliminates the need to expose your instances directly to the Internet.
- **Load balancer security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the Internet reach the load balancer. By default, traffic is not allowed on other ports.
- **Auto Scaling group** – An Auto Scaling group configured to replace an instance if it is terminated or becomes unavailable.
- **Amazon S3 bucket** – A storage location for your source code, logs, and other artifacts that are created when you use Elastic Beanstalk.
- **Amazon CloudWatch alarms** – Two Amazon CloudWatch alarms that monitor the load on the instances in your environment and are triggered if the load is too high or too low. When an alarm is triggered, your Auto Scaling group scales up or down in response.
- **AWS CloudFormation stack** – Elastic Beanstalk uses AWS CloudFormation to launch the resources in your environment and propagate configuration changes. The resources are defined in a template that you can view in the [AWS CloudFormation management console](#).
- **Domain name** – A domain name that routes to your web app in the form *subdomain.region.elasticbeanstalk.com*.

Elastic Beanstalk manages all of these resources. When you terminate your environment, Elastic Beanstalk terminates all of the resources that it contains.

**Note**

The S3 bucket that Elastic Beanstalk creates is shared between environments and is not deleted during environment termination. For more information, see [Using Elastic Beanstalk with Amazon S3 \(p. 389\)](#).

## Add Permissions to Your Environment's Instances

Your application runs on one or more EC2 instances behind a load balancer, serving HTTP requests from the Internet. When it receives a request that requires it to use AWS services, the application uses the permissions of the instance it runs on to access those services.

The sample application uses instance permissions to write data to a DynamoDB table, and to send notifications to an Amazon SNS topic with the SDK for JavaScript in Node.js. Add the following managed policies to the default [instance profile \(p. 18\)](#) to grant the EC2 instances in your environment permission to access DynamoDB and Amazon SNS:

- **AmazonDynamoDBFullAccess**
- **AmazonSNSFullAccess**

### To add policies to the default instance profile

1. Open the [Roles page](#) in the IAM console.
2. Choose **aws-elasticbeanstalk-ec2-role**.
3. On the **Permissions** tab, under **Managed Policies**, choose **Attach Policy**.
4. Select the managed policy for the additional services that your application uses. For example, `AmazonS3FullAccess` or `AmazonDynamoDBFullAccess`.
5. Choose **Attach Policies**.

See [Managing Elastic Beanstalk Instance Profiles \(p. 333\)](#) for more on managing instance profiles.

## Deploy the Sample Application

Now your environment is ready for you to deploy the sample application to it and then run it.

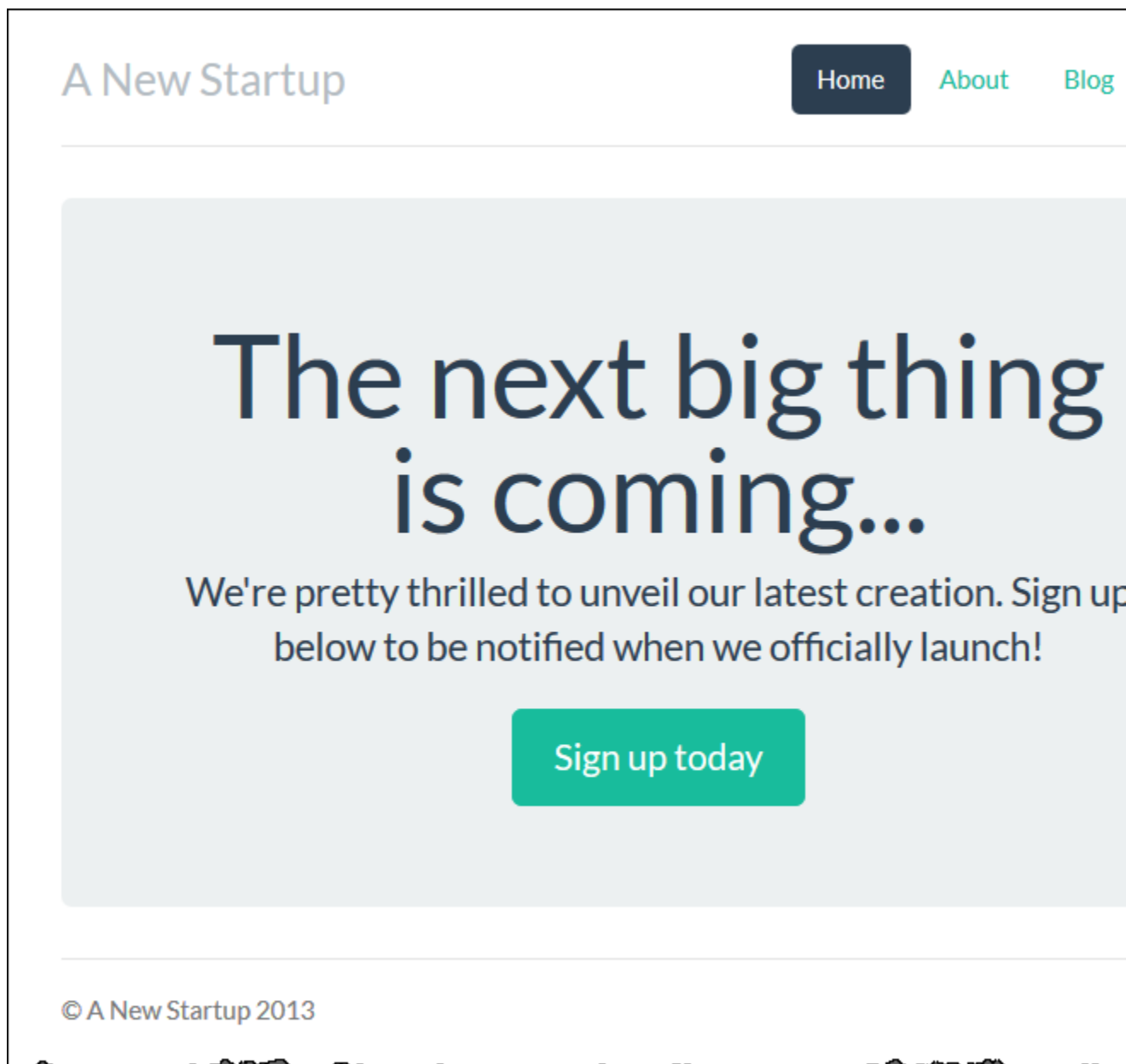
**Note**

Download the source bundle from GitHub if you haven't already: [eb-node-express-sample-v1.0.zip](#).

### To deploy a source bundle

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Upload and Deploy**.
4. Choose **Browse** and upload the source bundle.
5. Choose **Deploy**.
6. When the deployment completes, choose the site URL to open your website in a new tab.

The site collects user contact information and uses a DynamoDB table to store the data. To add an entry, choose **Sign up today**, enter a name and email address, and then choose **Sign Up!**. The web app writes the form contents to the table and triggers an Amazon SNS email notification.



Right now, the Amazon SNS topic is configured with a placeholder email for notifications. You will update the configuration soon, but in the meantime you can verify the DynamoDB table and Amazon SNS topic in the AWS Management Console.

#### To view the table

1. Open the [Tables page](#) in the DynamoDB console.
2. Find the table that the application created. The name starts with **awseb** and contains **StartupSignupsTable**.
3. Select the table, choose **Items**, and then choose **Start search** to view all items in the table.

The table contains an entry for every email address submitted on the signup site. In addition to writing to the table, the application sends a message to an Amazon SNS topic that has two subscriptions, one for email notifications to you, and another for an Amazon Simple Queue Service queue that a worker application can read from to process requests and send emails to interested customers.

### To view the topic

- Open the [Topics page](#) in the Amazon SNS console.  
<step>  
Find the topic that the application created. The name starts with **awseb** and contains **NewSignupTopic**.  
</step>  
<step>  
Choose the topic to view its subscriptions.  
</step>

The application (`app.js`) defines two routes. The root path (`/`) returns a webpage rendered from an Embedded JavaScript (EJS) template with a form that the user fills out to register their name and email address. Submitting the form sends a POST request with the form data to the `/signup` route, which writes an entry to the DynamoDB table and publishes a message to the Amazon SNS topic to notify the owner of the signup.

The sample application includes [configuration files \(p. 178\)](#) that create the DynamoDB table, Amazon SNS topic, and Amazon SQS queue used by the application. This lets you create a new environment and test the functionality immediately, but has the drawback of tying the DynamoDB table to the environment. For a production environment, you should create the DynamoDB table outside of your environment to avoid losing it when you terminate the environment or update its configuration.

## Create a DynamoDB Table

To use an external DynamoDB table with an application running in Elastic Beanstalk, first create a table in DynamoDB. When you create a table outside of Elastic Beanstalk, it is completely independent of Elastic Beanstalk and your Elastic Beanstalk environments, and will not be terminated by Elastic Beanstalk.

Create a table with the following settings:

- **Table name** – `nodejs-tutorial`
- **Primary key** – `email`
- Primary key type – **String**

### To create a DynamoDB table

1. Open the [Tables page](#) in the DynamoDB management console.
2. Choose **Create table**.
3. Type a **Table name** and **Primary key**.
4. Choose the primary key type.
5. Choose **Create**.

## Update the Application's Configuration Files

Update the [configuration files \(p. 178\)](#) in the application source to use the **nodejs-tutorial** table instead of creating a new one.

## To update the sample application for production use

1. Extract the project files from the source bundle:

```
~$ mkdir nodejs-tutorial
~$ cd nodejs-tutorial
~/nodejs-tutorial$ unzip ~/Downloads/eb-node-express-sample-v1.0.zip
```

2. Open `.ebextensions/options.config` and change the values of the following settings:

- **NewSignupEmail** – Your email address.
- **STARTUP\_SIGNUP\_TABLE** – `nodejs-tutorial`

### Example `.ebextensions/options.config`

```
option_settings:
 aws:elasticbeanstalk:customoption:
 NewSignupEmail: you@example.com
 aws:elasticbeanstalk:application:environment:
 THEME: "flatly"
 AWS_REGION: '`{"Ref" : "AWS::Region"}`'
 STARTUP_SIGNUP_TABLE: nodejs-tutorial
 NEW_SIGNUP_TOPIC: '`{"Ref" : "NewSignupTopic"}`'
 aws:elasticbeanstalk:container:nodejs:
 ProxyServer: nginx
 aws:elasticbeanstalk:container:nodejs:staticfiles:
 /static: /static
 aws:autoscaling:asg:
 Cooldown: "120"
 aws:autoscaling:trigger:
 Unit: "Percent"
 Period: "1"
 BreachDuration: "2"
 UpperThreshold: "75"
 LowerThreshold: "30"
 MeasureName: "CPUUtilization"
```

This configures the application to use the **nodejs-tutorial** table instead of the one created by `.ebextensions/create-dynamodb-table.config`, and sets the email address that the Amazon SNS topic uses for notifications.

3. Remove `.ebextensions/create-dynamodb-table.config`.

```
~/nodejs-tutorial$ rm .ebextensions/create-dynamodb-table.config
```

The next time you deploy the application, the table created by this configuration file will be deleted.

4. Create a source bundle from the modified code.

```
~/nodejs-tutorial$ zip nodejs-tutorial.zip -r * .[^.]*
adding: LICENSE (deflated 65%)
adding: README.md (deflated 56%)
adding: app.js (deflated 63%)
adding: iam_policy.json (deflated 47%)
adding: misc/ (stored 0%)
adding: misc/theme-flow.png (deflated 1%)
adding: npm-shrinkwrap.json (deflated 87%)
```



```
adding: package.json (deflated 40%)
adding: static/ (stored 0%)
adding: static/bootstrap/ (stored 0%)
adding: static/bootstrap/css/ (stored 0%)
adding: static/bootstrap/css/jumbotron-narrow.css (deflated 59%)
adding: static/bootstrap/css/theme/ (stored 0%)
adding: static/bootstrap/css/theme/united/ (stored 0%)
adding: static/bootstrap/css/theme/united/bootstrap.css (deflated 86%)
adding: static/bootstrap/css/theme/amelia/ (stored 0%)
adding: static/bootstrap/css/theme/amelia/bootstrap.css (deflated 86%)
adding: static/bootstrap/css/theme/slate/ (stored 0%)
adding: static/bootstrap/css/theme/slate/bootstrap.css (deflated 87%)
adding: static/bootstrap/css/theme/default/ (stored 0%)
adding: static/bootstrap/css/theme/default/bootstrap.css (deflated 86%)
adding: static/bootstrap/css/theme/flatly/ (stored 0%)
adding: static/bootstrap/css/theme/flatly/bootstrap.css (deflated 86%)
adding: static/bootstrap/LICENSE (deflated 65%)
adding: static/bootstrap/js/ (stored 0%)
adding: static/bootstrap/js/bootstrap.min.js (deflated 74%)
adding: static/bootstrap/fonts/ (stored 0%)
adding: static/bootstrap/fonts/glyphicons-halflings-regular.eot
(deflated 1%)
adding: static/bootstrap/fonts/glyphicons-halflings-regular.svg
(deflated 73%)
adding: static/bootstrap/fonts/glyphicons-halflings-regular.woff
(deflated 1%)
adding: static/bootstrap/fonts/glyphicons-halflings-regular.ttf
(deflated 44%)
adding: static/jquery/ (stored 0%)
adding: static/jquery/jquery-1.11.3.min.js (deflated 65%)
adding: static/jquery/MIT-LICENSE.txt (deflated 41%)
adding: views/ (stored 0%)
adding: views/index.ejs (deflated 67%)
adding: .ebextensions/ (stored 0%)
adding: .ebextensions/options.config (deflated 47%)
adding: .ebextensions/create-sns-topic.config (deflated 56%)
```

Deploy the `nodejs-tutorial.zip` source bundle to your environment.

### To deploy a source bundle

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Upload and Deploy**.
4. Choose **Browse** and upload the source bundle.
5. Choose **Deploy**.
6. When the deployment completes, choose the site URL to open your website in a new tab.

When you deploy, Elastic Beanstalk updates the configuration of the Amazon SNS topic and deletes the DynamoDB table that it created when you deployed the first version of the application.

Now, when you terminate the environment, the **nodejs-tutorial** table will not be deleted. This lets you perform blue/green deployments, modify configuration files, or take down your website without risking data loss.

Open your site in a browser and verify that the form works as you expect. Create a few entries, and then check the DynamoDB console to verify the table.

#### To view the table

1. Open the [Tables page](#) in the DynamoDB console.
2. Find the **nodejs-tutorial** table.
3. Select the table, choose **Items**, and then choose **Start search** to view all items in the table.

You can also see that Elastic Beanstalk deleted the table that it created previously.

## Configure Your Environment for High Availability

Finally, configure your environment's Auto Scaling group with a higher minimum instance count. Run at least two instances at all times to prevent the web servers in your environment from being a single point of failure, and to allow you to deploy changes without taking your site out of service.

#### To configure your environment's Auto Scaling group for high availability

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. Choose **Scaling**.
5. Under **Auto Scaling**, set **Minimum instance count** to 2.
6. Choose **Apply**.

## Clean Up

If you are done working with Elastic Beanstalk, you can terminate your environment.

#### To terminate your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Actions**, and then choose **Terminate Environment**.

Elastic Beanstalk terminates all AWS resources associated with your environment, including EC2 instances, the load balancer, security groups, Amazon CloudWatch alarms, etc.

You can also delete the **nodejs-tutorial** DynamoDB table.

#### To delete a DynamoDB table

1. Open the [Tables page](#) in the DynamoDB management console.
2. Select a table.
3. Choose **Actions** and then choose **Delete table**.
4. Choose **Delete**.

## Next Steps

As you continue to develop your application, you'll probably want to manage environments and deploy your application without manually creating a .zip file and uploading it to the Elastic Beanstalk console.

The [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) provides easy-to-use commands for creating, configuring, and deploying applications to Elastic Beanstalk environments from the command line.

The sample application uses configuration files to configure software settings and create AWS resources as part of your environment. See [Advanced Environment Customization with Configuration Files \(.ebextensions\) \(p. 178\)](#) for more information about configuration files and their use.

The sample application for this tutorial uses the Express web framework for Node.js. For more information about Express, see the official documentation at [expressjs.com](http://expressjs.com).

Finally, if you plan on using your application in a production environment, [configure a custom domain name \(p. 248\)](#) for your environment and [enable HTTPS \(p. 250\)](#) for secure connections.

## Deploying a Geddy Application with Clustering to Elastic Beanstalk

This section walks you through deploying a sample application to Elastic Beanstalk using the Elastic Beanstalk Command Line Interface (EB CLI) and Git, and then updating the application to use the [Geddy](#) framework and [Amazon ElastiCache](#) for clustering. Clustering enhances your web application's high availability, performance, and security. To learn more about Amazon ElastiCache, go to [Introduction to ElastiCache](#) in the *Amazon ElastiCache User Guide*.

### Note

This example creates AWS resources, which you may be charged for. For more information about AWS pricing, go to <http://aws.amazon.com/pricing/>. Some services are part of the AWS Free Usage Tier. If you are a new customer, you may test drive these services for free. Go to <http://aws.amazon.com/free/> for more information.

## Step 1: Set Up Your Git Repository

EB CLI is a command line interface that you can use with Git to deploy applications quickly and more easily. EB is available as part of the Elastic Beanstalk command line tools package. For instructions to install EB CLI, see [Install the Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 417\)](#).

Initialize your Git repository. After you run the following command, when you run `eb init`, EB CLI will recognize that your application is set up with Git.

```
git init .
```

## Step 2: Set Up Your Geddy Development Environment

Set up Geddy and create the project structure. The following steps walk you through setting up Geddy on a Linux operating system.

### To set up your Geddy development environment on your local computer

1. Install Node.js. For instructions, go to <http://nodejs.org/>. Verify you have a successful installation before proceeding to the next step.

```
$ node -v
```

**Note**

For information about what Node.js versions are supported, see [Supported Platforms \(p. 24\)](#).

2. Create a directory for your Geddy application.

```
$ mkdir node-geddy
$ cd node-geddy
```

3. Install npm.

```
node-geddy$ cd . && yum install npm
```

4. Install Geddy globally so that you have geddy generators or start the server.

```
node-geddy$ npm install -g geddy
```

5. Depending on your operating system, you may need to set your path to run the `geddycode>` command. If you need to set your path, use the output from the previous step when you installed Geddy. The following is an example.

```
node-geddy$ export:PATH=$PATH:/usr/local/share/npm/bin/geddy
```

6. Create the directory for your application.

```
node-geddy$ geddy app myapp
node-geddy$ cd myapp
```

7. Start the server. Verify everything is working, and then stop the server.

```
myapp$ geddy
myapp$ curl localhost:4000 (or use web browser)
```

Press **Ctrl+C** to stop the server.

8. Initialize the Git repository.

```
myapp$ git init
```

9. Exclude the following files from being added to the repository. This step is not required, but it is recommended.

```
myapp$ cat > .gitignore <<EOT
log/
.gitignore
.elasticbeanstalk/
EOT
```

## Step 3: Configure Elastic Beanstalk

The following instructions use the [Elastic Beanstalk command line interface \(p. 416\)](#) (EB CLI) to configure an Elastic Beanstalk application repository in your local project directory.

## To configure Elastic Beanstalk

1. From the directory where you created your local repository, type the following command:

```
eb init
```

2. When you are prompted for the Elastic Beanstalk region, type the number of the region. For information about this product's regions, go to [Regions and Endpoints](#) in the Amazon Web Services General Reference. For this example, we'll use **US West (Oregon)**.
3. When you are prompted for the Elastic Beanstalk application to use, type the number corresponding to the option **Create new Application**. Elastic Beanstalk generates an application name based on the current directory name if an application name has not been previously configured. In this example, we use `geddyapp`.

```
Enter an AWS Elastic Beanstalk application name (auto-generated value is "myapp"): geddyapp
```

### Note

If you have a space in your application name, make sure you do not use quotation marks.

4. Type `y` if Elastic Beanstalk correctly detected the correct platform you are using. Type `n` if not, and then specify the correct platform.
5. When prompted, type `y` if you want to set up Secure Shell (SSH) to connect to your instances. Type `n` if you do not want to set up SSH. In this example, we will type `n`.

```
Do you want to set up SSH for your instances?
(y/n): n
```

6. Create your running environment.

```
eb create
```

7. When you are prompted for the Elastic Beanstalk environment name, type the name of the environment. Elastic Beanstalk automatically creates an environment name based on your application name. If you want to accept the default, press **Enter**.

```
Enter Environment Name
(default is HelloWorld-env):
```

### Note

If you have a space in your application name, make sure you do not have a space in your environment name.

8. When you are prompted to provide a CNAME prefix, type the CNAME prefix you want to use. Elastic Beanstalk automatically creates a CNAME prefix based on the environment name. If you want to accept the default, press **Enter**.

```
Enter DNS CNAME prefix
(default is HelloWorld):
```

After configuring Elastic Beanstalk, you are ready to deploy a sample application.

If you want to update your Elastic Beanstalk configuration, you can use the `init` command again. When prompted, you can update your configuration options. If you want to keep any previous settings, press the **Enter** key.

## Step 5: View the Application

### To view the application

- To open your application in a browser window, type the following:

```
eb open
```

## Step 6: Update the Application

After you have deployed a sample application, you can update it with your own application. In this step, we update the sample application to use the Geddy framework. You can download the final source code from <http://elasticbeanstalk-samples-us-east-1.s3.amazonaws.com/nodejs-example-geddy.zip>.

### To update your application to use Geddy

- On your local computer, create a file called `node-geddy/myapp/package.json`. This file contains the necessary dependencies.

```
{
 "name": "Elastic_Beanstalk_Geddy",
 "version": "0.0.1",
 "dependencies": {
 "geddy": "0.6.x"
 }
}
```

- On your local computer, create a file called `node-geddy/myapp/app.js` as an entry point to the program.

```
var geddy = require('geddy');

geddy.startCluster({
 hostname: '0.0.0.0',
 port: process.env.PORT || '3000',
 environment: process.env.NODE_ENV || 'development'
});
```

The preceding snippet uses an environment variable for the environment setting. You can manually set the environment to production (`environment: 'production'`), or you can create an environment variable and use it like in the above example. We'll create an environment variable and set the environment to production in the next procedure.

- Test locally.

```
myapp$ npm install
myapp$ node app
```

The server should start. Press **Ctrl+C** to stop the server.

- Deploy to Elastic Beanstalk.

```
myapp$ git add .
myapp$ git commit -m "First Geddy app"
```

```
myapp$ eb deploy
```

5. Your environment will be updated after a few minutes. Once the environment is green and ready, refresh the URL to verify it worked. You should see a web page that says "Hello, World!".



You can access the logs for your EC2 instances running your application. For instructions on accessing your logs, see [Instance Logs \(p. 320\)](#).

Next, let's create an environment variable and set the environment to production.

### To create an environment variable

1. On your local computer in your project directory (e.g., `myapp/`), create a directory called `.ebextensions`.
2. On your local computer, create a file called `node-geddy/myapp/.ebextensions/myapp.config` with the following snippet to set the environment to production.

#### Note

YAML relies on consistent indentation. Match the indentation level when replacing content in an example configuration file and make sure that your text editor uses spaces, not tab characters, to indent.

```
option_settings:
 - option_name: NODE_ENV
 value: production
```

For more information about the configuration file, see [Configuration Files \(p. 701\)](#)

3. Run "geddy secret" to get the secret value. You'll need the secret value to successfully deploy your application.

```
myapp$ geddy secret
```

You can add `node-geddy/myapp/config/secrets.json` to `.gitignore`, or you can put the secret value in an environment variable and create a command to write out the contents. For this example, we'll use a command.

4. Add the secret value from `node-geddy/myapp/config/secrets.json` to the `node-geddy/myapp/.elasticbeanstalk/optionsettings.gettyapp-env` file. (The name of the `optionsettings` file contains the same extension as your environment name). Your file should look similar to the following:

```
[aws:elasticbeanstalk:application:environment]
secret=your geddy secret
PARAM1=
```

5. Update your Elastic Beanstalk environment with your updated option settings.

```
myapp$ eb update
```

Verify that your environment is green and ready before proceeding to the next step.

6. On your local computer, create a configuration file `node-geddy/myapp/.ebextensions/write-secret.config` with the following command.

```
container_commands:
 01write:
 command: |
 cat > ./config/secrets.json << SEC_END
 { "secret": "`{ "Fn::GetOptionSetting": {"OptionName": "secret",
"Namespace": "aws:elasticbeanstalk:application:environment"}}`" }
 SEC_END
```

7. Add your files to the local repository, commit your changes, and deploy your updated application.

```
myapp$ git add .
myapp$ git commit -m "added config files"
myapp$ eb deploy
```

Your environment will be updated after a few minutes. After your environment is green and ready, refresh your browser to make sure it worked. You should still see "Hello, World!".

Next, let's update the Geddy application to use Amazon ElastiCache.

### To updated your Geddy application to use Amazon ElastiCache

1. On your local computer, create a configuration file `node-geddy/myapp/.ebextensions/elasticache-iam-with-script.config` with the following snippet. This configuration file adds the `elasticache` resource to the environment and creates a listing of the nodes in the `elasticache` on disk at `/var/nodelist`. You can also copy the file from <http://elasticbeanstalk-samples-us-east-1.s3.amazonaws.com/nodejs-example-geddy.zip>. For more information on the `ElastiCache` properties, see [Example Snippets: ElastiCache \(p. 199\)](#). For a more complete reference, see [AWS Resource Types Reference \(p. 820\)](#).

```
Resources:
 MyElastiCache:
 Type: AWS::ElastiCache::CacheCluster
 Properties:
 CacheNodeType:
```



```
 Fn::GetOptionSetting:
 OptionName : CacheNodeType
 DefaultValue: cache.m1.small
 NumCacheNodes:
 Fn::GetOptionSetting:
 OptionName : NumCacheNodes
 DefaultValue: 1
 Engine:
 Fn::GetOptionSetting:
 OptionName : Engine
 DefaultValue: memcached
 CacheSecurityGroupNames:
 - Ref: MyCacheSecurityGroup
 MyCacheSecurityGroup:
 Type: AWS::ElasticCache::SecurityGroup
 Properties:
 Description: "Lock cache down to webserver access only"
 MyCacheSecurityGroupIngress:
 Type: AWS::ElasticCache::SecurityGroupIngress
 Properties:
 CacheSecurityGroupName:
 Ref: MyCacheSecurityGroup
 EC2SecurityGroupName:
 Ref: AWSEBSecurityGroup
 AWSEBAutoScalingGroup :
 Metadata :
 ElasticCacheConfig :
 CacheName :
 Ref : MyElasticCache
 CacheSize :
 Fn::GetOptionSetting:
 OptionName : NumCacheNodes
 DefaultValue: 1
 WebServerUser :
 Type : AWS::IAM::User
 Properties :
 Path : "/"
 Policies:
 -
 PolicyName: root
 PolicyDocument :
 Statement :
 -
 Effect : Allow
 Action :
 - cloudformation:DescribeStackResource
 - cloudformation:ListStackResources
 - elasticache:DescribeCacheClusters
 Resource : "*"
 WebServerKeys :
 Type : AWS::IAM::AccessKey
 Properties :
 UserName :
 Ref: WebServerUser

Outputs:
 WebsiteURL:
 Description: sample output only here to show inline string function
 parsing
```

```

 Value: |
 http://`{ "Fn::GetAtt" : ["AWSEBLoadBalancer", "DNSName"] }`
MyElasticCacheName:
 Description: Name of the elasticache
 Value:
 Ref : MyElasticCache
NumCacheNodes:
 Description: Number of cache nodes in MyElasticCache
 Value:
 Fn::GetOptionSetting:
 OptionName : NumCacheNodes
 DefaultValue: 1

files:
 "/etc/cfn/cfn-credentials" :
 content : |
 AWSAccessKeyId=`{ "Ref" : "WebServerKeys" }`
 AWSSecretKey=`{ "Fn::GetAtt" : ["WebServerKeys",
"SecretAccessKey"] }`
 mode : "000400"
 owner : root
 group : root

 "/etc/cfn/get-cache-nodes" :
 content : |
 # Define environment variables for command line tools
 export AWS_ELASTICACHE_HOME="/home/ec2-user/elasticache/${ls /home/
ec2-user/elasticache/}"
 export AWS_CLOUDFORMATION_HOME=/opt/aws/apitools/cfn
 export PATH=$AWS_CLOUDFORMATION_HOME/bin:$AWS_ELASTICACHE_HOME/bin:
$PATH
 export AWS_CREDENTIAL_FILE=/etc/cfn/cfn-credentials
 export JAVA_HOME=/usr/lib/jvm/jre

 # Grab the Cache node names and configure the PHP page
 cfn-list-stack-resources `{ "Ref" : "AWS::StackName" }` --region
`${ "Ref" : "AWS::Region" }` | grep MyElasticCache | awk '{print $3}' |
xargs -I {} elasticache-describe-cache-clusters {} --region `{ "Ref" :
"AWS::Region" }` --show-cache-node-info | grep CACHENODE | awk '{print $4
":" $6}' > `{ "Fn::GetOptionSetting" : { "OptionName" : "NodeListPath",
"DefaultValue" : "/var/www/html/nodelist" } }`
 mode : "000500"
 owner : root
 group : root

 "/etc/cfn/hooks.d/cfn-cache-change.conf" :
 "content": |
 [cfn-cache-size-change]
 triggers=post.update
 path=Resources.AWSEBAutoScalingGroup.Metadata.ElasticCacheConfig
 action=/etc/cfn/get-cache-nodes
 runas=root

sources :
 "/home/ec2-user/elasticache" : "https://s3.amazonaws.com/elasticache-
downloads/AmazonElasticCacheCli-latest.zip"

commands:
 make-elasticache-executable:

```

```
command: chmod -R ugo+x /home/ec2-user/elasticache/*/bin/*

packages :
 "yum" :
 "aws-apitools-cfn" : []

container_commands:
 initial_cache_nodes:
 command: /etc/cfn/get-cache-nodes
```

2. On your local computer, create a configuration file `node-geddy/myapp/.ebextensions/elasticache_settings.config` with the following snippet.

```
option_settings:
 "aws:elasticbeanstalk:customoption" :
 CacheNodeType : cache.m1.small
 NumCacheNodes : 1
 Engine : memcached
 NodeListPath : /var/nodelist
```

3. On your local computer, update `node-geddy/myapp/config/production.js`. Add the following line to the top of the file (just below the header).

```
var fs = require('fs')
```

Then, add the following snippet just above `modules.exports`.

```
var data = fs.readFileSync('/var/nodelist', 'UTF8', function(err) {
 if (err) throw err;
});

var nodeList = [];
if (data) {
 var lines = data.split('\n');
 for (var i = 0 ; i < lines.length ; i++) {
 if (lines[i].length > 0) {
 nodeList.push(lines[i]);
 }
 }
}

if (nodeList) {
 config.sessions = {
 store: 'memcache',
 servers: nodeList,
 key: 'sid',
 expiry: 14*24*60*60
 }
}
```

4. On your local computer, update `node-geddy/myapp/package.json` to include `memcached`.

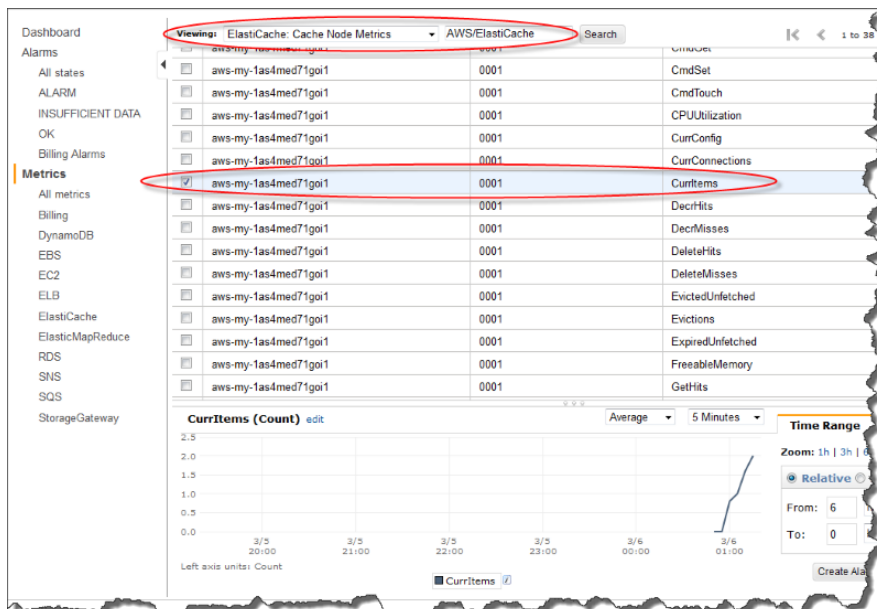
```
{
 "name": "Elastic_Beanstalk_Geddy",
 "version": "0.0.1",
 "dependencies": {
 "geddy": "0.6.x",
```

```
 "memcached" : "*"
 }
}
```

5. Add your files to the local repository, commit your changes, and deploy your updated application.

```
myapp$ git add .
myapp$ git commit -m "added elasticache functionality"
myapp$ git aws.push
```

6. Your environment will be updated after a few minutes. After your environment is green and ready, verify everything worked.
  - a. Check the [Amazon CloudWatch console](#) to view your ElastiCache metrics. To view your ElastiCache metrics, click **ElastiCache** in the left pane, and then select **ElastiCache: Cache Node Metrics** from the **Viewing** list.



### Note

Make sure you are looking at the same region that you deployed your application to.

If you copy and paste your application URL into another web browser, you should see your CurrItem count go up to 2 after 5 minutes.

- b. Take a snapshot of your logs, and look in `/var/log/nodejs/nodejs.log`. For more information about logs, see [Instance Logs \(p. 320\)](#). You should see something similar to the following:

```
"sessions": {
 "key": "sid",
 "expiry": 1209600,
 "store": "memcache",
 "servers": [
 "aws-
my-1awjsrz10lnxo.ypsz3t.0001.usw2.cache.amazonaws.com:11211"
]
},
```

## Step 7: Clean Up

If you no longer want to run your application, you can clean up by terminating your environment and deleting your application.

Use the `terminate` command to terminate your environment and the `delete` command to delete your application.

### To terminate your environment and delete the application

- From the directory where you created your local repository, run `eb terminate`:

```
$ eb terminate
```

This process may take a few minutes. Elastic Beanstalk displays a message once the environment has been successfully terminated.

## Using Amazon RDS with Node.js

With Amazon Relational Database Service (Amazon RDS), you can quickly and easily provision and maintain a MySQL, Oracle, or Microsoft SQL Server instance in the cloud. This topic explains how you can use Amazon RDS and Node.js with your Elastic Beanstalk application. For more information about Amazon RDS, go to <http://aws.amazon.com/rds/>.

To use Amazon RDS from your Elastic Beanstalk application, you need to do the following:

1. Create an Amazon RDS DB instance.
2. Install a Node.js driver. For information about drivers, go to <https://npmjs.org/>.
3. Establish a database connection in your code by using the connectivity information for your Amazon RDS DB instance.
4. Deploy your application to Elastic Beanstalk.

This topic walks you through the following:

- Using a new Amazon RDS DB instance with your application
- Using an existing Amazon RDS DB instance with your application

## Using a New Amazon RDS DB Instance with Node.js

This topic walks you through creating a new Amazon RDS DB Instance and using it with your Node.js application.

### To use a new Amazon RDS DB Instance and Node.js from your Elastic Beanstalk application

1. Create an Amazon RDS DB Instance. You can create an RDS DB Instance in one of the following ways:
  - Create an Amazon RDS DB instance when you launch a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).

- Create an Amazon RDS DB instance when you launch a new environment with an existing application version. For instructions using the AWS Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).
  - If you already deployed an application to Elastic Beanstalk, you can create an Amazon RDS DB instance and attach it to an existing environment. For instructions using the AWS Elastic Beanstalk console, see [Configuring Databases with Elastic Beanstalk \(p. 243\)](#). If you use the EB CLI, use the `--database` option when you run `eb create`.
2. Install the driver you want to use to make your database connection. For more information, go to <https://npmjs.org/>.
  3. Establish a database connection in your code using your Amazon RDS DB Instance's connectivity information. You can access your connectivity information using environment variables. The following shows how you would connect to the database on an RDS instance.

### Example 1. Example using node-mysql to connect to an RDS database

```
var mysql = require('mysql');

var connection = mysql.createConnection({
 host : process.env.RDS_HOSTNAME,
 user : process.env.RDS_USERNAME,
 password : process.env.RDS_PASSWORD,
 port : process.env.RDS_PORT
});
```

For more information about constructing a connection string using node-mysql, go to <https://npmjs.org/package/mysql>.

4. Deploy the updated application to your Elastic Beanstalk environment.

## Using an Existing Amazon RDS DB Instance with Node.js

You can update your Node.js application to use an Amazon RDS DB Instance that you have previously created. This topic walks you through how to update your Node.js application using an existing Amazon RDS DB Instance and deploy your application to Elastic Beanstalk.

### To use an existing Amazon RDS DB Instance and Node.js from your Elastic Beanstalk application

1. [Create an Elastic Beanstalk environment \(p. 61\)](#).
2. Configure your Amazon RDS DB security group to allow access from the Amazon EC2 security group used by your Elastic Beanstalk application. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see [Security Groups \(p. 233\)](#). For more information, go to the "Authorizing Network Access to an Amazon EC2 Security Group" section of [Working with DB Security Groups](#) in the *Amazon Relational Database Service User Guide*.
3. Install the driver you want to use to make your database connection. For more information, go to <https://npmjs.org/>.
4. Establish a database connection in your code using your Amazon RDS DB instance's connectivity information. The following examples show how you could connect to the database on an RDS instance at `mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com` using port 3306, with the user name "sa" and the password "mypassword".

### Example 1. Example using node-mysql to connect to an RDS database

```
var mysql = require('mysql');

var connection = mysql.createConnection({
 host : 'mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com',
 user : 'sa',
 password : 'mypassword',
 port : '3306'
});
```

For more information about constructing a connection string using node-mysql, go to <https://npmjs.org/package/mysql>.

5. Deploy the updated application to your Elastic Beanstalk environment.

## Resources

There are several places you can go to get additional help when developing your Node.js applications:

Resource	Description
<a href="#">GitHub</a>	Install the AWS SDK for Node.js using GitHub.
<a href="#">Node.js Development Forum</a>	Post your questions and get feedback.
<a href="#">AWS SDK for Node.js (Developer Preview)</a>	One-stop shop for sample code, documentation, tools, and additional resources.

# Creating and Deploying PHP Applications on AWS Elastic Beanstalk

---

Elastic Beanstalk for PHP makes it easy to deploy, manage, and scale your PHP web applications using Amazon Web Services. Elastic Beanstalk for PHP is available to anyone developing or hosting a web application using PHP. This section provides instructions for deploying your PHP web application to Elastic Beanstalk. You can deploy your application in just a few minutes using the Elastic Beanstalk Command Line Interface (EB CLI) or by using the Elastic Beanstalk Management Console. It also provides walkthroughs for common frameworks such as CakePHP and Symfony2.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

## Topics

- [Using the AWS Elastic Beanstalk PHP Platform \(p. 730\)](#)
- [Deploying a Laravel Application to Elastic Beanstalk \(p. 733\)](#)
- [Deploying a CakePHP Application to Elastic Beanstalk \(p. 741\)](#)
- [Deploying a Symfony2 Application to Elastic Beanstalk \(p. 748\)](#)
- [Deploying a High-Availability PHP Application with an External Amazon RDS Database to Elastic Beanstalk \(p. 753\)](#)
- [Using Amazon RDS with PHP \(p. 760\)](#)
- [Resources \(p. 762\)](#)

## Using the AWS Elastic Beanstalk PHP Platform

The AWS Elastic Beanstalk PHP platform is a set of [environment configurations \(p. 30\)](#) for PHP web applications that can run alone or under Composer. Each configuration corresponds to a version of PHP, including PHP 5.4, PHP 5.5, and PHP 5.6.



Elastic Beanstalk provides [configuration options \(p. 131\)](#) that you can use to customize the software that runs on the EC2 instances in your Elastic Beanstalk environment. You can configure environment variables needed by your application, enable log rotation to Amazon S3, and set common PHP initialization settings.

Platform-specific configuration options are available in the AWS Management Console for [modifying the configuration of a running environment \(p. 139\)](#). To avoid losing your environment's configuration when you terminate it, you can use [saved configurations \(p. 215\)](#) to save your settings and later apply them to another environment.

To save settings in your source code, you can include [configuration files \(p. 178\)](#). Settings in configuration files are applied every time you create an environment or deploy your application. You can also use configuration files to install packages, run scripts, and perform other instance customization operations during deployments.

If you use Composer, you can [include a composer.json file \(p. 733\)](#) in your source bundle to install packages during deployment.

For advanced PHP configuration and PHP settings that are not provided as configuration options, you can [use configuration files to provide an INI file \(p. 733\)](#) that can extend and override the default settings applied by Elastic Beanstalk, or install additional extensions.

Settings applied in the AWS Management Console override the same settings in configuration files, if they exist. This lets you have default settings in configuration files, and override them with environment specific settings in the console. For more information about precedence, and other methods of changing settings, see [Configuration Options \(p. 131\)](#).


#### Sections

- [Configuring your PHP Environment in the AWS Management Console \(p. 731\)](#)
- [Configuration Files \(p. 732\)](#)
- [Composer File \(p. 733\)](#)
- [Extending php.ini \(p. 733\)](#)

## Configuring your PHP Environment in the AWS Management Console

You can use the AWS Management Console to enable log rotation to Amazon S3, configure variables that your application can read from the environment, and change PHP settings.

### To access the configuration options for your PHP environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .

## PHP Settings

- **Document root** – The folder that contains your site's default page. If your welcome page is not at the root of your source bundle, specify the folder that contains it relative to the root path. For example, `/public` if the welcome page is in a folder named `public`.
- **Memory limit** – The maximum amount of memory that a script is allowed to allocate. For example, `512M`.

- **Zlib output compression** – Set to `On` to compress responses.
- **Allow URL fopen** – Set to `Off` to prevent scripts from downloading files from remote locations.
- **Display errors** – Set to `On` to show internal error messages for debugging.
- **Max execution time** – The maximum time in seconds that a script is allowed to run before the environment terminates it.

## Log Options

The Log Options section has two settings:

- **Instance profile**– Specifies the instance profile that has permission to access the Amazon S3 bucket associated with your application.
- **Enable log file rotation to Amazon S3**–Specifies whether log files for your application's Amazon EC2 instances should be copied to your Amazon S3 bucket associated with your application.

## Environment Properties

The **Environment Properties** section lets you specify environment configuration settings on the Amazon EC2 instances that are running your application. These settings are passed in as key-value pairs to the application.

Inside the PHP environment running in Elastic Beanstalk, these values are written to `/etc/php.d/` environment.ini and are accessible using `$_SERVER` or the `get_cfg_var` function.

The following code prints parameters from the `$_SERVER` object:

```
echo $_SERVER['PARAM1'];
echo $_SERVER['PARAM2'];
echo $_SERVER['PARAM5'];
```

### Note

Environment configuration settings can contain any printable ASCII character except the grave accent ( ` , ASCII 96) and cannot exceed 200 characters in length.

## Configuration Files

You can use a [configuration file \(p. 178\)](#) to set configuration options and perform other instance configuration tasks during deployments. The PHP platform also provides a configuration option in the `aws:elasticbeanstalk:container:php:phpini` namespace that is not available in the AWS Management Console

**Composer Options** sets custom options to use when installing dependencies using Composer through `composer.phar install`. For more information including available options, go to <http://getcomposer.org/doc/03-cli.md#install>.

The following example [configuration file \(p. 178\)](#) shows settings for each of the options available in this namespace:

```
config_options:
 aws:elasticbeanstalk:container:php:phpini:
 document_root: /public
 memory_limit: 128M
```

```
zlib.output_compression: Off
allow_url_fopen: On
display_errors: Off
max_execution_time: 60
composer_options: vendor/package
```

## Composer File

Use a `composer.json` file in the root of your project source to use composer to install packages that your application requires.

### Example `composer.json`

```
{
 "require": {
 "monolog/monolog": "1.0.*"
 }
}
```

When a `composer.json` file is present, Elastic Beanstalk runs `composer.phar install` to install dependencies. You can add options to append to the command by setting the [composer\\_options option \(p. 732\)](#) in the `aws:elasticbeanstalk:container:php:phpini` namespace.

## Extending `php.ini`

Use a configuration file with a `files` block to add a `.ini` file to `/etc/php.d/` on the instances in your environment. The main configuration file, `php.ini`, pulls in settings from files in this folder in alphabetical order. Many extensions are enabled by default by files in this folder.

### Example `.ebextensions/mongo.config`

```
files:
 "/etc/php.d/99mongo.ini" :
 mode: "000755"
 owner: root
 group: root
 content: |
 extension=mongo.so
```

# Deploying a Laravel Application to Elastic Beanstalk

Laravel is an open source, model-view-controller (MVC) framework for PHP. This tutorial walks you through the process of generating a Laravel application, deploying it to an AWS Elastic Beanstalk environment, and configuring it to connect to an Amazon Relational Database Service (Amazon RDS) database instance.

#### Sections

- [Prerequisites \(p. 734\)](#)
- [Install Composer \(p. 734\)](#)

- [Install Laravel and Generate a Website \(p. 735\)](#)
- [Create an Elastic Beanstalk Environment and Deploy Your Application \(p. 735\)](#)
- [Add a Database to Your Environment \(p. 738\)](#)
- [Clean Up and Next Steps \(p. 740\)](#)

## Prerequisites

This tutorial assumes that you have some knowledge of basic Elastic Beanstalk operations and the Elastic Beanstalk console. If you haven't already, follow the instructions in [Getting Started Using Elastic Beanstalk \(p. 3\)](#) to launch your first Elastic Beanstalk environment.

To follow the procedures in this guide, you will need a command line terminal or shell to run commands. Commands are shown in listings preceded by a prompt symbol (\$) and the name of the current directory, when appropriate:

```
~/eb-project$ this is a command
this is output
```

### Note

You can run all commands in this tutorial on a Linux virtual machine, OS X, or an Amazon Linux EC2 instance. If you need a development environment, you can launch a single-instance Elastic Beanstalk environment and connect to it with SSH.

Laravel requires PHP 5.5.9 or later and the mbstring extension for PHP. In this tutorial we use PHP 5.6 and the corresponding Elastic Beanstalk platform configuration.

Install PHP 5.6 and the required extensions. Depending on your platform and package manager, the steps will vary.

On Amazon Linux, use yum:

```
$ sudo yum install php56 --skip-broken
$ sudo yum install php56-mbstring
```

On OS X, use Homebrew:

```
$ brew install php56
```

On Windows, go to the download page at [windows.php.net](http://windows.php.net) to get PHP, and read [this page](#) for information about extensions.

After installing PHP, reopen your terminal and run `php --version` to ensure that the new version has been installed and is the default.

## Install Composer

Composer is a dependency management tool for PHP. It is the preferred tool for installing Laravel and its dependencies and generating a Laravel application.

Install Composer by downloading the installer and running it with PHP. The installer generates a Phar file that you can invoke with PHP to generate a Laravel project in the current directory.

```
~$ curl -s https://getcomposer.org/installer | php
All settings correct for using Composer
Downloading...

Composer successfully installed to: /home/ec2-user/composer.phar
Use it: php composer.phar
```

If you run into issues installing Composer, go to the official documentation: <https://getcomposer.org/>

## Install Laravel and Generate a Website

Composer can install Laravel and create a working project with one command:

```
~$ php composer.phar create-project --prefer-dist laravel/laravel eb-laravel
Installing laravel/laravel (v5.2.15)
 - Installing laravel/laravel (v5.2.15)
 Downloading: 100%

Created project in eb-laravel
> php -r "copy('.env.example', '.env');"
Loading composer repositories with package information
Installing dependencies (including require-dev)
 - Installing vlucas/phpdotenv (v2.2.0)
 Downloading: 100%

 - Installing symfony/polyfill-mbstring (v1.1.0)
 Loading from cache
...

```

Composer installs Laravel and its dependencies, and generates a default project.

If you run into any issues installing Laravel, go to the installation topic in the official documentation: <https://laravel.com/docs/5.2>

## Create an Elastic Beanstalk Environment and Deploy Your Application

Create a [source bundle](#) (p. 43) containing the files created by Composer. You can use any program to create the .zip file, as long as it allows hidden files. On the command line, use the `zip` command:

```
~$ cd eb-laravel
~/eb-laravel$ zip ../laravel-default.zip -r * .[^.]*
```

Save the .zip archive in a location that you can access. This is the source bundle that you will upload to Elastic Beanstalk when you create an environment.

### Note

If you are working remotely in an Elastic Beanstalk environment, you can upload the archive to your Elastic Beanstalk storage bucket in Amazon Simple Storage Service (Amazon S3) with the AWS CLI `aws cp` command:

```
~$ aws s3 cp laravel-default.zip s3://elasticbeanstalk-us-west-2-123456789012
```

Elastic Beanstalk creates this bucket the first time you create an environment. To upload files to Amazon S3, you have to give your environment's [instance profile](#) (p. 18) permission to write to the bucket.

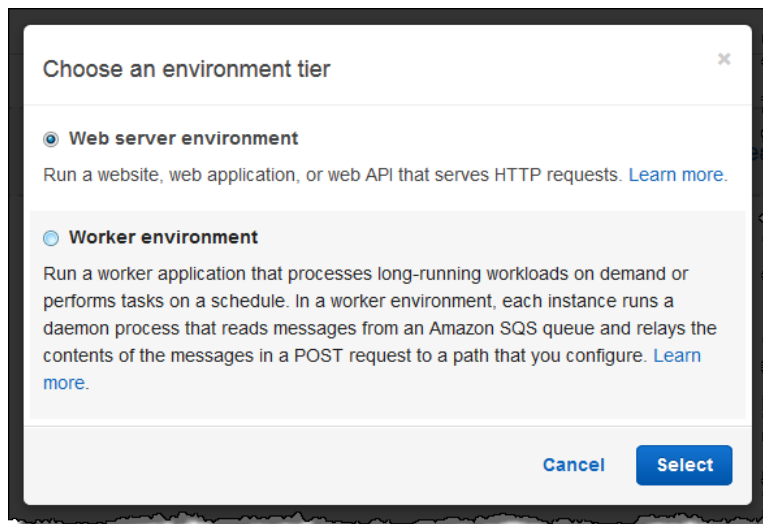
Use the AWS Management Console to create an Elastic Beanstalk environment running your application. Choose the **PHP 5.6** platform configuration and upload your source bundle when prompted:

### To launch an environment (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one](#) (p. 36).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

#### Note

Elastic Beanstalk supports multiple [configurations](#) (p. 24) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk](#) (p. 24). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Upload**.
7. Choose **Local file**, choose **Browse**, and open the source bundle.
8. Choose **Upload**.

9. Choose **Create environment**.


Environment creation takes about 5 minutes. When the process completes, click the URL to open your Laravel application in the browser:

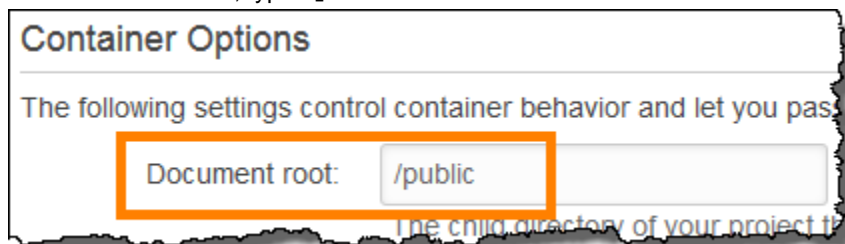


What's this? By default, Elastic Beanstalk serves the root of your project at the root path of the web site. In this case, though, the default page (`index.php`) is one level down in the `public` folder. You can verify this by adding `/public` to the URL. For example, `http://laravel.us-east-1.elasticbeanstalk.com/public`.

To allow access to this folder, use the Elastic Beanstalk console to configure the *document root* for the web site.

### To configure your web site's document root

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .
5. For **Document Root**, type `/public`.



6. Choose **Apply**.
7. When the update is complete, click the URL to reopen your site in the browser.

The image shows the Laravel 5 logo, which consists of the word "Laravel" in a thin, blue, sans-serif font, followed by the number "5" in a larger, bold, blue, sans-serif font. The logo is centered within a white rectangular area that has a dark, irregular, torn-paper-like border at the bottom.

So far, so good. Next you'll add a database to your environment and configure Laravel to connect to it.

## Add a Database to Your Environment

Launch an RDS DB instance in your Elastic Beanstalk environment. You can use MySQL, SQLServer, or PostgreSQL databases with Laravel on Elastic Beanstalk. For this example, we'll use MySQL.

### To add an RDS DB instance to your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. In the **Data Tier** section, choose **create a new RDS database**.
5. For **DB engine**, choose **mysql**.
6. Type a master **username** and **password**. Elastic Beanstalk will provide these values to your application using environment properties.
7. Choose **Apply**.

Creating a database instance takes about 10 minutes. In the meantime, you can update your source code to read connection information from the environment. Elastic Beanstalk provides connection details using environment variables, such as `RDS_HOSTNAME`, that you can access from your application.

Laravel's database configuration is stored in a file named `database.php` in the `config` folder in your project code. Open this file and add code that reads the environment variables from `$_SERVER` and assigns them to local variables by inserting the highlighted lines in the following example after the first line (`<?php`):



### Example `~/eb-laravel/config/database.php`

```
<?php
if (!defined('RDS_HOSTNAME')) {
 define('RDS_HOSTNAME', $_SERVER['RDS_HOSTNAME']);
 define('RDS_USERNAME', $_SERVER['RDS_USERNAME']);
 define('RDS_PASSWORD', $_SERVER['RDS_PASSWORD']);
 define('RDS_DB_NAME', $_SERVER['RDS_DB_NAME']);
}
return [
 ...
```

The database connection is configured further down in `database.php` file. Find the following section and modify the default datasources configuration with the name of the driver that matches your database engine (MySQL, SQL Server, or PostgreSQL), and set the `host`, `database`, `username`, and `password` variables to read the corresponding values from Elastic Beanstalk:

### Example `~/eb-laravel/config/database.php`

```
...
 'connections' => [

 'sqlite' => [
 'driver' => 'sqlite',
 'database' => database_path('database.sqlite'),
 'prefix' => '',
],

 'mysql' => [
 'driver' => 'mysql',
 'host' => RDS_HOSTNAME,
 'database' => RDS_DB_NAME,
 'username' => RDS_USERNAME,
 'password' => RDS_PASSWORD,
 'charset' => 'utf8',
 'collation' => 'utf8_unicode_ci',
 'prefix' => '',
 'strict' => false,
 'engine' => null,
],

],
 ...
```

To verify that the database connection is configured correctly, add code to `index.php` to connect to the database and add some code to the default response:

### Example `~/eb-laravel/public/index.php`

```
...
if(DB::connection()->getDatabaseName())
{
 echo "Connected to database ".DB::connection()->getDatabaseName();
}
$response->send();
...
```

When the DB instance has finished launching, bundle and deploy the updated application to your environment.

### To update your Elastic Beanstalk environment

1. Create a new source bundle:

```
~/eb-laravel$ zip ../laravel-v2-rds.zip -r * .[^.]*
```

2. Open the [Elastic Beanstalk console](#).
3. Navigate to the [management console \(p. 52\)](#) for your environment.
4. Choose **Upload and Deploy**.
5. Choose **Browse**, and upload `laravel-v2-rds.zip`.
6. Choose **Deploy**.

Deploying a new version of your application takes less than a minute. When the deployment is complete, refresh the web page again to verify that the database connection succeeded:



## Clean Up and Next Steps

If you are done working with Elastic Beanstalk for now, you can terminate your PHP environment.

### To terminate your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Actions**, and then choose **Terminate Environment**.

Elastic Beanstalk terminates all AWS resources associated with your environment, including EC2 instances, DB instance, load balancer, security groups, Amazon CloudWatch alarms, etc.

As you continue to develop your application, you'll probably want a way to manage environments and deploy your application without manually creating a `.zip` file and uploading it to the Elastic Beanstalk

console. The [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) provides easy-to-use commands for creating, configuring, and deploying applications to Elastic Beanstalk environments from the command line.

In this tutorial, you configured a document root for your application. When you launch more environments, it's impractical to manually configure this setting on each environment. You can use [configuration files \(p. 178\)](#) to store this and other settings in your source code, so that they are applied automatically.

Running an RDS DB instance in your Elastic Beanstalk environment is great for development and testing, but it ties the life cycle of your database to your environment. For instructions on connecting to a database running outside of your environment, see [Using Amazon RDS with PHP \(p. 760\)](#).

Finally, if you plan on using your application in a production environment, you will want to [configure a custom domain name \(p. 248\)](#) for your environment and [enable HTTPS \(p. 250\)](#) for secure connections.

For more information about Laravel, go to the tutorial at [laravel.com](http://laravel.com).

## Deploying a CakePHP Application to Elastic Beanstalk

CakePHP is an open source, MVC framework for PHP. This tutorial walks you through the process of generating a CakePHP project, deploying it to an Elastic Beanstalk environment, and configuring it to connect to an Amazon RDS database instance.

### Sections

- [Prerequisites \(p. 741\)](#)
- [Install Composer \(p. 742\)](#)
- [Install CakePHP and Generate a Website \(p. 742\)](#)
- [Create an Elastic Beanstalk Environment and Deploy Your Application \(p. 743\)](#)
- [Add a Database to Your Environment \(p. 746\)](#)
- [Clean Up and Next Steps \(p. 748\)](#)

## Prerequisites

To follow the procedures in this guide you will need a command line terminal or shell to run commands. Commands are shown in listings like the following, preceded by a prompt symbol ('\$') and the name of the current directory, when appropriate:

```
~/eb-project$ this is a command
this is output
```

### Note

All commands in this tutorial can be run on an Amazon Linux EC2 instance. If you need a development environment, you can launch a single instance Elastic Beanstalk environment and connect to it with SSH.

CakePHP requires PHP 5.5.9 or newer, and the mbstring and intl extensions for PHP. In this tutorial we use PHP 5.6 and the corresponding Elastic Beanstalk platform configuration.

Install PHP 5.6 and the required extensions. Depending on your platform and available package manager, the steps will vary.

On Amazon Linux, use yum:

```
$ sudo yum install php56 --skip-broken
$ sudo yum install php56-mbstring
$ sudo yum install php56-intl
```

On OS-X, use brew:

```
$ brew install php56
$ brew install php56-intl
```

On Windows, visit the download page at [windows.php.net](http://windows.php.net) to get PHP, and read [this page](#) for information about extensions.

After installing PHP, reopen your terminal and run `php --version` to ensure that the new version has been installed and is the default.

## Install Composer

Composer is a dependency management tool for PHP. It is the preferred method for installing CakePHP and its dependencies and generating the a CakePHP project.

Install Composer by downloading the installer and running it with PHP. The installer generates a PHAR file in the current directory that you can invoke with PHP to generate a CakePHP project.

```
~$ curl -s https://getcomposer.org/installer | php
All settings correct for using Composer
Downloading...

Composer successfully installed to: /home/ec2-user/composer.phar
Use it: php composer.phar
```

If you run into issues installing Composer, visit the official documentation: <https://getcomposer.org/>

## Install CakePHP and Generate a Website

Composer can install CakePHP and create a working project with one command:

```
~$ php composer.phar create-project --prefer-dist cakephp/app eb-cake

Installing cakephp/app (3.2.0)
- Installing cakephp/app (3.2.0)
 Downloading: 100%

Created project in eb-cake
Loading composer repositories with package information
Installing dependencies (including require-dev)
- Installing aura/installer-default (1.0.0)
 Downloading: 100%

- Installing cakephp/plugin-installer (0.0.12)
 Downloading: 100%

- Installing psr/log (1.0.0)
```

```
Downloading: 100%
...
```

Composer installs CakePHP and around 20 dependencies, and generates a default project.

If you run into any issues installing CakePHP, visit the installation topic in the official documentation: <http://book.cakephp.org/3.0/en/installation.html>

## Create an Elastic Beanstalk Environment and Deploy Your Application

Create a [source bundle](#) (p. 43) containing the files created by Composer. You can use any program to create the ZIP file, as long as it includes hidden files. On the command line, use the `zip` command:

```
~$ cd eb-cake
~/eb-cake$ zip ../cake-default.zip -r * .[^.]*
```

Save the ZIP archive in a location that you can access. This is the source bundle that you will upload to Elastic Beanstalk when you create an environment.

### Note

If you are working remotely in an Elastic Beanstalk environment, you can upload the archive to your Elastic Beanstalk storage bucket in Amazon S3 with the AWS CLI `aws cp` command:

```
~$ aws s3 cp cake-default.zip s3://elasticbeanstalk-us-west-2-123456789012
```

Elastic Beanstalk creates this bucket the first time you create an environment. To upload files to Amazon S3, your environment's [instance profile](#) (p. 18) must have permission to write to the bucket.

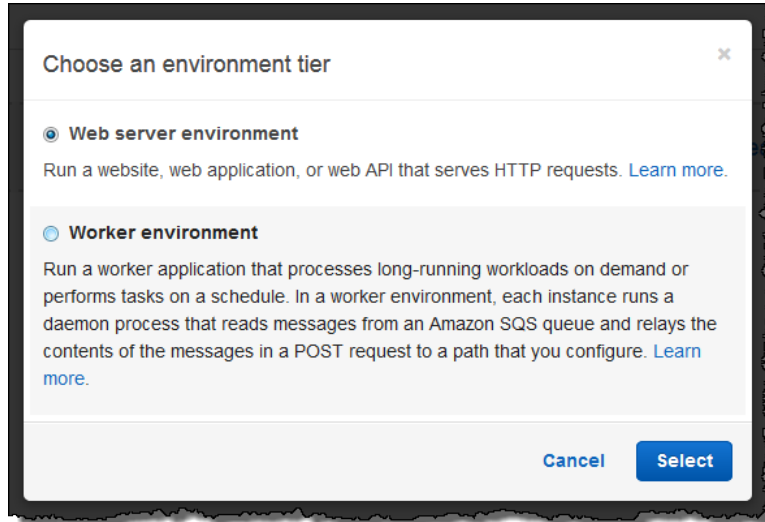
Use the AWS Management Console to create an Elastic Beanstalk environment running your application. Choose the **PHP 5.6** platform configuration and upload your source bundle when prompted:

### To launch an environment (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one](#) (p. 36).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.



4. Choose between **Web server** and **Worker environment types** (p. 14). You cannot change an environment's tier after creation.



5. For **Platform**, choose the platform that matches the language used by your application.

**Note**

Elastic Beanstalk supports multiple [configurations](#) (p. 24) for most platforms listed. By default, the console selects the latest version of the language, web container or framework [supported by Elastic Beanstalk](#) (p. 24). If your application requires an older version, choose **Configure more options** below.

6. For **App code**, choose **Upload**.
7. Choose **Local file**, choose **Browse**, and open the source bundle.
8. Choose **Upload**.
9. Choose **Create environment**.

Environment creation takes about 5 minutes. When the process completes, click the URL to open your CakePHP application in the browser:



## Get the Ovens Ready

Please be aware that this page will not be shown if you turn off debug mode unless you disable `src/Template/Pages/home.ctp`.

- ✓ Your version of PHP is 5.5.9 or higher.
- ✓ Your version of PHP has the mbstring extension loaded.
- ✓ Your version of PHP has the openssl extension loaded.
- ✓ Your version of PHP has the intl extension loaded.

- ✓ Your tmp directory is writable.
- ✓ Your logs directory is writable.
- ✓ The *FileEngine* is being used for core caching. To change the config edit `config/app.php`.

- ✗ CakePHP is NOT able to connect to the database.

Connection to database could not be established: SQLSTATE[HY000] [2002] No such file

So far, so good. Next you'll add a database to your environment and configure CakePHP to connect to it.

## Add a Database to Your Environment

Launch an Amazon RDS database instance in your Elastic Beanstalk environment. You can use MySQL, SQLServer, or PostgreSQL databases with CakePHP on Elastic Beanstalk. For this example, we'll use PostgreSQL.

### To add an Amazon RDS DB instance to your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console](#) (p. 52) for your environment.
3. Choose **Configuration**.
4. In the **Data Tier** section, choose **create a new RDS database**.
5. For **DB engine**, choose **postgres**.
6. Type a master **username** and **password**. Elastic Beanstalk will provide these values to your application using environment properties.
7. Choose **Apply**.

Creating a database instance takes about 10 minutes. In the meantime, you can update your source code to read connection information from the environment. Elastic Beanstalk provides connection details using environment variables such as `RDS_HOSTNAME` that you can access from your application.

CakePHP's database configuration is in a file named `app.php` in the `config` folder in your project code. Open this file and add some code that reads the environment variables from `$_SERVER` and assigns them to local variables. Insert the highlighted lines in the below example after the first line (`<?php`):

#### Example `~/eb-cake/config/app.php`

```
<?php
if (!defined('RDS_HOSTNAME')) {
 define('RDS_HOSTNAME', $_SERVER['RDS_HOSTNAME']);
 define('RDS_USERNAME', $_SERVER['RDS_USERNAME']);
 define('RDS_PASSWORD', $_SERVER['RDS_PASSWORD']);
 define('RDS_DB_NAME', $_SERVER['RDS_DB_NAME']);
}
return [
 ...
```

The database connection is configured further down in `app.php`. Find the following section and modify the default datasources configuration with the name of the driver that matches your database engine (`Mysql`, `Sqlserver`, or `Postgres`), and set the `host`, `username`, `password` and `database` variables to read the corresponding values from Elastic Beanstalk:



### Example ~/eb-cake/config/app.php

```
...
/**
 * Connection information used by the ORM to connect
 * to your application's datastores.
 * Drivers include Mysql Postgres Sqlite Sqlserver
 * See vendor\cakephp\cakephp\src\Database\Driver for complete list
 */
'Datasources' => [
 'default' => [
 'className' => 'Cake\Database\Connection',
 'driver' => 'Cake\Database\Driver\Postgres',
 'persistent' => false,
 'host' => RDS_HOSTNAME,
 /**
 * CakePHP will use the default DB port based on the driver
 * MySQL on MAMP uses port 8889, MAMP users will want to
 * the following line and set the port accordingly
 */
 //'port' => 'non_standard_port_number',
 'username' => RDS_USERNAME,
 'password' => RDS_PASSWORD,
 'database' => RDS_DB_NAME,
 'encoding' => 'utf8',
 'timezone' => 'UTC',
 'flags' => [],
 'cacheMetadata' => true,
 'log' => false,
],
],
...

```

When the DB instance has finished launching, bundle up and deploy the updated application to your environment:

### To update your Elastic Beanstalk environment

1. Create a new source bundle:

```
~/eb-cake$ zip ../cake-v2-rds.zip -r * .[^.]*
```

2. Open the [Elastic Beanstalk console](#).
3. Navigate to the [management console \(p. 52\)](#) for your environment.
4. Choose **Upload and Deploy**.
5. Choose **Browse** and upload `cake-v2-rds.zip`.
6. Choose **Deploy**.

Deploying a new version of your application takes less than a minute. When the deployment is complete, refresh the web page again to verify that the database connection succeeded:

✓ CakePHP is able to connect to the database.

## Clean Up and Next Steps

If you are done working with Elastic Beanstalk for now, you can terminate your PHP environment.

### To terminate your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Actions**, and then choose **Terminate Environment**.

Elastic Beanstalk cleans up all AWS resources associated with your environment, including EC2 instances, DB instance, load balancer, security groups, CloudWatch alarms, etc.

For more information about CakePHP, read the book at [book.cakephp.org](http://book.cakephp.org).

As you continue to develop your application, you'll probably want a way to manage environments and deploy your application without creating a ZIP file manually and uploading it to the Elastic Beanstalk console. The [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) provides easy to use commands for creating, configuring, and deploying to Elastic Beanstalk environments from the command line.

Running an Amazon RDS DB instance in your Elastic Beanstalk environment is great for development and testing, but it ties the lifecycle of your database to your environment. See [Using Amazon RDS with PHP \(p. 760\)](#) for instructions on connecting to a database running outside of your environment.

Finally, if you plan on using your application in a production environment, you will want to [configure a custom domain name \(p. 248\)](#) for your environment and [enable HTTPS \(p. 250\)](#) for secure connections.

## Deploying a Symfony2 Application to Elastic Beanstalk

[Contribute to this article by editing the source directly on GitHub](#)

This section walks you through deploying a sample application to Elastic Beanstalk using the Elastic Beanstalk Command Line Interface (EB CLI) and Git, and then updating the application to use the [Symfony2](#) framework.

### Sections

- [Set Up Your Git Repository \(p. 749\)](#)
- [Set Up Your Symfony2 Development Environment \(p. 749\)](#)
- [Configure Elastic Beanstalk \(p. 750\)](#)

- [View the Application \(p. 752\)](#)
- [Update the Application \(p. 752\)](#)
- [Clean Up \(p. 752\)](#)

## Set Up Your Git Repository

EB CLI is a command line interface that you can use with Git to deploy applications quickly and more easily. EB is available as part of the Elastic Beanstalk command line tools package. For instructions to install EB CLI, see [Install the Elastic Beanstalk Command Line Interface \(EB CLI\) \(p. 417\)](#).

Initialize your Git repository. After you run the following command, when you run `eb init`, EB CLI will recognize that your application is set up with Git.

```
git init .
```

## Set Up Your Symfony2 Development Environment

Set up Symfony2 and create the project structure. The following walks you through setting up Symfony2 on a Linux operating system. For more information, go to <http://symfony.com/download>.

### To set up your PHP development environment on your local computer

1. Download and install composer from [getcomposer.org](http://getcomposer.org). For more information, go to <http://getcomposer.org/download/>.

```
curl -s https://getcomposer.org/installer | php
```

2. Install Symfony2 Standard Edition with Composer. Check <http://symfony.com/download> for the latest available version. Using the following command, composer will install the vendor libraries for you.

```
php composer.phar create-project symfony/framework-standard-edition
 symfony2_example/ <version number>
cd symfony2_example
```

#### Note

You may need to set the `date.timezone` in the `php.ini` to successfully complete installation. Also provide parameters for Composer, as needed.

3. Initialize the Git repository.

```
git init
```

4. Update the **.gitignore** file to ignore vendor, cache, logs, and composer.phar. These files do not need to get pushed to the remote server.

```
cat > .gitignore <<EOT
app/bootstrap.php.cache
app/cache/*
app/logs/*
vendor
composer.phar
EOT
```

5. Generate the hello bundle.

```
php app/console generate:bundle --namespace=Acme/HelloBundle --format=yml
```

When prompted, accept all defaults. For more information, go to [Creating Pages in Symfony2](#).

Next, configure Composer. Composer dependencies require that you set the HOME or COMPOSER\_HOME environment variable. Also configure Composer to self-update so that you always use the latest version.

### To configure Composer

1. Create a configuration file with the extension **.config** (e.g., `composer.config`) and place it in an `.ebextensions` directory at the top level of your source bundle. You can have multiple configuration files in your `.ebextensions` directory. For information about the file format of configuration files, see [Advanced Environment Customization with Configuration Files \(.ebextensions\)](#) (p. 178).

#### Note

Configuration files should conform to YAML or JSON formatting standards. For more information, go to <http://www.yaml.org/start.html> or <http://www.json.org>, respectively.

2. In the **.config** file, type the following.

```
commands:
 01updateComposer:
 command: export COMPOSER_HOME=/root && /usr/bin/composer.phar self-
update 1.0.0-alpha11

option_settings:
 - namespace: aws:elasticbeanstalk:application:environment
 option_name: COMPOSER_HOME
 value: /root
```

Replace `1.0.0-alpha11` with your preferred version of composer. See [getcomposer.org/download](http://getcomposer.org/download) for a list of available versions.

## Configure Elastic Beanstalk

The following instructions use the [Elastic Beanstalk command line interface \(p. 416\)](#) (EB CLI) to configure an Elastic Beanstalk application repository in your local project directory.

### To configure Elastic Beanstalk

1. From the directory where you created your local repository, type the following command:

```
eb init
```

2. When you are prompted for the Elastic Beanstalk region, type the number of the region. For information about this product's regions, go to [Regions and Endpoints](#) in the Amazon Web Services General Reference. For this example, we'll use **US West (Oregon)**.
3. When you are prompted for the Elastic Beanstalk application name, type the name of the application. Elastic Beanstalk generates an application name based on the current directory name if an application name has not been previously configured. In this example, we use `symfony2app`.

```
Enter an AWS Elastic Beanstalk application name (auto-generated value is
"windows"): symfony2app
```

**Note**

If you have a space in your application name, make sure you do not use quotation marks.

4. Type **y** if Elastic Beanstalk correctly detected the correct platform you are using. Type **n** if not, and then specify the correct platform.
5. When prompted, type **y** if you want to set up Secure Shell (SSH) to connect to your instances. Type **n** if you do not want to set up SSH. In this example, we will type **n**.

```
Do you want to set up SSH for your instances?
(y/n): n
```

6. Create your running environment.

```
eb create
```

7. When you are prompted for the Elastic Beanstalk environment name, type the name of the environment. Elastic Beanstalk automatically creates an environment name based on your application name. If you want to accept the default, press **Enter**.

```
Enter Environment Name
(default is HelloWorld-env):
```

**Note**

If you have a space in your application name, make sure you do not have a space in your environment name.

8. When you are prompted to provide a CNAME prefix, type the CNAME prefix you want to use. Elastic Beanstalk automatically creates a CNAME prefix based on the environment name. If you want to accept the default, press **Enter**.

```
Enter DNS CNAME prefix
(default is HelloWorld):
```

After configuring Elastic Beanstalk, you are ready to deploy a sample application.

If you want to update your Elastic Beanstalk configuration, you can use the `init` command again. When prompted, you can update your configuration options. If you want to keep any previous settings, press the **Enter** key.

**To deploy a sample application**

- From the directory where you created your local repository, type the following command:

```
eb deploy
```

This process may take several minutes to complete. Elastic Beanstalk will provide status updates during the process. If at any time you want to stop polling for status updates, press **Ctrl+C**. Once the environment status is Green, Elastic Beanstalk will output a URL for the application. You can copy and paste the URL into your web browser to view the application.

## View the Application

### To view the application

- To open your application in a browser window, type the following:

```
eb open
```

## Update the Application

After you have deployed a sample application, you can update it with your own application. In this step, we update the sample application with a simple "Hello World" Symfony2 application.

### To update the sample application

- Add your files to your local Git repository, and then commit your change.

```
git add -A && git commit -m "Initial commit"
```

#### Note

For information about Git commands, go to [Git - Fast Version Control System](#).

- Create an application version matching your local repository and deploy to the Elastic Beanstalk environment if specified.

```
eb deploy
```

You can also configure Git to push from a specific branch to a specific environment. For more information, see "Using Git with EB CLI" in the topic [Managing Elastic Beanstalk Environments with the EB CLI](#) (p. 429).

- After your environment is Green and Ready, append `/web/hello/AWS` to the URL of your application. The application should write out "Hello AWS!"

You can access the logs for your EC2 instances running your application. For instructions on accessing your logs, see [Instance Logs](#) (p. 320).

## Clean Up

If you no longer want to run your application, you can clean up by terminating your environment and deleting your application.

Use the `terminate` command to terminate your environment and the `delete` command to delete your application.

### To terminate your environment and delete the application

- From the directory where you created your local repository, run `eb terminate`:

```
$ eb terminate
```

This process may take a few minutes. Elastic Beanstalk displays a message once the environment has been successfully terminated.

# Deploying a High-Availability PHP Application with an External Amazon RDS Database to Elastic Beanstalk

This tutorial walks you through the process of [launching an RDS DB instance \(p. 380\)](#) external to AWS Elastic Beanstalk, and configuring a high-availability environment running a PHP application to connect to it. Running a DB instance external to Elastic Beanstalk decouples the database from the lifecycle of your environment, and lets you connect to the same database from multiple environments, swap out one database for another, or perform a blue/green deployment without affecting your database.

The tutorial uses a [sample PHP application](#) that utilizes a MySQL database to store user-provided text data. The sample application uses [configuration files \(p. 178\)](#) to configure [PHP settings \(p. 732\)](#) and to create a table in the database for the application to use. It also shows how to use a [Composer file \(p. 733\)](#) to install packages during deployment.

## Sections

- [Prerequisites \(p. 753\)](#)
- [Launch a DB Instance in Amazon RDS \(p. 753\)](#)
- [Launch an Elastic Beanstalk Environment \(p. 755\)](#)
- [Configure Security Groups, Environment Properties, and Scaling \(p. 755\)](#)
- [Deploy the Sample Application \(p. 757\)](#)
- [Clean Up \(p. 759\)](#)
- [Next Steps \(p. 759\)](#)

## Prerequisites

Before you start, download the sample application source bundle from GitHub: [eb-demo-php-simple-app-1.1.zip](#)

The procedures in this tutorial for Amazon Relational Database Service (Amazon RDS) tasks assume that you are launching resources in a default VPC. All new accounts include a default VPC in each region. If you don't have a default VPC, the procedures will vary. See [Using Elastic Beanstalk with Amazon RDS \(p. 380\)](#) for instructions for EC2-Classic and custom VPC platforms.

## Launch a DB Instance in Amazon RDS

To use an external database with an application running in Elastic Beanstalk, first launch a DB instance with Amazon RDS. When you launch an instance with Amazon RDS, it is completely independent of Elastic Beanstalk and your Elastic Beanstalk environments, and will not be terminated or monitored by Elastic Beanstalk.

Use the Amazon RDS console to launch a Multi-AZ **MySQL** DB instance. Choosing a Multi-AZ deployment ensures that your database will failover and continue to be available if the master DB instance goes out of service.

### To launch an RDS DB instance in a default VPC

1. Open the [RDS management console](#).
2. Choose **Launch DB Instance**.
3. Choose a **DB Engine** and preset configuration.

4. Under **Instance Specifications**, choose a **DB Instance Class**. For high availability, set **Multi-AZ Deployment** to **Yes**.
5. Under **Settings**, type a **Master Username** and **Master Password** and note the values that you entered for later.
6. Choose **Next**.
7. For **Network and Security** settings, choose the following:
  - **VPC** – **Default VPC**
  - **Subnet Group** – **default**
  - **Publicly Accessible** – **No**
  - **Availability Zone** – **No Preference**
  - **VPC Security Groups** – **Create new Security Group**
8. For **Database Name**, type **ebdb**, and verify the default settings for the remaining options. Note the values of the following options:
  - **Database Name**
  - **Database Port**
9. Choose **Launch DB Instance**.

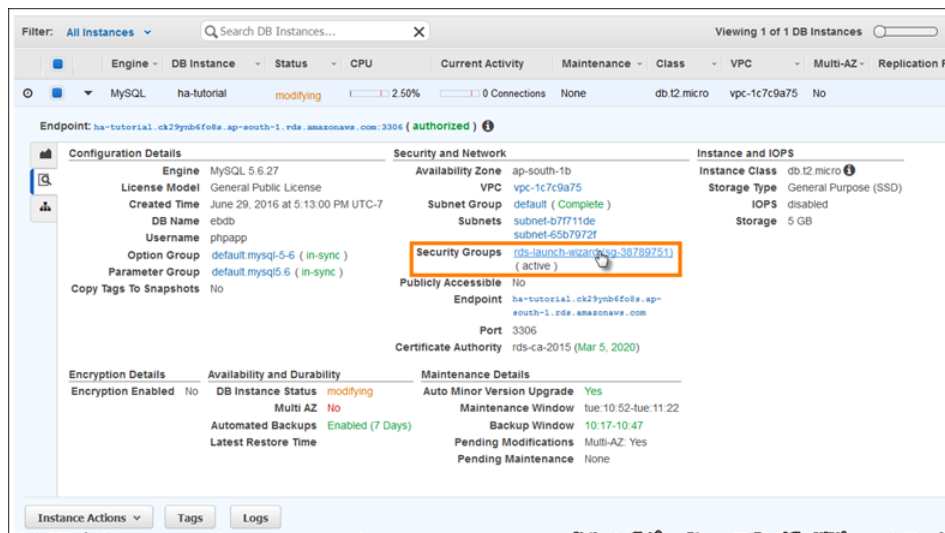
Next, modify the security group attached to your DB instance to allow inbound traffic on the appropriate port. This is the same security group that you will attach to your Elastic Beanstalk environment later, so the rule that you add will grant ingress permission to other resources in the same security group.

### To modify the ingress rules on your RDS instance's security group

1. Open the [Amazon RDS console](#).
2. Choose **Instances**.
3. Choose the arrow next to the entry for your DB instance to expand the view.
4. Choose the **Details** tab.
5. In the **Security and Network** section, the security group associated with the DB instance is shown. Open the link to view the security group in the Amazon EC2 console.

#### Note

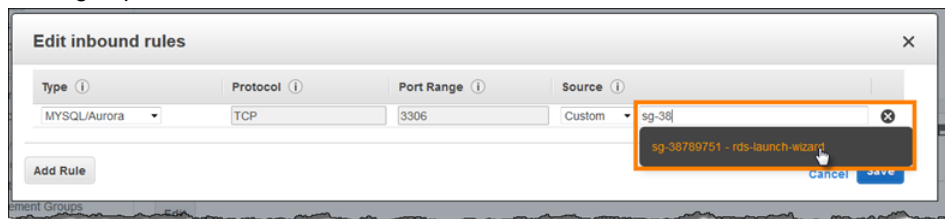
Also note the Endpoint shown on this page for use later.



6. In the security group details, choose the **Inbound** tab.



7. Choose **Edit**.
8. Choose **Add Rule**.
9. For **Type**, choose the DB engine that your application uses.
10. For **Source**, choose **Custom IP**, and then type the group ID of the security group. This allows resources in the security group to receive traffic on the database port from other resources in the same group.



11. Choose **Save**.

Creating a DB instance takes about 10 minutes. In the meantime, launch your Elastic Beanstalk environment.

## Launch an Elastic Beanstalk Environment

Use the AWS Management Console to launch an Elastic Beanstalk environment. Choose the **PHP 5.6** platform configuration and accept the default settings and sample code. After you have configured the environment to connect to the database, you deploy the sample application that you downloaded from GitHub.

### To launch an environment (console)

1. Open the [Elastic Beanstalk console](#).
2. Choose an application or [create a new one \(p. 36\)](#).
3. In the upper right corner, choose **Create New Environment** from the **Actions** menu.

#### Note

If the New Environment wizard does not show the screens described below, see [The Old New Environment Wizard \(p. 63\)](#).

4. Choose **Web server environment** and then choose **Select**.
5. For **Platform**, choose the platform that matches the language used by your application.
6. For **App code**, choose **Sample application**.
7. Choose **Create environment**.

Environment creation takes about 5 minutes.

## Configure Security Groups, Environment Properties, and Scaling

Next, add the DB instance's security group to your running environment. This procedure causes Elastic Beanstalk to reprovision all instances in your environment with the additional security group attached.


### To add a security group to your environment

1. Open the [Elastic Beanstalk console](#).

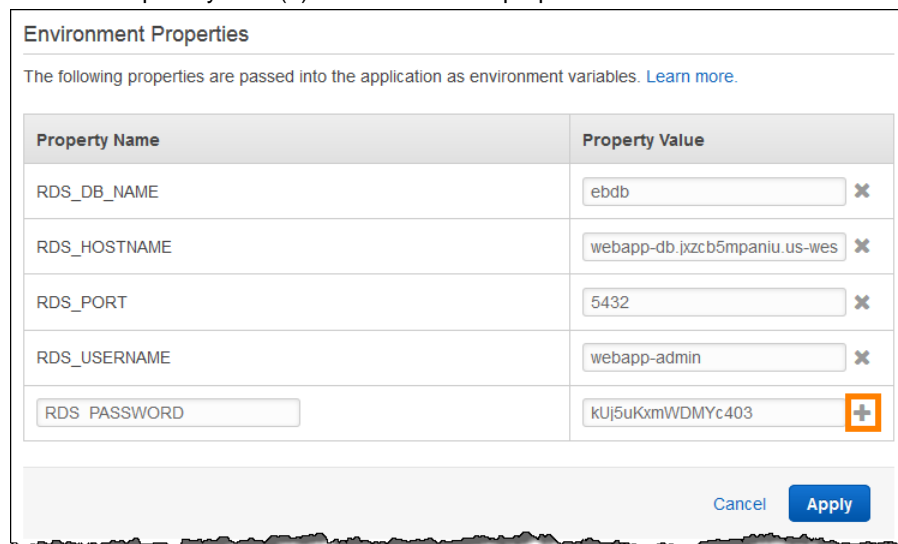
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. Choose **Instances**.
5. For **EC2 security groups**, type a comma after the name of the auto-generated security group followed by the name of the RDS DB instance's security group. By default, the RDS console creates a security group called `rds-launch-wizard`.
6. Choose **Apply**.
7. Read the warning, and then choose **Save**.

Next, pass the connection information to your environment by using environment properties. The sample application uses a default set of properties that match the ones that Elastic Beanstalk configures when you provision a database within your environment.

### To configure environment properties

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .
5. In the **Environment Properties** section, define the variables that your application reads to construct a connection string. For compatibility with environments that have an integrated RDS DB instance, use the following:
  - **RDS\_DB\_NAME** – The **DB Name** shown in the Amazon RDS console.
  - **RDS\_HOSTNAME** – The **Endpoint** of the DB instance shown in the Amazon RDS console.
  - **RDS\_PORT** – The **Port** shown in the Amazon RDS console.
  - **RDS\_USERNAME** – The **Master Username** that you entered when you added the database to your environment.
  - **RDS\_PASSWORD** – The **Master Password** that you entered when you added the database to your environment.

Choose the plus symbol (+) to add additional properties:



Property Name	Property Value
RDS_DB_NAME	ebdb
RDS_HOSTNAME	webapp-db.jxzb5mpaniu.us-wes
RDS_PORT	5432
RDS_USERNAME	webapp-admin
RDS_PASSWORD	kUj5uKxmWDMYc403

6. Choose **Apply**.

Finally, configure your environment's Auto Scaling group with a higher minimum instance count. Run at least two instances at all times to prevent the web servers in your environment from being a single point of failure, and to allow you to deploy changes without taking your site out of service.

### To configure your environment's Auto Scaling group for high availability

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. Choose **Scaling**.
5. Under **Auto Scaling**, set **Minimum instance count** to **2**.
6. Choose **Apply**.

## Deploy the Sample Application

Now your environment is ready to run the sample application and connect to Amazon RDS. Deploy the sample application to your environment.

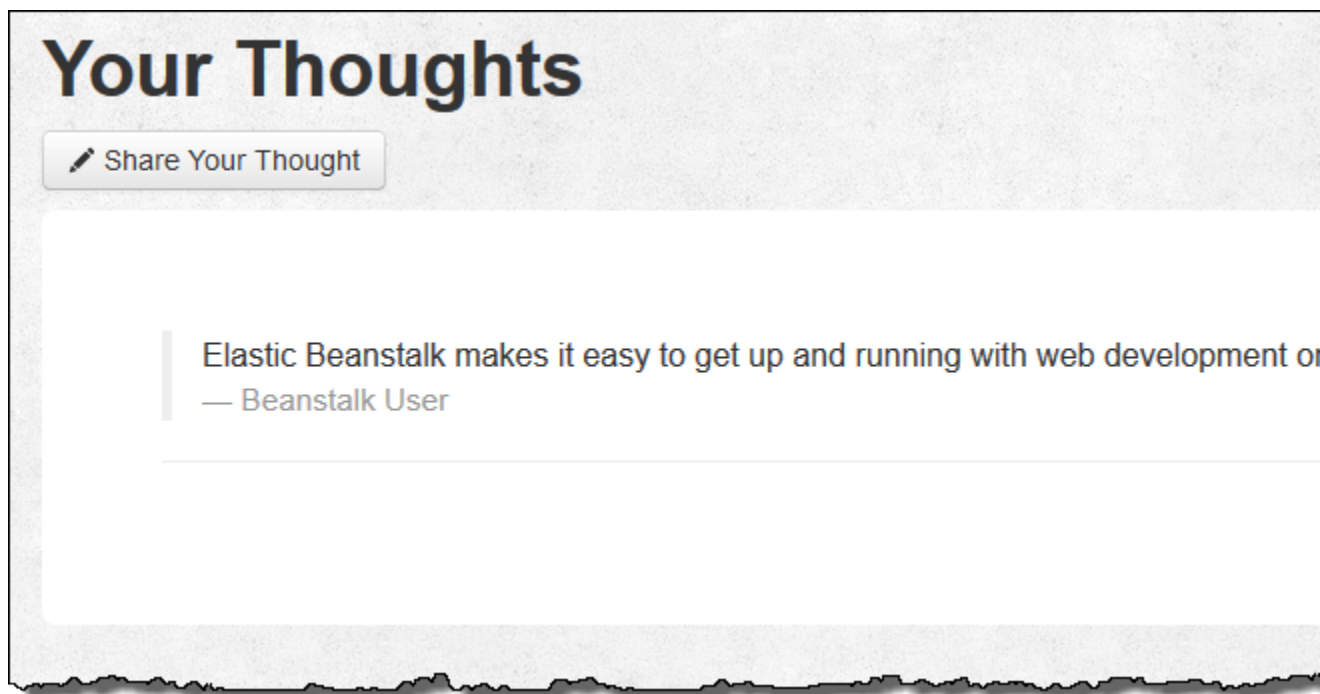
### Note

Download the source bundle from GitHub if you haven't already: [eb-demo-php-simple-app-1.1.zip](#)

### To deploy a source bundle

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Upload and Deploy**.
4. Choose **Browse** and upload the source bundle.
5. Choose **Deploy**.
6. When the deployment completes, choose the site URL to open your website in a new tab.

The site collects user comments and uses a MySQL database to store the data. To add a comment, choose **Share Your Thought**, enter a comment, and then choose **Submit Your Thought**. The web app writes the comment to the database so that it can be read by any instance in the environment and won't be lost if instances go out of service.



Launching an environment creates the following resources:

- **EC2 instance** – An Amazon Elastic Compute Cloud (Amazon EC2) virtual machine configured to run web apps on the platform that you choose.

Each platform runs a different set of software, configuration files, and scripts to support a specific language version, framework, web container, or combination thereof. Most platforms use either Apache or nginx as a reverse proxy that sits in front of your web app, forwards requests to it, serves static assets, and generates access and error logs.

- **Instance security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the load balancer reach the EC2 instance running your web app. By default, traffic is not allowed on other ports.
- **Load balancer** – An Elastic Load Balancing load balancer configured to distribute requests to the instances running your application. A load balancer also eliminates the need to expose your instances directly to the Internet.
- **Load balancer security group** – An Amazon EC2 security group configured to allow ingress on port 80. This resource lets HTTP traffic from the Internet reach the load balancer. By default, traffic is not allowed on other ports.
- **Auto Scaling group** – An Auto Scaling group configured to replace an instance if it is terminated or becomes unavailable.
- **Amazon S3 bucket** – A storage location for your source code, logs, and other artifacts that are created when you use Elastic Beanstalk.
- **Amazon CloudWatch alarms** – Two Amazon CloudWatch alarms that monitor the load on the instances in your environment and are triggered if the load is too high or too low. When an alarm is triggered, your Auto Scaling group scales up or down in response.
- **AWS CloudFormation stack** – Elastic Beanstalk uses AWS CloudFormation to launch the resources in your environment and propagate configuration changes. The resources are defined in a template that you can view in the [AWS CloudFormation management console](#).
- **Domain name** – A domain name that routes to your web app in the form *subdomain.region.elasticbeanstalk.com*.

All of these resources are managed by Elastic Beanstalk. When you terminate your environment, Elastic Beanstalk terminates all of resources that it contains. The RDS DB instance that you launched is outside of your environment, so you are responsible for managing its lifecycle.

**Note**

The S3 bucket that Elastic Beanstalk creates is shared between environments and is not deleted during environment termination. For more information, see [Using Elastic Beanstalk with Amazon S3 \(p. 389\)](#).

## Clean Up

If you are done working with Elastic Beanstalk, you can terminate your PHP environment.

### To terminate your Elastic Beanstalk environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Actions**, and then choose **Terminate Environment**.

Elastic Beanstalk terminates all AWS resources associated with your environment, including EC2 instances, the load balancer, security groups, Amazon CloudWatch alarms, etc.

You can also terminate the DB instance, taking a snapshot so that you can restore the data to another instance later.

### To terminate your RDS DB instance

1. Open the [Amazon RDS console](#).
2. Choose **Instances**.
3. Choose your DB instance.
4. Choose **Instance Actions**, and then choose **Delete**.
5. Choose whether to create a snapshot, and then choose **Delete**.

## Next Steps

As you continue to develop your application, you'll probably want to manage environments and deploy your application without manually creating a .zip file and uploading it to the Elastic Beanstalk console. The [Elastic Beanstalk Command Line Interface \(p. 416\)](#) (EB CLI) provides easy-to-use commands for creating, configuring, and deploying applications to Elastic Beanstalk environments from the command line.

The sample application uses configuration files to configure PHP settings and create a table in the database if it doesn't already exist. You can also use a configuration file to configure your instances' security group settings during environment creation to avoid time-consuming configuration updates. See [Advanced Environment Customization with Configuration Files \(.ebextensions\) \(p. 178\)](#) for more information.

For development and testing, you might want to use Elastic Beanstalk's functionality for adding a managed DB instance directly to your environment. For instructions on setting up a database inside your environment, see [Configuring Databases with Elastic Beanstalk \(p. 243\)](#).

If you need a high-performance database, consider using [Amazon Aurora](#). Amazon Aurora is a MySQL-compatible database engine that offers commercial database features at low cost. To connect your application to a different database, repeat the [security group configuration \(p. 753\)](#) steps and [update the RDS-related environment properties \(p. 755\)](#).

Finally, if you plan on using your application in a production environment, [configure a custom domain name](#) (p. 248) for your environment and [enable HTTPS](#) (p. 250) for secure connections.

## Using Amazon RDS with PHP

With Amazon Relational Database Service (Amazon RDS), you can quickly and easily provision and maintain a MySQL, Oracle, PostgreSQL, or Microsoft SQL Server instance in the cloud. This topic explains how you can use Amazon RDS and PHP with your Elastic Beanstalk application. For more information about Amazon RDS, go to <http://aws.amazon.com/rds/>.

To use Amazon RDS from your Elastic Beanstalk application, you need to do the following:

1. Create an Amazon RDS DB instance.
2. If you plan to use PDO, install the PDO drivers. For more information, go to <http://www.php.net/manual/pdo.installation.php>.
3. Establish a database connection in your code by using the connectivity information for your Amazon RDS DB instance.
4. Deploy your application to Elastic Beanstalk.

This topic walks you through the following:

- Using a new Amazon RDS DB instance with your application
- Using an existing Amazon RDS DB instance with your application

## Using a New Amazon RDS DB Instance with PHP

This topic walks you through creating a new Amazon RDS DB Instance and using it with your PHP application.

### To use a new Amazon RDS DB Instance and PHP from your Elastic Beanstalk application

1. Create an Amazon RDS DB Instance. You can create an RDS DB Instance in one of the following ways:
  - Create an Amazon RDS DB instance when you launch a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment](#) (p. 61). For a sample walkthrough of a CakePHP application deployment with Amazon RDS, see [Deploying a CakePHP Application to Elastic Beanstalk](#) (p. 741).
  - Create an Amazon RDS DB instance when you launch a new environment with an existing application version. For instructions using the AWS Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment](#) (p. 61).
  - If you already deployed an application to Elastic Beanstalk, you can create an Amazon RDS DB instance and attach it to an existing environment. For instructions using the AWS Elastic Beanstalk console, see [Configuring Databases with Elastic Beanstalk](#) (p. 243). If you use the EB CLI, use the `--database` option when you run `eb create`.
2. If you plan to use PDO, install the PDO drivers. For more information, go to <http://www.php.net/manual/pdo.installation.php>.
3. Establish a database connection in your code using your Amazon RDS DB Instance's connectivity information. You can access your connectivity information using environment variables. The following shows how you would connect to the database on an RDS instance.

### Example 1. Example using PDO to connect to an RDS database

```
<?php
$dbhost = $_SERVER['RDS_HOSTNAME'];
$dbport = $_SERVER['RDS_PORT'];
$dbname = $_SERVER['RDS_DB_NAME'];

$dsn = "mysql:host={$dbhost};port={$dbport};dbname={$dbname}";
$username = $_SERVER['RDS_USERNAME'];
$password = $_SERVER['RDS_PASSWORD'];

$dbh = new PDO($dsn, $username, $password);
?>
```

For more information about constructing a connection string using PDO, go to <http://us2.php.net/manual/en/pdo.construct.php>.

### Example 2. Example using `mysqli_connect()` to connect to an RDS database

```
$link = mysqli_connect($_SERVER['RDS_HOSTNAME'], $_SERVER['RDS_USERNAME'],
 $_SERVER['RDS_PASSWORD'], $_SERVER['RDS_DB_NAME'], $_SERVER['RDS_PORT']);
```

For more information on using `mysqli_connect()`, go to <http://www.phpbuilder.com/manual/function.mysqli-connect.php>.

4. Deploy the updated application to your Elastic Beanstalk environment.

## Using an Existing Amazon RDS DB Instance with PHP

You can update your application to use an Amazon RDS DB Instance that you have previously created. This topic walks you through how to update your PHP application using an existing Amazon RDS DB Instance and deploy your application to Elastic Beanstalk.

### To use an existing Amazon RDS DB Instance and PHP from your Elastic Beanstalk application

1. Create an Elastic Beanstalk environment in one of the following ways:
  - Create a new application with a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). For a sample walkthrough of a CakePHP application deployment with Amazon RDS, see [Deploying a CakePHP Application to Elastic Beanstalk \(p. 741\)](#). You do not need to create an RDS DB Instance with this environment because you already have an existing RDS DB Instance.
  - Launch a new environment with an existing application version. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). You do not need to create an Amazon RDS DB instance with this environment because you already have an existing Amazon RDS DB instance.
2. Configure your Amazon RDS DB security group to allow access from the Amazon EC2 security group used by your Elastic Beanstalk application. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see [Security Groups \(p. 233\)](#). For more information, go to the "Authorizing Network Access to an Amazon EC2 Security Group" section of [Working with DB Security Groups](#) in the *Amazon Relational Database Service User Guide*.

3. If you plan to use PDO, install the PDO drivers. For more information, go to <http://www.php.net/manual/pdo.installation.php>.
4. Establish a database connection in your code using your Amazon RDS DB instance's connectivity information. The following examples show how you could connect to the database on an RDS instance at `mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com` using port 3306, with the user name "sa" and the password "mypassword".

#### Example 1. Example using PDO to connect to an RDS database

```
<?php
$dsn = 'mysql:host=mydbinstance.abcdefghijkl.us-
east-1.rds.amazonaws.com;port=3306;dbname=mydb';
$username = 'sa';
$password = 'mypassword';

$dbh = new PDO($dsn, $username, $password);
?>
```

For more information about constructing a connection string using PDO, go to <http://us2.php.net/manual/en/pdo.construct.php>.

#### Example 2. Example using `mysqli_connect()` to connect to an RDS database

```
$link = mysqli_connect('mydbinstance.abcdefghijkl.us-
east-1.rds.amazonaws.com', 'sa', 'mypassword', 'mydb', 3306);
```

For more information on using `mysqli_connect()`, go to <http://www.phpbuilder.com/manual/function.mysqli-connect.php>.

5. Deploy the updated application to your Elastic Beanstalk environment.

## Resources

With the AWS SDK for PHP, you can get started in minutes with a single, downloadable package complete with the AWS PHP library, code samples, and documentation. You can build PHP applications on top of APIs that take the complexity out of coding directly against web services interfaces. The all-in-one library provides PHP developer-friendly APIs that hide much of the lower-level tasks associated with programming for the AWS cloud, including authentication, request retries, and error handling. Practical examples are provided in PHP for how to use the libraries to build applications. Online video tutorials and reference documentation are provided to help you learn how to use the libraries and code samples. For more information about the AWS SDK for PHP, go to <http://aws.amazon.com/sdkforphp/>.

There are several places you can go to get additional help when developing your PHP applications:

Resource	Description
<a href="#">GitHub</a>	Install the AWS SDK for PHP using GitHub.
<a href="#">PHP Development Forum</a>	Post your questions and get feedback.
<a href="#">PHP Developer Center</a>	One-stop shop for sample code, documentation, tools, and additional resources.
<a href="#">AWS SDK for PHP FAQs</a>	Get answers to commonly asked questions.



# Working with Python

---

This section provides tutorials and information about deploying Python applications using AWS Elastic Beanstalk.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

## Topics

- [Setting Up Your Python Development Environment \(p. 763\)](#)
- [Using the AWS Elastic Beanstalk Python Platform \(p. 765\)](#)
- [Deploying a Flask Application to AWS Elastic Beanstalk \(p. 768\)](#)
- [Deploying a Django Application to Elastic Beanstalk \(p. 774\)](#)
- [Adding an Amazon RDS Database Instance to your Elastic Beanstalk Environment \(p. 783\)](#)
- [Python Tools and Resources \(p. 786\)](#)

## Setting Up Your Python Development Environment

AWS Elastic Beanstalk provides a consistent interface for deploying Python applications, so there are common procedures to follow regardless of the application framework you're using, or whether you're using one at all.

### Sections

- [Common Prerequisites \(p. 763\)](#)
- [Setting up a virtual Python environment \(p. 764\)](#)
- [Configuring a Python project for Elastic Beanstalk \(p. 764\)](#)

## Common Prerequisites

For all Python applications that you'll deploy with Elastic Beanstalk, these prerequisites are common:

1. Python 2.7 or 3.4
2. The `pip` utility, matching your Python version. This is used to install and list dependencies for your project, so that Elastic Beanstalk knows how to set up your application's environment.
3. The `virtualenv` package. This is used to create an environment used to develop and test your application, so that the environment can be replicated by Elastic Beanstalk without installing extra packages that aren't needed by your application.
4. The `awsebcli` package. This is used to initialize your application with the files necessary for deploying with Elastic Beanstalk.
5. A working `ssh` installation. This is used to connect with your running instances when you need to examine or debug a deployment.

For instructions on installing Python, pip, and the EB CLI, see [Install the Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 417).

## Setting up a virtual Python environment

Once you have the prerequisites installed, set up a virtual environment with `virtualenv` to install your application's dependencies. By using a virtual environment, you can discern exactly which packages are needed by your application so that the required packages are installed on the EC2 instances that are running your application.

### To set up a virtual environment

1. Open a command-line window and type:

```
virtualenv -p python2.7 /tmp/eb_python_app
```

Replace `eb_python_app` with a name that makes sense for your application (using your application's name or directory name is a good idea). The `virtualenv` command creates a virtual environment for you and prints the results of its actions:

```
Running virtualenv with interpreter /usr/bin/python2.7
New python executable in /tmp/eb_python_app/bin/python2.7
Also creating executable in /tmp/eb_python_app/bin/python
Installing setuptools, pip...done.
```

2. Once your virtual environment is ready, start it by running the `activate` script located in the environment's `bin` directory. For example, to start the `eb_python_app` environment created in the previous step, you would type:

```
./tmp/eb_python_app/bin/activate
```

The virtual environment prints its name (for example: `(eb_python_app)`) at the beginning of each command prompt, reminding you that you're in a virtual Python environment.

#### Note

Once created, you can restart the virtual environment at any time by running its `activate` script again.

## Configuring a Python project for Elastic Beanstalk

You can use the Elastic Beanstalk CLI to prepare your Python applications for deployment with Elastic Beanstalk.

## To configure a Python application for deployment with Elastic Beanstalk

1. From within your [virtual environment \(p. 764\)](#), return to the top of your project's directory tree (`python_eb_app`), and type:

```
pip freeze >requirements.txt
```

This command copies the names and versions of the packages that are installed in your virtual environment to `requirements.txt`. For example, if the `PyYAML` package, version `3.11` is installed in your virtual environment, the file will contain the line:

```
PyYAML==3.11
```

This allows Elastic Beanstalk to replicate your application's Python environment using the same packages and same versions that you used to develop and test your application.

2. Configure the EB CLI repository with the `eb init` command. Follow the prompts to choose a region, platform and other options. For detailed instructions, see [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#).

By default, Elastic Beanstalk looks for a file called `application.py` to start your application. If this doesn't exist in the Python project that you've created, some adjustment of your application's environment is necessary. You will also need to set environment variables so that your application's modules can be loaded. See [Using the AWS Elastic Beanstalk Python Platform \(p. 765\)](#) for more information.

## Using the AWS Elastic Beanstalk Python Platform

The AWS Elastic Beanstalk Python platform is a set of [environment configurations \(p. 30\)](#) for Python web applications that can run behind an Apache proxy server with WSGI. Each configuration corresponds to a version of Python, including Python 2.6, Python 2.7, and Python 3.4.

Elastic Beanstalk provides [configuration options \(p. 131\)](#) that you can use to customize the software that runs on the EC2 instances in your Elastic Beanstalk environment. You can configure environment variables needed by your application, enable log rotation to Amazon S3, and map folders in your application source that contain static files to paths served by the proxy server.

Platform-specific configuration options are available in the AWS Management Console for [modifying the configuration of a running environment \(p. 139\)](#). To avoid losing your environment's configuration when you terminate it, you can use [saved configurations \(p. 215\)](#) to save your settings and later apply them to another environment.

To save settings in your source code, you can include [configuration files \(p. 178\)](#). Settings in configuration files are applied every time you create an environment or deploy your application. You can also use configuration files to install packages, run scripts, and perform other instance customization operations during deployments.

For Python packages available from pip, you can also include a [requirements file \(p. 767\)](#) named `requirements.txt` in the root of your application source code. Elastic Beanstalk installs any packages specified in a requirements file during deployment.

Settings applied in the AWS Management Console override the same settings in configuration files, if they exist. This lets you have default settings in configuration files, and override them with environment specific settings in the console. For more information about precedence, and other methods of changing settings, see [Configuration Options \(p. 131\)](#).


## Sections

- [Configuring Your Python Environment in the AWS Management Console \(p. 766\)](#)
- [Configuration Files \(p. 767\)](#)
- [Requirements File \(p. 767\)](#)

# Configuring Your Python Environment in the AWS Management Console

You can use the AWS Management Console to enable log rotation to Amazon S3, configure variables that your application can read from the environment, and map folders in your application source that contain static files to paths served by the proxy server.

## To access the software configuration settings for your environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .

## Log Options

The Log Options section has two settings:

- **Instance profile**— Specifies the instance profile that has permission to access the Amazon S3 bucket associated with your application.
- **Enable log file rotation to Amazon S3**— Specifies whether log files for your application's Amazon EC2 instances should be copied to your Amazon S3 bucket associated with your application.

## Static Files

The **Static Files** section lets you configure the proxy server to serve static assets directly to the user without hitting your Python application.

By default, the proxy server serves any files in a folder named `static` at the `/static` path. For example, if your application source contains a file named `logo.png` in a folder named `static`, the proxy server will serve it to users at `subdomain.elasticbeanstalk.com/static/logo.png`.

You can configure additional mappings by adding entries and choosing **Apply**. Each entry takes a key and value that map a path in your application to a directory in your source code.

## Environment Properties

You can use environment properties to provide information to your application and configure environment variables. For example, you can create an environment property named `CONNECTION_STRING` that specifies a connection string that your application can use to connect to a database.

Inside the Python environment running in Elastic Beanstalk, these values are accessible using Python's `os.environ` dictionary. For more information, go to <http://docs.python.org/library/os.html>.

You can use code that looks similar to the following to access the keys and parameters:

```
import os
```

```
connectionstring = os.environ['CONNECTION_STRING']
```

Environment properties can also provide information to a framework. For example, you can create a property named `DJANGO_SETTINGS_MODULE` to configure Django to use a specific settings module. Depending on the environment, the value could be `development.settings`, `production.settings`, etc.

## Configuration Files

You can use a [configuration file \(p. 178\)](#) to set configuration options and perform other instance configuration tasks during deployments.

The following example configuration file specifies configuration option settings to create an environment property named `DJANGO_SETTINGS_MODULE`, a static files option that maps a directory named `staticimages` to the path `/images`, and additional settings in the [aws:elasticbeanstalk:container:python \(p. 173\)](#) namespace. This namespace contains options that let you specify the location of the WSGI script in your source code, and the number of threads and processes to run in WSGI.

```
option_settings:
 aws:elasticbeanstalk:application:environment:
 DJANGO_SETTINGS_MODULE: production.settings
 aws:elasticbeanstalk:container:python:staticfiles:
 "/images/": "staticimages/"
 aws:elasticbeanstalk:container:python:
 WSGIPath: ebdjango/wsgi.py
 NumProcesses: 3
 NumThreads: 20
```

Configuration files also support several keys to further [modify the software on your environment's instances \(p. 180\)](#). This example uses the [packages \(p. 184\)](#) key to install Memcached with yum and [container commands \(p. 190\)](#) to run commands that configure the server during deployment:

```
packages:
 yum:
 libmemcached-devel: '0.31'

container_commands:
 collectstatic:
 command: "django-admin.py collectstatic --noinput"
 01syncdb:
 command: "django-admin.py syncdb --noinput"
 leader_only: true
 02migrate:
 command: "django-admin.py migrate"
 leader_only: true
 03wsgipass:
 command: 'echo "WSGIPassAuthorization On" >> ../wsgi.conf'
 99customize:
 command: "scripts/customize.sh"
```

## Requirements File

Create a **requirements.txt** file and place it in the top-level directory of your source bundle. A typical Python application will have dependencies on other third-party Python packages. In Python, pip is

the standard way of installing packages. Pip has a feature that allows you to specify all the packages you need (as well as their versions) in a single requirements file. For more information about the requirements file, go to [Requirements File Format](#). The following is an example requirements.txt file for Django.

```
Django==1.9.2
MySQL-python==1.2.3
```

In your development environment, you can use the `pip freeze` command to generate your requirements file.

```
~/my-app$ pip freeze > requirements.txt
```

To ensure that your requirements file only contains packages that are actually used by your application, use a [virtual environment \(p. 764\)](#) that only has those packages installed. Outside of a virtual environment, the output of `pip freeze` will include all pip packages installed on your development machine, including those that came with your operating system.

## Deploying a Flask Application to AWS Elastic Beanstalk

This tutorial walks through the deployment of a simple [Flask](#) website to an Elastic Beanstalk environment running Python 2.7. The tutorial uses the EB CLI as a deployment mechanism, but you can also use the AWS Management Console to deploy a ZIP file containing your project's contents. The EB CLI is an interactive command line interface written in Python that uses the Python SDK for AWS (boto).

### Sections

- [Prerequisites \(p. 768\)](#)
- [Set Up a Python Virtual Environment with Flask \(p. 769\)](#)
- [Create a Flask Application \(p. 769\)](#)
- [Configure Your Flask Application for Elastic Beanstalk \(p. 771\)](#)
- [Deploy Your Site With the EB CLI \(p. 772\)](#)
- [Clean Up and Next Steps \(p. 773\)](#)

## Prerequisites

To use any Amazon Web Service (AWS), including Elastic Beanstalk, you need to have an AWS account and credentials. To learn more and to sign up, visit <https://aws.amazon.com/>.

To follow this tutorial, you should have all of the [Common Prerequisites \(p. 763\)](#) for Python installed, including the following packages:

- Python 2.7
- pip
- virtualenv
- awsebcli

The [Flask](#) framework will be installed as part of the tutorial.

**Note**

Creating environments with the EB CLI requires a [service role \(p. 17\)](#). You can create a service role by creating an environment in the Elastic Beanstalk Management Console. If you don't have a service role, the EB CLI will attempt to create one when you run `eb create`.

## Set Up a Python Virtual Environment with Flask

Create a virtual environment with `virtualenv` and use it to install Flask and its dependencies. By using a virtual environment, you can discern exactly which packages are needed by your application so that the required packages are installed on the EC2 instances that are running your application.

### To set up your virtual environment

1. Create a virtual environment named `eb-virt`:

```
~$ virtualenv ~/eb-virt
```

2. Activate the virtual environment:

```
~$ source ~/eb-virt/bin/activate
(eb-virt) ~$
```

You will see `(eb-virt)` prepended to your command prompt, indicating that you're in a virtual environment.

3. Use `pip` to install Flask by typing:

```
(eb-virt)~$ pip install flask==0.10.1
```

4. To verify that Flask has been installed, type:

```
(eb-virt)~$ pip freeze
Flask==0.10.1
itsdangerous==0.24
Jinja2==2.7.3
MarkupSafe==0.23
Werkzeug==0.10.1
```

This command lists all of the packages installed in your virtual environment. Later you will use the output of this command to configure your project for use with Elastic Beanstalk.

## Create a Flask Application

Next, create an application that you'll deploy using Elastic Beanstalk. We'll create a "Hello World" RESTful web service.

### To create the Hello World Flask application

1. Activate your virtual environment:

```
~$ source ~/eb-virt/bin/activate
```

2. Create a directory for your project named `eb-flask`:

```
(eb-virt) ~$ mkdir eb-flask
```

```
(eb-virt) ~$ cd eb-flask
```

3. Create a new text file in this directory named `application.py` with the following contents:

**Example** `~/eb-flask/application.py`

```
from flask import Flask

print a nice greeting.
def say_hello(username = "World"):
 return '<p>Hello %s!</p>\n' % username

some bits of text for the page.
header_text = '''
 <html>\n<head> <title>EB Flask Test</title> </head>\n<body>'''
instructions = '''
 <p>Hint: This is a RESTful web service! Append a username
 to the URL (for example: <code>/Thelonious</code>) to say hello to
 someone specific.</p>\n'''
home_link = '<p>Back</p>\n'
footer_text = '</body>\n</html>'

EB looks for an 'application' callable by default.
application = Flask(__name__)

add a rule for the index page.
application.add_url_rule('/', 'index', (lambda: header_text +
 say_hello() + instructions + footer_text))

add a rule when the page is accessed with a name appended to the site
URL.
application.add_url_rule('/<username>', 'hello', (lambda username:
 header_text + say_hello(username) + home_link + footer_text))

run the app.
if __name__ == "__main__":
 # Setting debug to True enables debug output. This line should be
 # removed before deploying a production app.
 application.debug = True
 application.run()
```

This example prints a customized greeting that varies based on the path used to access the service.

**Note**

By adding `application.debug = True` before running the application, debug output is enabled in case something goes wrong. It's a good practice for development, but you should remove debug statements in production code, since debug output can reveal internal aspects of your application.

Using `application.py` as the filename and providing a callable `application` object (the Flask object, in this case) allows Elastic Beanstalk to easily find your application's code.

4. Run `application.py` with Python:

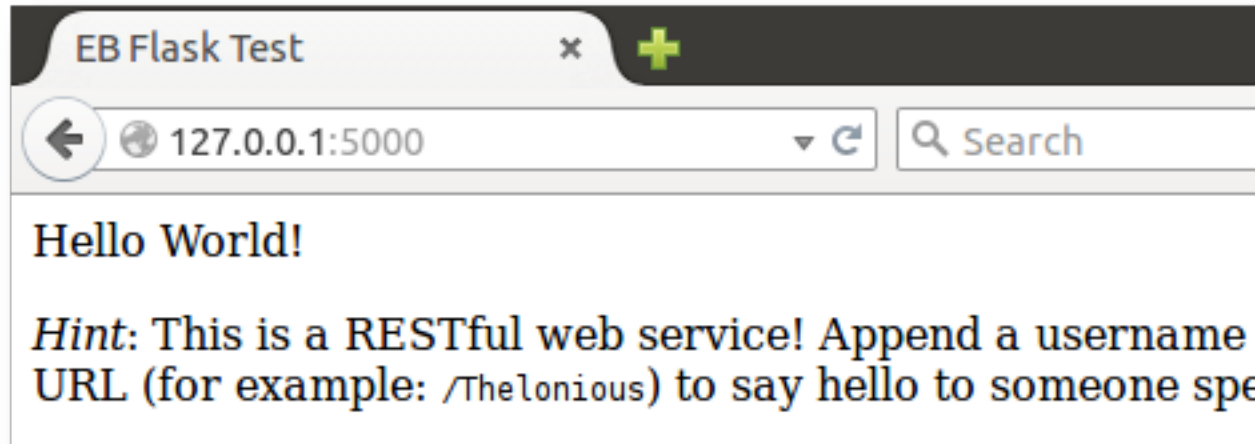


```
(eb-virt) ~/eb-flask$ python application.py
```

Flask will start a web server and display the URL to access your application with. For example:

```
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Restarting with stat
```

5. Open the URL in your web browser. You should see the application running, showing the index page:



6. Check the server log to see the output from your request. You can stop the web server and return to your virtual environment by typing **Ctrl+C**.

If you got debug output instead, fix the errors and make sure the application is running locally before configuring it for Elastic Beanstalk.

## Configure Your Flask Application for Elastic Beanstalk

With your application running locally, you're now ready to configure it to deploy with Elastic Beanstalk.

### To configure your site for Elastic Beanstalk

1. Activate your virtual environment:

```
~$ source ~/eb-virt/bin/activate
```

2. Run `pip freeze` and save the output to a file named `requirements.txt`:

```
(eb-virt) ~/eb-flask$ pip freeze > requirements.txt
```

Elastic Beanstalk uses to `requirements.txt` to determine which package to install on the EC2 instances that run your application.

3. Deactivate your virtual environment by with the `deactivate` command:

```
(eb-virt) ~/eb-flask$ deactivate
```

Reactivate your virtual environment whenever you need to add additional packages to your application or run your application locally.

## Deploy Your Site With the EB CLI

You've added everything you need to deploy your application on Elastic Beanstalk. Your project directory should now look like this:

```
~/eb-flask/
|-- application.py
`-- requirements.txt
```

Next, you'll create your application environment and deploy your configured application with Elastic Beanstalk.

### To create an environment and deploy your Flask application

1. Initialize your EB CLI repository with the `eb init` command:

```
~/eb-flask$ eb init -p python2.7 flask-tutorial
Application flask-tutorial has been created.
```

This command creates a new application named `flask-tutorial` and configures your local repository to create environments with the latest Python 2.7 platform configuration.

2. (optional) Run `eb init` again to configure a default keypair so that you can connect to the EC2 instance running your application with SSH:

```
~/eb-flask$ eb init
Do you want to set up SSH for your instances?
(y/n): y
Select a keypair.
1) my-keypair
2) [Create new KeyPair]
```

Select a key pair if you have one already, or follow the prompts to create a new one. If you don't see the prompt or need to change your settings later, run `eb init -i`.

3. Create an environment and deploy your application to it with `eb create`:

```
~/eb-flask$ eb create flask-env
```

#### Note

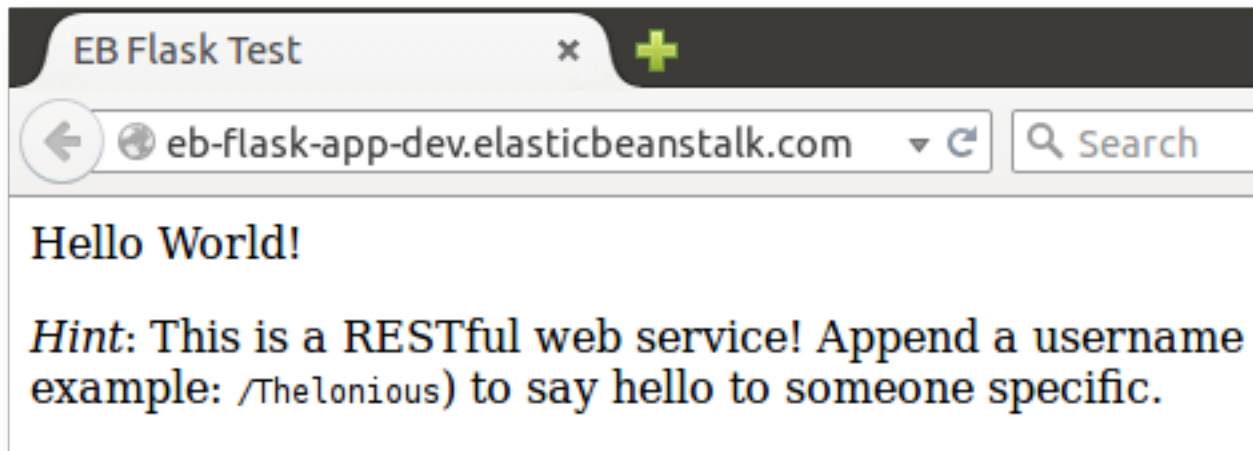
If you see a "service role required" error message, run `eb create` interactively (without specifying an environment name) and the EB CLI will create the role for you.

This command creates a load balanced Elastic Beanstalk environment named `flask-env`. Creating an environment takes about 5 minutes. As Elastic Beanstalk creates the resources necessary to run your application, it outputs informational messages that the EB CLI relays to your terminal.

4. When the environment creation process completes, open your web site with `eb open`:

```
~/eb-flask$ eb open
```

This will open a browser window using the domain name created for your application. You should see the same Flask website that you created and tested locally.



If you don't see your application running, or get an error message, see [Troubleshooting deployments](#) (p. 763) for help with how to determine the cause of the error.

If you *do* see your application running, then congratulations, you've deployed your first Flask application with Elastic Beanstalk!

## Clean Up and Next Steps

To save instance hours and other AWS resources between development sessions, terminate your Elastic Beanstalk environment with `eb terminate`:

```
~/eb-flask$ eb terminate flask-env
```

This command terminates the environment and all of the AWS resources that run within it. It does not delete the application, however, so you can always create more environments with the same configuration by running `eb create` again. For more information on EB CLI commands, see [Managing Elastic Beanstalk Environments with the EB CLI](#) (p. 429).

If you are done with the sample application, you can also remove the project folder and virtual environment:

```
~$ rm -rf ~/eb-virt
~$ rm -rf ~/eb-flask
```

For more information about Flask, including an in-depth tutorial, visit [the official documentation](#).

If you'd like to try out another Python web framework, check out [Deploying a Django Application to Elastic Beanstalk](#) (p. 774).

# Deploying a Django Application to Elastic Beanstalk

This tutorial walks through the deployment of a default [Django](#) website to an Elastic Beanstalk environment running Python 2.7. The tutorial uses the EB CLI as a deployment mechanism, but you can also use the AWS Management Console to deploy a ZIP file containing your project's contents. The EB CLI is an interactive command line interface written in Python that uses the Python SDK for AWS (boto).

## Sections

- [Prerequisites \(p. 774\)](#)
- [Set Up a Python Virtual Environment with Django \(p. 774\)](#)
- [Create a Django Project \(p. 775\)](#)
- [Configure Your Django Application for Elastic Beanstalk \(p. 776\)](#)
- [Deploy Your Site With the EB CLI \(p. 777\)](#)
- [Updating Your Application \(p. 779\)](#)
- [Clean Up and Next Steps \(p. 783\)](#)

## Prerequisites

To use any Amazon Web Service (AWS), including Elastic Beanstalk, you need to have an AWS account and credentials. To learn more and to sign up, visit <https://aws.amazon.com/>.

To follow this tutorial, you should have all of the [Common Prerequisites \(p. 763\)](#) for Python installed, including the following packages:

- Python 2.7
- pip
- virtualenv
- awsebcli

The [Django](#) framework will be installed as part of the tutorial.

### Note

Creating environments with the EB CLI requires a [service role \(p. 17\)](#). You can create a service role by creating an environment in the Elastic Beanstalk Management Console. If you don't have a service role, the EB CLI will attempt to create one when you run `eb create`.

## Set Up a Python Virtual Environment with Django

Create a virtual environment with `virtualenv` and use it to install Django and its dependencies. By using a virtual environment, you can discern exactly which packages are needed by your application so that the required packages are installed on the EC2 instances that are running your application.

### To set up your virtual environment

1. Create a virtual environment named `eb-virt`:

```
~$ virtualenv ~/eb-virt
```

2. Activate the virtual environment:

```
~$ source ~/eb-virt/bin/activate
(eb-virt) ~$
```

You will see `(eb-virt)` prepended to your command prompt, indicating that you're in a virtual environment.

3. Use `pip` to install Django by typing:

```
(eb-virt)~$ pip install django==1.9.2
```

4. To verify that Django has been installed, type:

```
(eb-virt)~$ pip freeze
Django==1.9.2
wheel==0.29.0
```

This command lists all of the packages installed in your virtual environment. Later you will use the output of this command to configure your project for use with Elastic Beanstalk.

## Create a Django Project

Now you are ready to create a Django project and run it on your machine, using the virtual environment.

### To generate a Django application

1. Activate your virtual environment:

```
~$ source ~/eb-virt/bin/activate
```

2. Use the `django-admin startproject` command to create a new Django project named `ebdjango`:

```
(eb-virt)~$ django-admin startproject ebdjango
```

This command creates a standard Django site named `ebdjango` with the following directory structure:

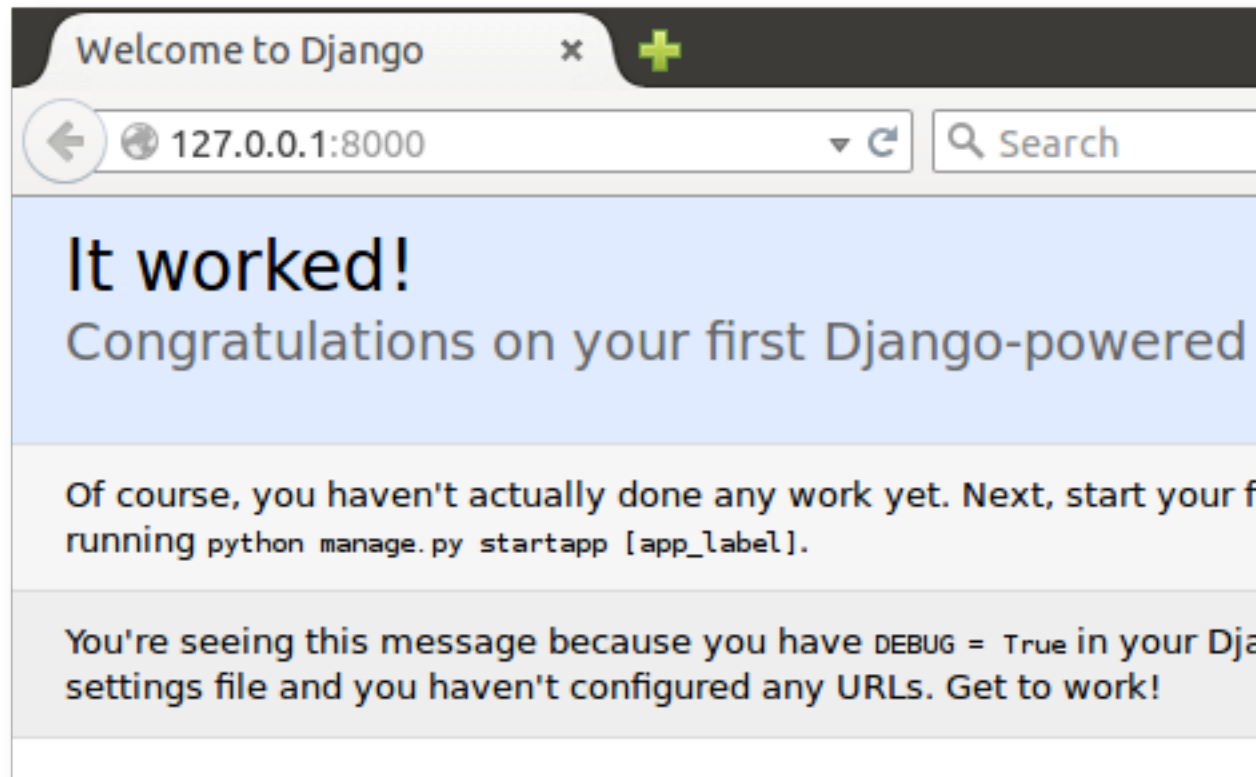
```
~/ebdjango
|-- ebdjango
| |-- __init__.py
| |-- settings.py
| |-- urls.py
| |-- wsgi.py
|-- manage.py
```

3. Run your Django site locally with `manage.py runserver`:

```
(eb-virt) ~$ cd ebdjango
```

```
(eb-virt) ~/ebdjango$ python manage.py runserver
```

4. Open `http://127.0.0.1:8000/` in a web browser to view the site:



5. Check the server log to see the output from your request. You can stop the web server and return to your virtual environment by typing **Ctrl+C**:

```
Django version 1.9.2, using settings 'ebdjango.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
Not Found: /
[15/Feb/2016 20:14:09] "GET / HTTP/1.1" 200 1767
Ctrl+C
```

## Configure Your Django Application for Elastic Beanstalk

Now that you have a Django-powered site on your local machine, you can configure it for deployment with Elastic Beanstalk.

By default, Elastic Beanstalk looks for a file called `application.py` to start your application. Since this doesn't exist in the Django project that you've created, some adjustment of your application's environment is necessary. You will also need to set environment variables so that your application's modules can be loaded.

### To configure your site for Elastic Beanstalk

1. Activate your virtual environment:

```
~/ebdjango$ source ~/eb-virt/bin/activate
```

2. Run `pip freeze` and save the output to a file named `requirements.txt`:

```
(eb-virt) ~/ebdjango$ pip freeze > requirements.txt
```

Elastic Beanstalk uses `requirements.txt` to determine which package to install on the EC2 instances that run your application.

3. Create a new directory, called `.ebextensions`:

```
(eb-virt) ~/ebdjango$ mkdir .ebextensions
```

4. Within the `.ebextensions` directory, add a [configuration file \(p. 178\)](#) named `django.config` with the following text:

#### Example `~/ebdjango/.ebextensions/django.config`

```
option_settings:
 aws:elasticbeanstalk:container:python:
 WSGIPath: ebdjango/wsgi.py
```

This setting, `WSGIPath`, specifies the location of the WSGI script that Elastic Beanstalk uses to start your application.

5. Deactivate your virtual environment by with the `deactivate` command:

```
(eb-virt) ~/ebdjango$ deactivate
```

Reactivate your virtual environment whenever you need to add additional packages to your application or run your application locally.

## Deploy Your Site With the EB CLI

You've added everything you need to deploy your application on Elastic Beanstalk. Your project directory should now look like this:

```
~/ebdjango/
|-- .ebextensions
| |-- django.config
|-- ebdjango
| |-- __init__.py
| |-- settings.py
| |-- urls.py
| |-- wsgi.py
|-- db.sqlite3
|-- manage.py
`-- requirements.txt
```

Next, you'll create your application environment and deploy your configured application with Elastic Beanstalk.

## To create an environment and deploy your Django application

1. Initialize your EB CLI repository with the `eb init` command:

```
~/ebdjango$ eb init -p python2.7 django-tutorial
Application django-tutorial has been created.
```

This command creates a new application named `django-tutorial` and configures your local repository to create environments with the latest Python 2.7 platform configuration.

2. (optional) Run `eb init` again to configure a default keypair so that you can connect to the EC2 instance running your application with SSH:

```
~/ebdjango$ eb init
Do you want to set up SSH for your instances?
(y/n): y
Select a keypair.
1) my-keypair
2) [Create new KeyPair]
```

Select a key pair if you have one already, or follow the prompts to create a new one. If you don't see the prompt or need to change your settings later, run `eb init -i`.

3. Create an environment and deploy you application to it with `eb create`:

```
~/ebdjango$ eb create django-env
```

### Note

If you see a "service role required" error message, run `eb create` interactively (without specifying an environment name) and the EB CLI will create the role for you.

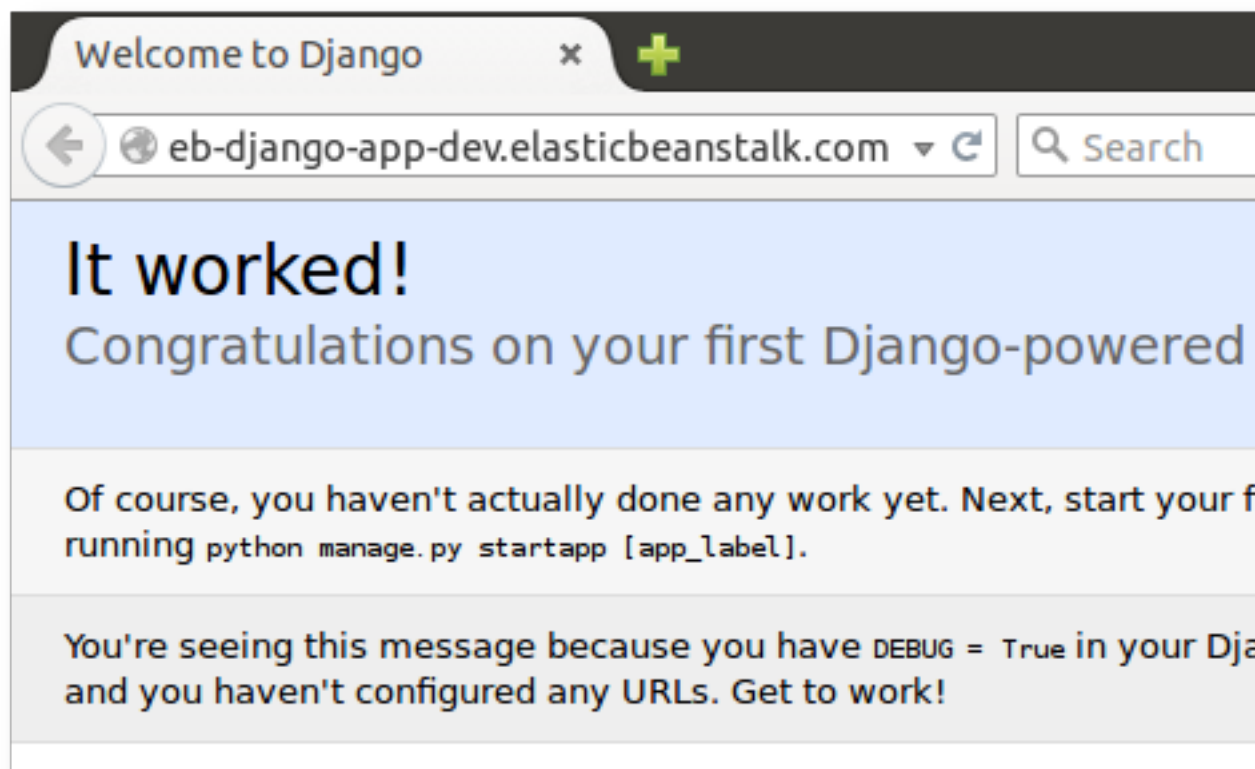
This command creates a load balanced Elastic Beanstalk environment named `django-env`. Creating an environment takes about 5 minutes. As Elastic Beanstalk creates the resources necessary to run your application, it outputs informational messages that the EB CLI relays to your terminal.

4. When the environment creation process completes, open your web site with `eb open`:

```
~/ebdjango$ eb open
```

This will open a browser window using the domain name created for your application. You should see the same Django website that you created and tested locally.





If you don't see your application running, or get an error message, see [Troubleshooting deployments \(p. 763\)](#) for help with how to determine the cause of the error.

If you *do* see your application running, then congratulations, you've deployed your first Django application with Elastic Beanstalk!

## Updating Your Application

Now that you have a running application on Elastic Beanstalk, you can update and redeploy your application or its configuration and Elastic Beanstalk will take care of the work of updating your instances and starting your new application version.

For this example, we'll enable Django's admin console and configure a few other settings.

### Modify Your Site Settings

By default, your Django web site uses the UTC time zone to display time. You can change this by specifying a time zone in `settings.py`.

#### To change your site's time zone

1. Modify the `TIME_ZONE` setting in `settings.py`

### Example `~/ebdjango/ebdjango/settings.py`

```
...
Internationalization
LANGUAGE_CODE = 'en-us'
TIME_ZONE = 'US/Pacific'
USE_I18N = True
USE_L10N = True
USE_TZ = True
```

For a list of time zones, visit [this page](#).

2. Deploy the application to your Elastic Beanstalk environment:

```
~/ebdjango/$ eb deploy
```

## Create a Site Administrator

You can create a site administrator for your Django application to access the admin console directly from the web site. Administrator login details are stored securely in the local database image included in the default project that Django generates.

### To create a site administrator

1. Initialize your Django application's local database:

```
~/ebdjango$ python manage.py migrate
Operations to perform:
 Apply all migrations: admin, contenttypes, auth, sessions
Running migrations:
 Rendering model states... DONE
 Applying contenttypes.0001_initial... OK
 Applying auth.0001_initial... OK
 Applying admin.0001_initial... OK
 Applying admin.0002_logentry_remove_auto_add... OK
 Applying contenttypes.0002_remove_content_type_name... OK
 Applying auth.0002_alter_permission_name_max_length... OK
 Applying auth.0003_alter_user_email_max_length... OK
 Applying auth.0004_alter_user_username_opts... OK
 Applying auth.0005_alter_user_last_login_null... OK
 Applying auth.0006_require_contenttypes_0002... OK
 Applying auth.0007_alter_validators_add_error_messages... OK
 Applying sessions.0001_initial... OK
```

2. Run `manage.py createsuperuser` to create an administrator:

```
~/ebdjango$ python manage.py createsuperuser
Username: admin
Email address: me@mydomain.com
Password: *****
Password (again): *****
Superuser created successfully.
```

3. To tell Django where to store static files, define `STATIC_ROOT` in `settings.py`:

### Example `~/ebdjango/ebdjango/settings.py`

```
Static files (CSS, JavaScript, Images)
https://docs.djangoproject.com/en/1.9/howto/static-files/
STATIC_URL = '/static/'
STATIC_ROOT = 'static'
```

4. Run `manage.py collectstatic` to populate the `static` directory with static assets (javascript, CSS and images) for the admin site:

```
~/ebdjango$ python manage.py collectstatic
You have requested to collect static files at the destination
location as specified in your settings:

 ~/ebdjango/static

This will overwrite existing files!
Are you sure you want to do this?

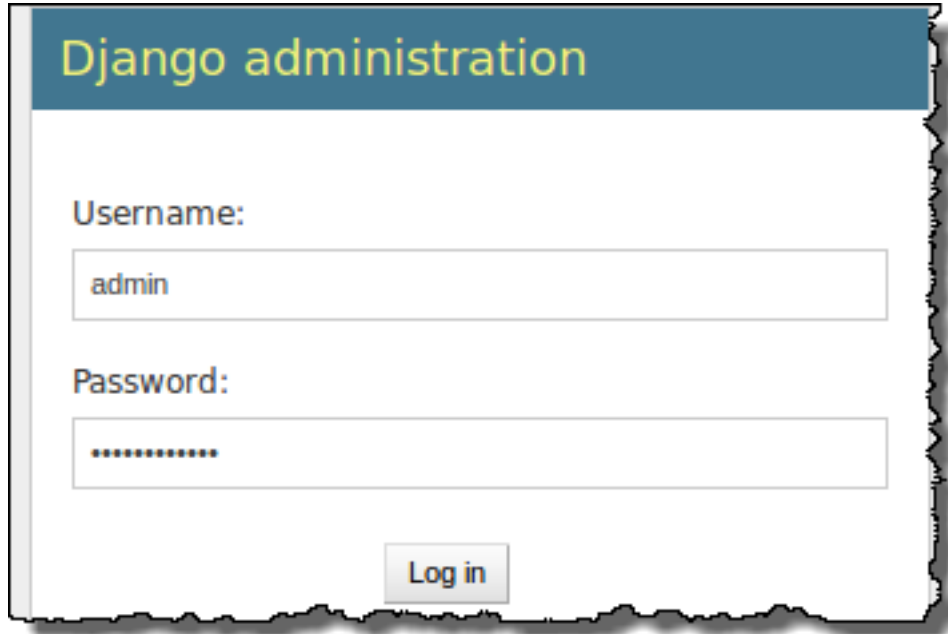
Type 'yes' to continue, or 'no' to cancel: yes
Copying 'admin/static/adm/css/rtl.css'
Copying 'admin/static/adm/css/changelists.css'
Copying 'admin/static/adm/css/fonts.css'
...
```

5. Deploy your application:

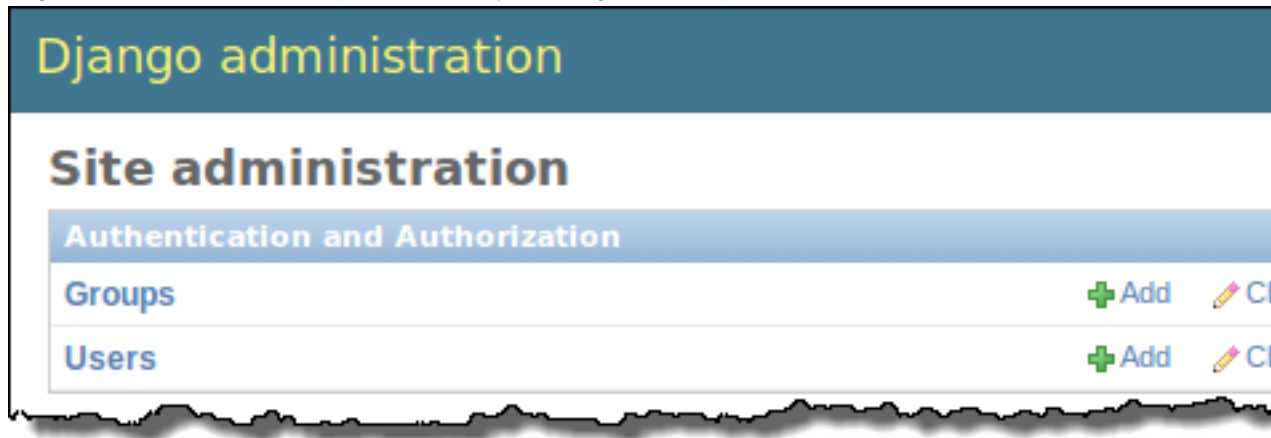
```
~/ebdjango$ eb deploy
```

6. View the admin console by opening the local site in your browser, appending `/admin/` to the site URL, such as:

```
http://djang-env.p33kq46sfh.us-west-2.elasticbeanstalk.com/admin/
```



7. Log in with the username and password that you configured in step 2:



You can use a similar procedure of local updating/testing followed by `eb deploy`. Elastic Beanstalk takes care of the work of updating your live servers, so you can focus on application development instead of server administration!

## Add a Database Migration Configuration File

You can add commands to your `.ebextensions` script that will be run when your site is updated. This allows you to automatically generate database migrations.

### To add a migrate step when your application is deployed

1. Create a new [configuration file \(p. 178\)](#) named `db-migrate.config` with the following content:

### Example `~/ebdjango/ebextensions/db-migrate.config`

```
container_commands:
 01_migrate:
 command: "django-admin.py migrate"
 leader_only: true
option_settings:
 aws:elasticbeanstalk:application:environment:
 DJANGO_SETTINGS_MODULE: ebdjango.settings
```

This configuration file runs the `django-admin.py migrate` command during the deployment process, prior to starting your application. Because it runs prior to the application starting, you must also configure the `DJANGO_SETTINGS_MODULE` environment variable explicitly (usually `wsgi.py` takes care of this for you during startup). Specifying `leader_only: true` in the command ensures that it is run only once when you're deploying to multiple instances.

2. Deploy your application:

```
~/ebdjango$ eb deploy
```

## Clean Up and Next Steps

To save instance hours and other AWS resources between development sessions, terminate your Elastic Beanstalk environment with `eb terminate`:

```
~/ebdjango$ eb terminate django-env
```

This command terminates the environment and all of the AWS resources that run within it. It does not delete the application, however, so you can always create more environments with the same configuration by running `eb create` again. For more information on EB CLI commands, see [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#).

If you are done with the sample application, you can also remove the project folder and virtual environment:

```
~$ rm -rf ~/eb-virt
~$ rm -rf ~/ebdjango
```

For more information about Django, including an in-depth tutorial, visit [the official documentation](#).

If you'd like to try out another Python web framework, check out [Deploying a Flask Application to AWS Elastic Beanstalk \(p. 768\)](#).

## Adding an Amazon RDS Database Instance to your Elastic Beanstalk Environment

With Amazon Relational Database Service (Amazon RDS), you can quickly and easily provision and maintain a MySQL, Oracle, PostgreSQL or Microsoft SQL Server instance in the cloud. This topic explains how you can use Amazon RDS and Python with your Elastic Beanstalk application. For more information about Amazon RDS, go to <http://aws.amazon.com/rds/>.

To use Amazon RDS from your Elastic Beanstalk application, you need to do the following:

1. Create an Amazon RDS DB instance.
2. Establish a database connection in your code by using the connectivity information for your Amazon RDS DB instance.
3. Update your **requirements.txt** file.
4. Deploy your application to Elastic Beanstalk.

This topic walks you through the following:

- Using a new Amazon RDS DB instance with your application
- Using an existing Amazon RDS DB instance with your application

## Using a New Amazon RDS DB Instance with Python

This topic walks you through creating a new Amazon RDS DB Instance and using it with your Python application.

### To use a new Amazon RDS DB Instance and Python from your Elastic Beanstalk application

1. Create an Amazon RDS DB Instance. You can create an RDS DB Instance in one of the following ways:
  - Create an Amazon RDS DB instance when you launch a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). For a sample walkthrough of a Django application deployment with Amazon RDS using the EB CLI, see [Deploying a Django Application to Elastic Beanstalk \(p. 774\)](#).
  - Create an Amazon RDS DB instance when you launch a new environment with an existing application version. For instructions using the AWS Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).
  - If you already deployed an application to Elastic Beanstalk, you can create an Amazon RDS DB instance and attach it to an existing environment. For instructions using the AWS Elastic Beanstalk console, see [Configuring Databases with Elastic Beanstalk \(p. 243\)](#). If you use the EB CLI, use the `--database` option when you run `eb create`.
2. Access the RDS connection information in the `os.environ` object.

```
import os

if 'RDS_HOSTNAME' in os.environ:
 DATABASES = {
 'default': {
 'ENGINE': 'django.db.backends.mysql',
 'NAME': os.environ['RDS_DB_NAME'],
 'USER': os.environ['RDS_USERNAME'],
 'PASSWORD': os.environ['RDS_PASSWORD'],
 'HOST': os.environ['RDS_HOSTNAME'],
 'PORT': os.environ['RDS_PORT'],
 }
 }
```

#### Note

This information is only accessible by application code and will not appear in environment variables listed from a terminal.

3. Create a **requirements.txt** file and place it in the top-level directory of your source bundle. A typical python application will have dependencies on other third-party Python packages. In Python, pip is the standard way of installing packages. Pip has a feature that allows you to specify all the packages you need (as well as their versions) in a single requirements file. For more information about the requirements file, go to [Requirements File Format](#). The following is an example requirements.txt file for Django.

```
Django==1.4.1
MySQL-python==1.2.3
```

4. Deploy the updated application to your Elastic Beanstalk environment.

## Using an Existing Amazon RDS DB Instance with Python

You can update your Python application to use an Amazon RDS DB Instance that you have previously created. This topic walks you through how to update your Python application using an existing Amazon RDS DB Instance and deploy your application to Elastic Beanstalk.

### To use an existing Amazon RDS DB Instance and Python from your Elastic Beanstalk application

1. Create an Elastic Beanstalk environment in one of the following ways:
  - Create a new application with a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). For a sample walkthrough of an Django application deployment with Amazon RDS using the EB CLI, see [Deploying a Django Application to Elastic Beanstalk \(p. 774\)](#). You do not need to create an RDS DB Instance with this environment because you already have an existing RDS DB Instance.
  - Launch a new environment with an existing application version. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). You do not need to create an Amazon RDS DB instance with this environment because you already have an existing Amazon RDS DB instance.
2. Configure your Amazon RDS DB security group to allow access from the Amazon EC2 security group used by your Elastic Beanstalk application. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see [Security Groups \(p. 233\)](#). For more information, go to the "Authorizing Network Access to an Amazon EC2 Security Group" section of [Working with DB Security Groups](#) in the *Amazon Relational Database Service User Guide*.
3. Establish a database connection in your code using your Amazon RDS DB instance's connectivity information. The following examples show how you could connect to the database on an RDS instance at mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com using port 3306, with the user name "sa" and the password "mypassword".

```
DATABASES = {
 'default': {
 'ENGINE': 'django.db.backends.mysql',
 'NAME': 'mydb',
 'USER': 'sa',
 'PASSWORD': 'mypwd',
 'HOST': 'mydbinstance.abcdefghijkl.us-
west-2.rds.amazonaws.com',
 'PORT': '3306',
 }
}
```

4. Create a **requirements.txt** file, add the package you need to communicate to the database, and place it in the top-level directory of your source bundle. For more information about the requirements file, go to [Requirements File Format](#). The following is an example requirements.txt file.

```
MySQL-python==1.2.3
```

5. Deploy the updated application to your Elastic Beanstalk environment.

## Python Tools and Resources

There are several places you can go to get additional help when developing your Python applications:

Resource	Description
<a href="#">Boto (the AWS SDK for Python)</a>	Install Boto using GitHub.
<a href="#">Python Development Forum</a>	Post your questions and get feedback.
<a href="#">Python Developer Center</a>	One-stop shop for sample code, documentation, tools, and additional resources.



# Deploying Elastic Beanstalk Applications in Ruby Using EB CLI and Git

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## Topics

- [Using the AWS Elastic Beanstalk Ruby Platform \(p. 787\)](#)
- [Deploying a Rails Application to Elastic Beanstalk \(p. 790\)](#)
- [Deploying a Sinatra Application to AWS Elastic Beanstalk \(p. 798\)](#)
- [Using Amazon RDS with Ruby \(p. 803\)](#)
- [Tools \(p. 805\)](#)
- [Resources \(p. 806\)](#)

Elastic Beanstalk for Ruby makes it easy to deploy, manage, and scale your Ruby web applications using Amazon Web Services. Elastic Beanstalk is available to anyone developing or hosting a web application using Ruby. This section provides step-by-step instructions for deploying a sample application to Elastic Beanstalk using the Elastic Beanstalk command line interface (EB CLI), and then updating the application to use the [Rails](#) and [Sinatra](#) web application frameworks.

The topics in this chapter assume some knowledge of Elastic Beanstalk environments. If you haven't used Elastic Beanstalk before, try the [getting started tutorial \(p. 3\)](#) to learn the basics.

## Using the AWS Elastic Beanstalk Ruby Platform

The AWS Elastic Beanstalk Ruby platform is a set of [environment configurations \(p. 31\)](#) for Ruby web applications that can run behind an nginx proxy server under a Puma or Passenger application server. Each configuration corresponds to a version of Ruby, including Ruby 1.9, Ruby 2.0, Ruby 2.1 and Ruby 2.2.

Elastic Beanstalk provides [configuration options \(p. 131\)](#) that you can use to customize the software that runs on the EC2 instances in your Elastic Beanstalk environment. You can configure environment variables needed by your application and enable log rotation to Amazon S3. The platform also predefines some common environment variables related to Rails and Rack for ease of discovery and use.

Platform-specific configuration options are available in the AWS Management Console for [modifying the configuration of a running environment \(p. 139\)](#). To avoid losing your environment's configuration when you terminate it, you can use [saved configurations \(p. 215\)](#) to save your settings and later apply them to another environment.

To save settings in your source code, you can include [configuration files \(p. 178\)](#). Settings in configuration files are applied every time you create an environment or deploy your application. You can also use configuration files to install packages, run scripts, and perform other instance customization operations during deployments.

If you use RubyGems, you can [include a Gemfile file \(p. 789\)](#) in your source bundle to install packages during deployment.

Settings applied in the AWS Management Console override the same settings in configuration files, if they exist. This lets you have default settings in configuration files, and override them with environment specific settings in the console. For more information about precedence, and other methods of changing settings, see [Configuration Options \(p. 131\)](#).


#### Sections

- [Configuring Your Ruby Environment in the AWS Management Console \(p. 788\)](#)
- [Configuration Files \(p. 789\)](#)
- [Installing Packages with a Gemfile \(p. 789\)](#)

## Configuring Your Ruby Environment in the AWS Management Console

You can use the AWS Management Console to enable log rotation to Amazon S3 and configure variables that your application can read from the environment.

### To access the software configuration settings for your environment

1. Open the [Elastic Beanstalk console](#).
2. Navigate to the [management console \(p. 52\)](#) for your environment.
3. Choose **Configuration**.
4. In the **Software Configuration** section, choose .

## Log Options

The Log Options section has two settings:

- **Instance profile**— Specifies the instance profile that has permission to access the Amazon S3 bucket associated with your application.
- **Enable log file rotation to Amazon S3**— Specifies whether log files for your application's Amazon EC2 instances should be copied to your Amazon S3 bucket associated with your application.

## Environment Properties

The **Environment Properties** section lets you specify environment configuration settings on the Amazon EC2 instances that are running your application. Environment properties are passed in as key-value pairs to the application.

The Ruby platform defines the following properties for environment configuration:

- **BUNDLE\_WITHOUT** – A colon-separated list of groups to ignore when [installing dependencies from a Gemfile](#).
- **RAILS\_SKIP\_ASSET\_COMPILATION** – Set to `true` to skip running `rake assets:precompile` during deployment.
- **RAILS\_SKIP\_MIGRATIONS** – Set to `true` to skip running `rake db:migrate` during deployment.
- **RACK\_ENV** – Specify the environment stage for Rack. For example, `development`, `production`, or `test`.
- **RAILS\_ENV** – Specify the environment stage for Rails. For example, `development`, `production`, or `test`.

Inside the Ruby environment running in Elastic Beanstalk, environment variables are accessible using the `ENV` object. For example, you could read a property named `CONNECTION_STRING` to a variable with the following code:

```
connectionstring = ENV['CONNECTION_STRING']
```

Environment configuration settings can contain any printable ASCII character except the grave accent (```, ASCII 96) and cannot exceed 200 characters in length.

## Configuration Files

You can use a [configuration file \(p. 178\)](#) to set configuration options and perform other instance configuration tasks during deployments. The following configuration file sets each of the platform defined environment properties, sets an additional environment property named `LOGGING`, and runs a rake task with a [container command \(p. 190\)](#) during deployments.

### Example `.ebextensions/ruby-settings.config`

```
option_settings:
 aws:elasticbeanstalk:application:environment:
 BUNDLE_WITHOUT: test
 RACK_ENV: development
 RAILS_ENV: development
 RAILS_SKIP_ASSET_COMPILATION: true
 RAILS_SKIP_MIGRATIONS: true
 LOGGING: debug

Run shell commands during a deployment
container_commands:
 01deploy:
 command: rake my_deployment_tasks
```

## Installing Packages with a Gemfile

Use a `Gemfile` file in the root of your project source to use RubyGems to install packages that your application requires.

### Example Gemfile

```
source "https://rubygems.org"
gem 'sinatra'
gem 'json'
gem 'rack-parser'
```

When a `Gemfile` file is present, Elastic Beanstalk runs `bundle install` to install dependencies.

## Deploying a Rails Application to Elastic Beanstalk

You can use the Elastic Beanstalk Command Line Interface (EB CLI) and Git to deploy a Rails application to Elastic Beanstalk. This walkthrough shows you how. You'll also learn how to set up a Rails installation from scratch in case you don't already have a development environment and application.

### Software Versions

Many of the technologies presented here are under active development. For the best results, use the same versions of each tool when possible. The versions used during the development of this tutorial are listed below.

Ubuntu	14.04
RVM	1.26.3
Ruby	2.1.5p273
Rails	4.1.8
Python	2.7.6
Platform	64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.1 (Puma)

For the typographic conventions used in this tutorial, see [Document Conventions](#) in the General Reference.

### Sections

- [Rails Development Environment Setup](#) (p. 790)
- [Install the EB CLI](#) (p. 792)
- [Set Up Your Git Repository](#) (p. 792)
- [Configure the EB CLI](#) (p. 792)
- [Create a Service Role and Instance Profile](#) (p. 793)
- [Update the Gemfile](#) (p. 793)
- [Deploy the Project](#) (p. 794)
- [Update the Application](#) (p. 796)
- [Clean Up](#) (p. 797)

## Rails Development Environment Setup

Read this section if you are setting up a Rails development environment from scratch. If you have a development environment configured with Rails, Git and a working app, you can [skip this section](#) (p. 792).

### Getting an Ubuntu EC2 Instance

The following instructions were developed and tested using an Amazon EC2 instance running Ubuntu 14.04. For instructions on configuring and connecting to an EC2 instance using the AWS Management Console, read the [Getting Started](#) section of the *Amazon EC2 User Guide for Linux*.

If you don't have access to the AWS Management Console or prefer to use the command line, check out the [AWS CLI User Guide](#) for instructions on installing the AWS CLI and using it to configure security groups, create a key pair, and launch instances with the same credentials that you will use with the EB CLI.

## Install Rails

RVM, a popular version manager for Ruby, provides an option to install RVM, Ruby, and Rails with just a few commands:

```
~$ gpg --keyserver hkp://keys.gnupg.net --recv-keys D39DC0E3
~$ curl -SSL https://get.rvm.io | bash -s stable --rails
~$ source /home/ubuntu/.rvm/scripts/rvm
```

Install nodejs to allow the Rails server to run locally:

```
~$ sudo apt-get install nodejs
```

### Note

For help installing rails on other operating systems, try <http://installrails.com/>.

## Create a New Rails Project

Use `rails new` with the name of the application to create a new Rails project.

```
~$ rails new rails-beanstalk
```

Rails creates a directory with the name specified, generates all of the files needed to run a sample project locally, and then runs bundler to install all of the dependencies (Gems) defined in the project's Gemfile.

## Run the Project Locally

Test your Rails installation by running the default project locally.

```
$ cd rails-beanstalk
rails-beanstalk $ rails server -d
=> Booting WEBrick
=> Rails 4.2.0 application starting in development on http://localhost:3000
=> Run `rails server -h` for more startup options
rails-beanstalk $ curl http://localhost:3000
<!DOCTYPE html>
<html>
<head>
 <title>Ruby on Rails: Welcome aboard</title>
 ...
```

### Note

Elastic Beanstalk precompiles Rails assets by default. For Ruby 2.1 container types, note the following:

- The nginx web server is preconfigured to serve assets from the `/public` and `/public/assets` folders.
- The Puma application requires that you add `gem "puma"` to your Gemfile for `bundle exec` to run correctly.

## Install the EB CLI

In this section you'll install the EB CLI, a few dependencies, and Git.

### Note

Using Git or another form of revision control is recommended but also entirely optional when using the EB CLI. Any of the steps in this tutorial that use Git can be skipped.

## Install Git, Python Development Libraries and Pip

This tutorial uses Git for revision control and Pip to manage the EB CLI installation. In your Ubuntu development environment, you can install all of them with the following sequence of commands:

```
~$ sudo apt-get install git
~$ sudo apt-get install python-dev
~$ curl "https://bootstrap.pypa.io/get-pip.py" -o "get-pip.py"
~$ sudo python get-pip.py
```

### Windows Users

Install [Python 3.4](#), which includes pip.

## Install the EB CLI

With Pip you can install the EB CLI with a single command:

### Linux, OS X, or Unix

```
~$ sudo pip install awsebcli
```

### Windows

```
> pip install awsebcli
```

## Set Up Your Git Repository

If your Rails project is already in a local Git repository, continue to [Configure the EB CLI \(p. 792\)](#).

First, initiate the repository. From within the Rails project directory, type `git init`.

```
~/rails-beanstalk$ git init
Initialized empty Git repository in /home/ubuntu/rails-beanstalk/.git/
```

Next, add all of the project's files to the staging area and commit the change.

```
~/rails-beanstalk$ git add .
~/rails-beanstalk$ git commit -m "default rails project"
56 files changed, 896 insertions(+)
create mode 100644 .gitignore
create mode 100644 Gemfile
...
```

## Configure the EB CLI

With the Git repository configured and all necessary tools installed, configuring the EB CLI project is as simple as running `eb init` from within the project directory and following the prompts.

```
~/rails-beanstalk$ eb init
Select a default region
1) us-east-1 : US East (N. Virginia)
2) us-west-1 : US West (N. California)
3) us-west-2 : US West (Oregon)
...
```

The following values work for this tutorial, but feel free to use values that make sense for your requirements. If you don't have access keys, see [How Do I Get Security Credentials?](#) in the AWS General Reference.

### Values

Region	<b>Enter</b> (keep default)
AWS Access Key ID	Your access key
AWS Secret Access Key	Your secret key
Application Name	<b>Enter</b> (keep default)
Using Ruby?	<b>y</b> (yes)
Platform Version	<i>Ruby 2.1 (Puma)</i>
Set up SSH?	<b>n</b> (no)

In addition to configuring the environment for deployment, `eb init` sets up some Git extensions and adds an entry to the `.gitignore` file in the project directory. Commit the change to `.gitignore` before moving on.

```
~/rails-beanstalk$ git commit -am "updated .gitignore"
```

## Create a Service Role and Instance Profile

Newer platform versions require a service role and instance profile. These roles allow Elastic Beanstalk to monitor the resources in your environment and the instances in your environment to upload log files to Amazon S3. For more information, see [Service Roles, Instance Profiles, and User Policies](#) (p. 17).

If you don't have a service role and instance profile already, use the Elastic Beanstalk Management Console to create them now.

### To create a service role and instance profile

1. Open the [Elastic Beanstalk console](#).
2. Choose **Create New Application**.
3. Proceed through the wizard until you reach the **Permissions** page.
4. Choose **Next** to open the IAM console.
5. Choose **Allow** to create the roles.

## Update the Gemfile

Prior to deploying your application to Elastic Beanstalk, we need to make a small change to the default `Gemfile` generated by Rails. Add Puma to the list of gems to make sure that it is installed properly:

### ~/rails-beanstalk/Gemfile

```
source 'https://rubygems.org'
gem 'puma'
gem 'rails', '4.1.8'
gem 'sqlite3'
...
```

Commit the change with `git commit`:

```
~/rails-beanstalk$ git commit -am "Add Puma to Gemfile"
```

## Deploy the Project

Next, create an Elastic Beanstalk environment and deploy your application to it with `eb create`:

```
~/rails-beanstalk$ eb create rails-beanstalk-env
Creating application version archive "app-150219_215138".
Uploading rails-beanstalk/app-150219_215138.zip to S3. This may take a while.
Upload Complete.
Environment details for: rails-beanstalk-env
 Application name: rails-beanstalk
 Region: us-west-2
 Deployed Version: app-150219_215138
 Environment ID: e-pi3immkys7
 Platform: 64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.1 (Puma)
 Tier: WebServer-Standard
 CNAME: UNKNOWN
 Updated: 2015-02-19 21:51:40.686000+00:00
Printing Status:
INFO: createEnvironment is starting.
...
```

### Note

If you see a "service role required" error message, run `eb create` interactively (without specifying an environment name) and the EB CLI will create the role for you.

With just one command, the EB CLI sets up all of the resources our application needs to run in AWS, including the following:

- An Amazon S3 bucket to store environment data
- A load balancer to distribute traffic to the web server(s)
- A security group to allow incoming web traffic
- An Auto Scaling group to adjust the number of servers in response to load changes
- Amazon CloudWatch alarms that notify the Auto Scaling group when load is low or high
- An Amazon EC2 instance hosting our application

When the process is complete, the EB CLI outputs the public DNS name of the application server. Use `eb open` to open the website in the default browser. In our Ubuntu environment the default browser is a text based browser called W3M.

```
$ eb open
```



```
A really lowlevel plumbing error occurred. Please contact your local
Maytag(tm) repair man.
```

This is Puma's way of telling us that something went wrong. When an error like this occurs, you can check out the logs using the `eb logs` command.

```
rails-beanstalk $ eb logs
INFO: requestEnvironmentInfo is starting.
INFO: [Instance: i-8cdc6480] Successfully finished tailing 5 log(s)
===== i-8cdc6480 =====

/var/log/eb-version-deployment.log

...
```

The error you're looking for is in the web container log, `/var/log/puma/puma.log`.

```
...

/var/log/puma/puma.log

=== puma startup: 2014-12-15 18:37:51 +0000 ===
=== puma startup: 2014-12-15 18:37:51 +0000 ===
[1982] + Gemfile in context: /var/app/current/Gemfile
[1979] - Worker 0 (pid: 1982) booted, phase: 0
2014-12-15 18:41:42 +0000: Rack app error: #<RuntimeError: Missing
`secret_key_base` for 'production' environment, set this value in `config/
secrets.yml`>
/opt/rubies/ruby-2.1.4/lib/ruby/gems/2.1.0/gems/railties-4.1.8/lib/rails/
application.rb:462:in `validate_secret_key_config!'
/opt/rubies/ruby-2.1.4/lib/ruby/gems/2.1.0/gems/railties-4.1.8/lib/rails/
application.rb:195:in `env_config'
...
```

To get the application working, you need to configure a few environment variables. First is `SECRET_KEY_BASE`, which is referred to by `secrets.yml` in the `config` folder of our project.

This variable is used to create keys and should be a secret, as the name suggests. This is why you don't want it stored in source control where other people might see it. Set this to any value using `eb setenv`:

```
rails-beanstalk $ eb setenv SECRET_KEY_BASE=23098520lkjsdlkjfsdf
INFO: Environment update is starting.
INFO: Updating environment rails-beanstalk-env's configuration settings.
INFO: Successfully deployed new configuration to environment.
INFO: Environment update completed successfully.
```

The EB CLI automatically restarts the web server whenever you update configuration or deploy new code. Try loading the site again.

```
$ eb open
The page you were looking for doesn't exist (404)
```

A 404 error may not look like much of an improvement, but it shows that the web container is working and couldn't find a route to the page you're looking for.

So what happened to the welcome page you saw earlier? In this case the environment variable you need is `RACK_ENV`. Right now it's set to `production`, suppressing the display of debug features as well as the Welcome to Rails page.

View the current value of all environment variables using the `eb printenv` command.

```
rails-beanstalk $ eb printenv
Environment Variables:
 AWS_SECRET_KEY = None
 RAILS_SKIP_ASSET_COMPILATION = false
 SECRET_KEY_BASE = 23098520lkjsdlkjfsdf
 RACK_ENV = production
 PARAM5 = None
 PARAM4 = None
 PARAM3 = None
 PARAM2 = None
 PARAM1 = None
 BUNDLE_WITHOUT = test:development
 RAILS_SKIP_MIGRATIONS = false
 AWS_ACCESS_KEY_ID = None
```

The proper way to fix this is to add content and routes to the project. For the moment, though, we just want to see our project working, so we'll set `RACK_ENV` to `development`.

```
rails-beanstalk $ eb setenv RACK_ENV=development
```

The next time you load the site it should succeed.

```
$ eb open
Ruby on Rails: Welcome aboard
...
```

Now that you know it works, you can set `RACK_ENV` back to `production` and see about adding that content.

```
rails-beanstalk $ eb setenv RACK_ENV=production
```

## Update the Application

Now it's time to add some content to the front page to avoid the 404 error you saw in production mode.

First you'll use `rails generate` to create a controller, route, and view for your welcome page.

```
$ rails generate controller WelcomePage welcome
 create app/controllers/welcome_page_controller.rb
 route get 'welcome_page/welcome'
 invoke erb
 create app/views/welcome_page
 create app/views/welcome_page/welcome.html.erb
 ...
```

This gives you all you need to access the page at [rails-beanstalk-env-kpvmmmqpbr.elasticbeanstalk.com/welcome\\_page/welcome](http://rails-beanstalk-env-kpvmmmqpbr.elasticbeanstalk.com/welcome_page/welcome). Before you publish the changes, however, change the content in the view and add a route to make this page appear at the top level of the site.

Use your favorite text editor to edit the content in `app/views/welcome_page/welcome.html.erb`. Nano and Vim are popular command line editors. For this example, you'll use `cat` to simply overwrite the content of the existing file.

```
rails-beanstalk $ cat > app/views/welcome_page/welcome.html.erb
> <h1>Welcome!</h1>
> <p>This is the front page of my first Rails application on Elastic
 Beanstalk.</p>
Ctrl+D
```

Finally, add the following route to `config/routes.rb`:

```
Rails.application.routes.draw do
 get 'welcome_page/welcome'
 root 'welcome_page#welcome'
end
```

This tells Rails to route requests to the root of the website to the welcome page controller's `welcome` method, which renders the content in the welcome view (`welcome.html.erb`). Now we're ready to commit the changes and update our environment using `eb deploy`.

```
rails-beanstalk $ git add .
rails-beanstalk $ git commit -m "welcome page controller, view and route"
rails-beanstalk $ eb deploy
INFO: Environment update is starting.
INFO: Deploying new version to instance(s).
INFO: New application version was deployed to running EC2 instances.
INFO: Environment update completed successfully.
```

The update process is fairly quick. Read the front page at the command line using `Curl` or navigate to the type `eb open` to open the site in a web browser to see the results.

```
$ eb open
Welcome

This is the front page of my first Rails application on Elastic Beanstalk.
```

Now you're ready to continue work on your Rails site. Whenever you have new commits to push, use `eb deploy` to update your environment.

## Clean Up

If you no longer want to run your application, you can clean up by terminating your environment and deleting your application.

Use the `terminate` command to terminate your environment and the `delete` command to delete your application.

### To terminate your environment and delete the application

- From the directory where you created your local repository, run `eb terminate`:

```
$ eb terminate
```

This process may take a few minutes. Elastic Beanstalk displays a message once the environment has been successfully terminated.

Don't hesitate to terminate an environment to save on resources while you continue to develop your site. You can always recreate your Beanstalk environment using `eb create`.

## Deploying a Sinatra Application to AWS Elastic Beanstalk

This walkthrough shows how to deploy a simple [Sinatra](#) web application to AWS Elastic Beanstalk using the Elastic Beanstalk Command Line Interface (EB CLI).

### Note

Creating environments with the EB CLI requires a [service role](#) (p. 17). You can create a service role by creating an environment in the Elastic Beanstalk Management Console. If you don't have a service role, the EB CLI will attempt to create one when you run `eb create`.

### Topics

- [Prerequisites](#) (p. 798)
- [Step 1: Set Up Your Project](#) (p. 799)
- [Step 2: Create an Application](#) (p. 799)
- [Step 3: Create an Environment](#) (p. 801)
- [Step 4: Deploy a Simple Sinatra Application](#) (p. 801)
- [Step 5: Clean Up](#) (p. 803)
- [Related Resources](#) (p. 803)

## Prerequisites

This walkthrough requires a Linux, Windows or OS X workstation. Performing the walkthrough will modify your workstation's Git and EB CLI configuration. If you do not want to modify your workstation's configuration for the walkthrough, you can use one of the following:

- An instance running in a virtual machine on your workstation.

This walkthrough was prepared using [Vagrant](#) to run a Ubuntu 14.04 LTS instance in [VirtualBox](#).

- An Amazon Elastic Compute Cloud (Amazon EC2) instance.

[Use SSH](#) to log in to the instance. You can perform the entire walkthrough from the command line. When you have finished, you can terminate the instance.

The following tools are required to complete this walkthrough:

- The EB CLI, installed as described in [Install the Elastic Beanstalk Command Line Interface \(EB CLI\)](#) (p. 417).

This topic also describes how to sign up for an AWS account, if you do not have one.

- AWS credentials that have permissions to create the AWS resources that make up the application's environment on your system.

These credentials allow the EB CLI to act on your behalf to create the environment's resources. If you do not have stored credentials, the EB CLI prompts you for credentials when you create the application. For more information on how to store credentials and how the EB CLI handles stored credentials, see [Configuration Settings and Precedence](#) (p. 428). For more information on the required permissions, see [Using Elastic Beanstalk with AWS Identity and Access Management](#) (p. 332).

- Git

For Linux systems, you can use the package manager to install Git. For example, the following command installs Git on Debian-family Linux systems, such as Ubuntu.

```
$ sudo apt-get install git
```

For Red Hat-family systems, you can use the same command, but you use the package manager name `yum`. For more information, including directions for installing Git on OS X systems, see [git](#).

## Step 1: Set Up Your Project

With the EB CLI, you can quickly create an Elastic Beanstalk [environment \(p. 51\)](#) and deploy applications to that environment from a [Git](#) repository. Before starting your first project, set up the example project for the walkthrough.

### To set up the example project

1. Open a terminal window and create a directory for your project in a convenient location on your system. This walkthrough assumes that the directory is named `sinatraapp`.

```
~$ mkdir sinatraapp
```

2. Move to the `sinatraapp` directory and initialize a Git repository.

```
~$ cd sinatraapp
~sinatraapp$ git init .
```

#### Note

You do not need to have access to a remote repository, such as GitHub, for this walkthrough. The walkthrough uses a local Git repository.

3. If this is your first time using Git, add your user name and email address to the Git configuration so you can commit changes.

```
$ git config --global user.email "you@example.com"
$ git config --global user.name "Username"
```

## Step 2: Create an Application

Now create an application and its associated [environment \(p. 51\)](#).

### To create an application

1. In the `sinatraapp` directory, create the application by running the following command.

```
~/sinatraapp$ eb init
```

2. Choose the default AWS region. For this walkthrough, choose **US-West-2**.

```
Select a default region
1) us-east-1 : US East (N. Virginia)
2) us-west-1 : US West (N. California)
```

```
3) us-west-2 : US West (Oregon)
4) eu-west-1 : EU (Ireland)
5) eu-central-1 : EU (Frankfurt)
6) ap-south-1 : Asia Pacific (Mumbai)
7) ap-southeast-1 : Asia Pacific (Singapore)
8) ap-southeast-2 : Asia Pacific (Sydney)
9) ap-northeast-1 : Asia Pacific (Tokyo)
10) ap-northeast-2 : Asia Pacific (Seoul)
11) sa-east-1 : South America (Sao Paulo)
12) cn-north-1 : China (Beijing)
13) us-east-2 : US East (Columbus)
(default is 3): 3
```

### Tip

If you have previously configured a default region with the EB CLI, the AWS CLI or an SDK, the EB CLI skips this step and creates the application in the default region unless you explicitly specify a region with the `--region` (p. 448) option.

3. Provide a set of AWS credentials with [appropriate permissions](#) (p. 332). If you have an [appropriate set of stored credentials](#) (p. 428), the EB CLI uses them automatically and skips this step.

### Important

We strongly recommend that you do not provide your account's root credentials to Elastic Beanstalk. Instead, create an AWS Identity and Access Management (IAM) user with appropriate permissions and provide those credentials. For more information on managing AWS credentials, see [Best Practices for Managing AWS Access Keys](#).

If you do not have stored credentials, or your stored credentials do not grant the correct permissions, `eb init` prompts you for credentials, as follows:

```
You have not yet set up your credentials or your credentials are incorrect
You must provide your credentials.
(aws-access-id): AKIAIOSFODNN7EXAMPLE
(aws-secret-key): wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
```

Elastic Beanstalk then stores these credentials in the AWS CLI `config` file with a profile name of `eb-cli`.

4. Enter your application name. For this walkthrough, use the default value, which is the application's root directory name.

```
Enter Application Name
(default is "sinatraapp"): sinatraapp
```

5. Specify your platform. For this walkthrough, use **Ruby**.

```
Select a platform.
1) Node.js
2) PHP
3) Python
4) Ruby
5) Tomcat
6) IIS
7) Docker
8) Multi-container Docker
9) GlassFish
10) Go
11) Java
```

```
(default is 1): 6
```

6. Specify the platform version. For this example, use **Ruby 2.1 (Puma)**.

```
Select a platform version.1
1) Ruby 2.1 (Puma)
2) Ruby 2.1 (Passenger Standalone)
3) Ruby 2.0 (Puma)
4) Ruby 2.0 (Passenger Standalone)
5) Ruby 1.9.3
(default is 1): 1
```

7. Specify whether you want to use SSH to log in to your instances. You won't need to log in to your instances for this walkthrough, so enter n.

```
Do you want to set up SSH for your instances?
(y/n): n
```

## Step 3: Create an Environment

Next, create an Elastic Beanstalk environment and deploy a sample application to it with `eb create`:

```
~/sinatraapp$ eb create sinatraapp-dev --sample
```

### Note

If you see a "service role required" error message, run `eb create` interactively (without specifying an environment name) and the EB CLI will create the role for you.

With just one command, the EB CLI sets up all of the resources our application needs to run in AWS, including the following:

- An Amazon S3 bucket to store environment data
- A load balancer to distribute traffic to the web server(s)
- A security group to allow incoming web traffic
- An Auto Scaling group to adjust the number of servers in response to load changes
- Amazon CloudWatch alarms that notify the Auto Scaling group when load is low or high
- An Amazon EC2 instance hosting our application

When the process is complete, the EB CLI outputs the public DNS name of the application server. Use `eb open` to open the website in the default browser:

```
~/sinatraapp$ eb open
```

## Step 4: Deploy a Simple Sinatra Application

You can now create and deploy a Sinatra application. This step describes how to implement a simple Sinatra application and deploy it to the environment that you created in the preceding step. Our example implements a classic application that prints a simple text string, `Hello World!`. You can easily extend this example to implement more complex classic applications or [modular applications](#).

### Note

Create all of the application files in the following procedure in the application's root directory, `sinatraapp`.

## To create and deploy a Sinatra application

1. Create a configuration file named **config.ru** with the following contents.

```
require './helloworld'
run Sinatra::Application
```

2. Create a Ruby code file named **helloworld.rb** with the following contents.

```
require 'sinatra'
get '/' do
 "Hello World!"
end
```

3. Create a **Gemfile** with the following contents.

```
source 'http://rubygems.org'
gem 'sinatra'
```

4. Add your files to the Git repository and then commit your changes, as follows:

```
~/sinatraapp$ git add .
~/sinatraapp$ git commit -m "Add a simple Sinatra application"
```

You should see output similar to the following indicating that your files were successfully committed.

```
[master (root-commit) dcdfe6c] Add a simple Sinatra application
4 files changed, 13 insertions(+)
create mode 100644 .gitignore
create mode 100644 Gemfile
create mode 100644 config.ru
create mode 100644 helloworld.rb
```

The files are committed to the current Git branch. Because you have not yet explicitly created any branches, the files are committed to the default branch, which is named `master`. If the repository has multiple branches, you can configure Git to push each branch to a different environment. For more information, see [Managing Elastic Beanstalk Environments with the EB CLI \(p. 429\)](#).

5. Deploy the new Sinatra application to the environment.

```
~/sinatraapp$ eb deploy
```

The `eb deploy` command creates a [bundle \(p. 43\)](#) of the application code in the master branch and deploys it to the environment, replacing the default application. The second deployment should be much faster than the first because you have already created the environment's AWS resources.

6. Run the `eb status --verbose` command to check your environment status. You should see output similar to the following.

```
~/sinatraapp$ eb status --verbose
Environment details for: sinatraapp-dev
Application name: sinatraapp
Region: us-west-2
Deployed Version: dcdf
```



```
Environment ID: e-kn7feagre2
Platform: 64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.1 (Puma)
Tier: WebServer-Standard
CNAME: sinatraapp-dev.elasticbeanstalk.com
Updated: 2015-03-03 23:15:19.183000+00:00
Status: Ready
Health: Green
Running instances: 1
 i-c2e712cf: InService
```

Repeat the command until **Status** is **Ready** and **Health** is **Green**. Then, refresh your browser or run `eb open` again to view the updated application, which should display `Hello World!`.

### Tip

For a detailed description of the deployment, you can display the deployment log by running `eb logs`.

## Step 5: Clean Up

When you have finished, you can terminate the application's environment by running the following command from the root directory, `sinatraapp`.

```
~/sinatraapp$ eb terminate
```

This command shuts down all of the environment's AWS resources, so you do not incur further charges. It typically takes a few minutes. When the process is complete, Elastic Beanstalk displays the following message.

```
INFO: terminateEnvironment completed successfully.
```

### Tip

If you have attached an Amazon Relational Database Service (Amazon RDS) database instance to your environment, termination deletes the instance. If you want to save your data, create a snapshot before terminating the environment. For more information, see [Creating a DB Snapshot](#). For more information about using Amazon RDS with Elastic Beanstalk, see [Using Amazon RDS with Ruby](#).

## Related Resources

For more information about Git commands, see [Git - Fast Version Control System](#).

This walkthrough uses only a few of the EB CLI commands. For a complete list run `eb --help` or see [EB CLI Command Reference \(p. 447\)](#).

## Using Amazon RDS with Ruby

With Amazon Relational Database Service (Amazon RDS), you can quickly and easily provision and maintain a MySQL, Oracle, PostgreSQL, or Microsoft SQL Server instance in the cloud. This topic explains how you can use Amazon RDS and Ruby with your Elastic Beanstalk application. For more information about Amazon RDS, go to <http://aws.amazon.com/rds/>.

To use Amazon RDS from your Elastic Beanstalk application, you need to do the following:

1. Create an Amazon RDS DB instance.

2. Establish a database connection in your code by using the connectivity information for your Amazon RDS DB instance.
3. Deploy your application to Elastic Beanstalk.

This topic walks you through the following:

- Using a new Amazon RDS DB instance with your application
- Using an existing Amazon RDS DB instance with your application

## Using a New Amazon RDS DB Instance with Ruby

This topic walks you through creating a new Amazon RDS DB Instance and using it with your Ruby application.

### To use a new Amazon RDS DB Instance and Ruby from your Elastic Beanstalk application

1. Create an Amazon RDS DB instance. You can create an RDS DB instance in one of the following ways:
  - Create an Amazon RDS DB instance when you launch a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). For a sample walkthrough of a Rails application deployment with Amazon RDS using eb, see [Deploying a Rails Application to Elastic Beanstalk \(p. 790\)](#).
  - Create an Amazon RDS DB instance when you launch a new environment with an existing application version. For instructions using the AWS Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#).
  - If you already deployed an application to Elastic Beanstalk, you can create an Amazon RDS DB instance and attach it to an existing environment. For instructions using the AWS Elastic Beanstalk console, see [Configuring Databases with Elastic Beanstalk \(p. 243\)](#). If you use the EB CLI, use the `--database` option when you run `eb create`.
2. Establish a database connection in your code using your Amazon RDS DB Instance's connectivity information. You can access your connectivity information using environment variables. The following shows how you would connect to the database on an RDS instance.

```
production:
 adapter: mysql2
 encoding: utf8
 database: <%= ENV['RDS_DB_NAME'] %>
 username: <%= ENV['RDS_USERNAME'] %>
 password: <%= ENV['RDS_PASSWORD'] %>
 host: <%= ENV['RDS_HOSTNAME'] %>
 port: <%= ENV['RDS_PORT'] %>
```

3. Deploy the updated application to your Elastic Beanstalk environment.

## Using an Existing Amazon RDS DB Instance with Ruby

You can update your Ruby application to use an Amazon RDS DB Instance that you have previously created. This topic walks you through how to update your Ruby application using an existing Amazon RDS DB Instance and deploy your application to Elastic Beanstalk.

### To use an existing Amazon RDS DB Instance and Ruby from your Elastic Beanstalk application

1. Create an Elastic Beanstalk environment in one of the following ways:
  - Create a new application with a new environment. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). For a sample walkthrough of a Rails application deployment with Amazon RDS using eb, see [Deploying a Rails Application to Elastic Beanstalk \(p. 790\)](#). You do not need to create an RDS DB Instance with this environment because you already have an existing RDS DB Instance.
  - Launch a new environment with an existing application version. For instructions using the Elastic Beanstalk console, see [Creating an AWS Elastic Beanstalk Environment \(p. 61\)](#). You do not need to create an Amazon RDS DB instance with this environment because you already have an existing Amazon RDS DB instance.
2. Configure your Amazon RDS DB security group to allow access from the Amazon EC2 security group used by your Elastic Beanstalk application. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see [Security Groups \(p. 233\)](#). For more information, go to the "Authorizing Network Access to an Amazon EC2 Security Group" section of [Working with DB Security Groups](#) in the *Amazon Relational Database Service User Guide*.
3. Establish a database connection in your code using your Amazon RDS DB instance's connectivity information. The following examples show how you could connect to the database on an RDS instance at `mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com` using port 3306, with the user name "sa" and the password "mypassword".

```
production:
 adapter: mysql2
 encoding: utf8
 database: exampledb
 username: sa
 password: mypassword
 host: mydbinstance.abcdefghijkl.us-west-2.rds.amazonaws.com
 port: 3306
```

4. Deploy the updated application to your Elastic Beanstalk environment.

## Tools

### AWS SDK for Ruby

You can get started in minutes with a single, downloadable package complete with the AWS Ruby library, code samples, and documentation. You can build Ruby applications on top of APIs that take the complexity out of coding directly against web services interfaces. The all-in-one library provides Ruby developer-friendly APIs that hide much of the lower-level tasks associated with programming for the AWS cloud, including authentication, request retries, and error handling. Practical examples are provided in Ruby for how to use the libraries to build applications. For information about the SDK, sample code, documentation, tools, and additional resources, go to <http://aws.amazon.com/ruby/>.

### Git Deployment Via EB CLI

EB CLI is an AWS Elastic Beanstalk that enables you to deploy applications quickly and more easily from the command line. To learn how to get started deploying a Ruby application to Elastic Beanstalk using eb and Git, see [Deploying Elastic Beanstalk Applications in Ruby Using EB CLI and Git \(p. 787\)](#).

## Resources

There are several places you can go to get additional help when developing your Ruby applications:

Resource	Description
<a href="#">AWS SDK for Ruby</a>	Install AWS SDK for Ruby.
<a href="#">Ruby Development Forum</a>	Post your questions and get feedback.
<a href="#">Ruby Developer Center</a>	One-stop shop for sample code, documentation, tools, and additional resources.

# Troubleshooting

## Topics

- [Understanding Environment Events \(p. 809\)](#)
- [Troubleshooting Docker Containers \(p. 815\)](#)

This section provides a table of the most common Elastic Beanstalk issues and how to resolve or work around them.

Issue	Workaround
Unable to connect to Amazon RDS from Elastic Beanstalk.	<p>To connect RDS to your Elastic Beanstalk application, do the following:</p> <ul style="list-style-type: none"> <li>• Make sure RDS is in the same Region as your Elastic Beanstalk application.</li> <li>• Make sure the RDS security group for your instance has an authorization for the Amazon EC2 security group you are using for your Elastic Beanstalk environment. For instructions on how to find the name of your EC2 security group using the AWS Management Console, see <a href="#">Security Groups (p. 233)</a>. For more information about configuring your EC2 security group, go to the "Authorizing Network Access to an Amazon EC2 Security Group" section of <a href="#">Working with DB Security Groups</a> in the <i>Amazon Relational Database Service User Guide</i>.</li> <li>• For Java, make sure the MySQL JAR file is in your WEB-INF/lib. See <a href="#">Adding an Amazon RDS Database to Your Elastic Beanstalk Environment (p. 614)</a> for more details.</li> </ul>
Experiencing a couple of seconds of downtime when updating the version of my application.	Because Elastic Beanstalk uses a drop-in upgrade process, there might be a few seconds of downtime. Use <a href="#">rolling deployments (p. 99)</a> to minimize the effect of deployments on your production environments.
Unable to connect to another Amazon EC2 instance using the Amazon EC2 security group for your Elastic Beanstalk environment.	Create a CNAME record and point this to the public DNS of the Amazon EC2 instance.

Issue	Workaround
How can I change my application URL from myapp.elasticbeanstalk.com to www.myapp.com?	Register in a DNS server a CNAME record such as: www.mydomain.com CNAME mydomain.elasticbeanstalk.com.
Unable to specify a specific Availability Zone for my Elastic Beanstalk application.	You can pick specific AZs using the APIs, CLI, Eclipse plug-in, or Visual Studio plug-in. For instructions about using the AWS Management Console to specify an Availability Zone, see <a href="#">Configuring Auto Scaling with Elastic Beanstalk (p. 220)</a> .
Getting charged for my Elastic Beanstalk application.	The default settings for Elastic Beanstalk do not incur any additional charges. However, if you modified the default settings by changing the Amazon EC2 instance type or adding additional Amazon EC2 instance, charges may be accrued. For information about the free tier, see <a href="http://aws.amazon.com/free">http://aws.amazon.com/free</a> . If you have questions about your account, contact our <a href="#">customer service team</a> directly.
How can I receive notifications by SMS?	If you specify an SMS email address, such as one constructed on <a href="http://www.makeuseof.com/tag/email-to-sms">http://www.makeuseof.com/tag/email-to-sms</a> , you will receive the notifications by SMS. To subscribe to more than one email address, you can use the Elastic Beanstalk command line to register an SNS topic with an environment.
How do I change my environment's instance type?	In the <b>Web Tier</b> section of the environment configuration screen, choose the gear icon on the <b>Instances</b> card. Select a new instance type and click <b>Apply</b> to update your environment. Elastic Beanstalk will terminate all running instances and replace them with new ones.
Unable to connect to Elastic Beanstalk when deploying using the AWS Toolkit for Eclipse.	Try one of the following: <ul style="list-style-type: none"> <li>• Make sure you are running the latest distribution of Eclipse.</li> <li>• Make sure you've signed up your account for Elastic Beanstalk (and have received an email confirmation).</li> <li>• Check the "Error Log" view in Eclipse to see if there's any additional information or stack traces.</li> </ul>
How can I prevent EBS volumes from being deleted when Elastic Beanstalk?	Instances in your environment use EBS for storage; however, the root volume is deleted when an instance is terminated by Autoscaling. It is not recommended to store state or other data on your instances. If needed, you can prevent volumes from being deleted with the EC2 CLI: <pre>\$ ec2-modify-instance-attribute -b '/dev/sdc=&lt;vol-id&gt;:false</pre> as described in the <a href="#">EC2 Command Line Reference</a> .
Servers that were created in the AWS Management Console do not appear in the Toolkit for Eclipse	You can manually import servers by following the instructions at <a href="#">Importing Existing Environments into Eclipse (p. 620)</a> .

Issue	Workaround
Environments are launched, but with command timeout errors	Your application may take a long time to deploy if you use configuration files that run commands on the instance, download large files, or install packages. Make sure that your commands or scripts return properly and increase the command timeout if necessary. For more information, see <a href="#">Launch and Update Environment Operations Succeeded but with Command Timeouts (p. 813)</a> .
Unable to update an environment with event You cannot configure an AWS Elastic Beanstalk environment with values for both the Elastic Load Balancing Target option and Application Healthcheck URL option	This indicates that, Elastic Beanstalk received an option setting that conflicts with the value you provided for the <b>Application Healthcheck URL</b> option setting in the <code>aws:elasticbeanstalk:application</code> namespace. Remove the <b>Target</b> option (in the <code>aws:elb:healthcheck</code> namespace) from environment or <a href="#">configuration file (p. 178)</a> and then try updating your environment again.
Update failed with reason ELB cannot be attached to multiple subnets in the same AZ. when attempting to move a load balancer between subnets within an AZ.	Changing subnets on the load balancer requires moving it out of the original availability zone(s) and then back into the original with the desired subnets. During the process, all of your instances will be migrated between AZs, causing significant downtime. If you need to use different subnets, it's better just to create a new environment and <a href="#">perform a CNAME swap (p. 103)</a> .

## Understanding Environment Events

### Topics

- [HTTP HEAD Request to Your Elastic Beanstalk URL Fails \(p. 810\)](#)
- [CPU Utilization Exceeds 95.00% \(p. 810\)](#)
- [Elastic Load Balancer Has Zero Healthy Instances \(p. 810\)](#)
- [Elastic Load Balancer Cannot Be Found \(p. 811\)](#)
- [Instance Fails to Respond to Status Health Check \(p. 811\)](#)
- [Environment Launch Fails \(p. 812\)](#)
- [Amazon EC2 Instance Launch Fails \(p. 812\)](#)
- [Application Does Not Enter the Ready State Within the Timeout Period \(p. 812\)](#)
- [Environment Launches but with Issues \(p. 813\)](#)
- [Amazon EC2 Instances Fail to Launch within the Wait Period \(p. 813\)](#)
- [Launch and Update Environment Operations Succeeded but with Command Timeouts \(p. 813\)](#)
- [Application Version Deployment Failed \(p. 815\)](#)

Elastic Beanstalk monitors the environment launch process to ensure your application is healthy. To determine your application's health, Elastic Beanstalk sends periodic requests to the application's health check URL (by default root or '/'). If your application experiences problems and does not respond to the health check, a variety of launch events are published. This section describes the most common launch events, why they happen, and how to address environment launch-related problems. For instructions on how to view your events, see [Viewing an Elastic Beanstalk Environment's Event Stream \(p. 317\)](#). For more information about health check URL, see [Health Check \(p. 241\)](#).

## HTTP HEAD Request to Your Elastic Beanstalk URL Fails

### "Failed to Perform HTTP HEAD Request to http://<yourapp>.elasticbeanstalk.com:80"

Elastic Beanstalk sends periodic HTTP HEAD requests to the health check URL. This event fires when the health check URL does not respond successfully (with HTTP code 200).

If you receive this event, try one or both of the following:

- Make sure that your application's health check URL exists. For example, if Elastic Beanstalk makes a health check request to `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.jsp`, ensure that `/myapp/index.jsp` exists and is accessible. Similarly, for PHP, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.php`, make sure that `/myapp/index.php` exists and is accessible. For ASP.NET, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/default.aspx`, make sure that `/myapp/default.aspx` exists and is accessible.
- Inspect previous events on the **Events** page in the AWS Management Console to ensure that your environment is healthy. For example, if instances of your environments are running at close to 100 percent CPU utilization, they may become unresponsive. Elastic Beanstalk will alert you via an event that reads **Instance <instance id> is experiencing CPU Utilization greater than 95.00%. Consider adjusting auto-scaling settings or upgrading to an instance type larger than a <instance type>.** See [CPU Utilization Exceeds 95.00% \(p. 810\)](#) for more information about this event.

## CPU Utilization Exceeds 95.00%

### "CPU Utilization Greater Than 95.00%"

If you receive an event that reads **Instance <instance id> is experiencing CPU utilization greater than 95.00%. Consider adjusting auto-scaling settings or upgrading to an instance type larger than a <instance type>.**, this means an instance is using the CPU for more than 95 percent of the time.

If your application can be parallelized across multiple instances, you can adjust auto-scaling settings by increasing the maximum number of instances and adjusting your scaling trigger. For instructions, see [Configuring Auto Scaling with Elastic Beanstalk \(p. 220\)](#).

If your application requires higher computing needs, you can upgrade the Amazon EC2 instance type for your environment. For instructions, see [Configuring the EC2 Instances in your Elastic Beanstalk Environment \(p. 230\)](#).

## Elastic Load Balancer Has Zero Healthy Instances

### "Elastic Load Balancer awseb-<yourapp> Has Zero Healthy Instances"

When the health status of all of your instances changes from green to red, Elastic Beanstalk alerts you that your application has become unavailable. Make sure that your application's health check URL exists. For example, if Elastic Beanstalk makes a health check request to `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.jsp`, ensure that `/myapp/index.jsp` exists and is accessible. Similarly, for PHP, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.php`, make sure that `/myapp/index.php` exists and is accessible. For ASP.NET, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/default.aspx`, make sure that `/myapp/default.aspx` exists and is accessible.



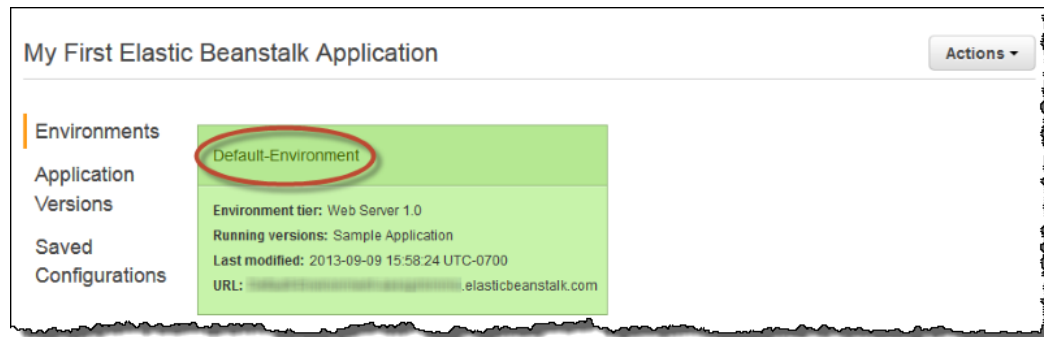
## Elastic Load Balancer Cannot Be Found

### "Elastic Load Balancer awseb-`<yourapp>` Cannot Be Found"

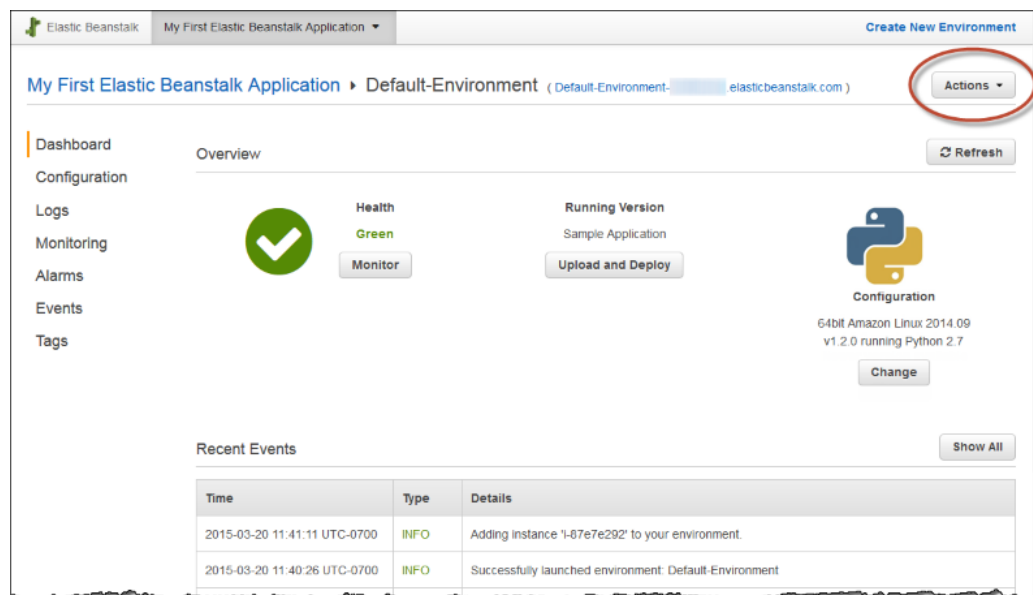
If you receive an **Elastic Load Balancer awseb-`<yourapp>` cannot be found** event, the Elastic Load Balancer for your environment has been removed. This event usually occurs when an account owner or other authorized user manually removes the Elastic Load Balancer. To resolve this issue, you need to rebuild your environment.

#### To rebuild your environment

1. From the Elastic Beanstalk console applications page, click the environment name that you want to rebuild.



2. Click **Actions** and the select **Rebuild Environment**.



## Instance Fails to Respond to Status Health Check

### "Failed to Retrieve Status of Instance `<instance id>` 4 Consecutive Time(s)"

This event occurs when Elastic Beanstalk is not getting a response from the health check URL. Elastic Beanstalk will try to reach the health check URL 10 times over 10 minutes. If this event occurs, try one or both of the following:

- Make sure that your application's health check URL exists. For example, if Elastic Beanstalk makes a health check request to `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.jsp`, ensure that `/myapp/index.jsp` exists and is accessible. Similarly, for PHP, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.php`, make sure that `/myapp/index.php` exists and is accessible. For ASP.NET, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/default.aspx`, make sure that `/myapp/default.aspx` exists and is accessible.
- Inspect previous events on the **Events** page on the AWS Management Console to ensure that your environment is healthy. For example, if instances of your environments are running at close to 100 percent CPU utilization, they may become unresponsive. Elastic Beanstalk will alert you via an event that reads **Instance <instance id> is experiencing CPU Utilization greater than 95.00%. Consider adjusting auto-scaling settings or upgrading to an instance type larger than a <instance type>**. For more information, see [CPU Utilization Exceeds 95.00% \(p. 810\)](#).

## Environment Launch Fails

### "Failed to Launch Environment"

This event occurs when Elastic Beanstalk attempts to launch an environment and encounters failures along the way. Previous events on the **Events** page will alert you to the root cause of this issue.

## Amazon EC2 Instance Launch Fails

### "EC2 Instance Launch Failure. Waiting for a New EC2 Instance to Launch..."

This event occurs when an Amazon EC2 instance launch fails. If this event occurs, try one or both of the following:

- Check the [service health dashboard](#) to ensure that the Elastic Compute Cloud (Amazon EC2) service is green.
- Make sure that you are not over the Amazon EC2 instance limit for your account (the default is 10 instances). To request an increase to the Amazon EC2 instances, complete the form available at <https://console.aws.amazon.com/support/home#/case/create?issueType=service-limit-increase&limitType=service-code-ec2-instances>.

## Application Does Not Enter the Ready State Within the Timeout Period

### "Exceeded Maximum Amount of Time to Wait for the Application to Become Available. Setting Environment Ready"

During the launch of a new environment, Elastic Beanstalk monitors the environment to make sure that the application is available. If the application is still unavailable after 6 minutes have passed, the environment enters the ready state; this allows you to take action and make configuration changes. If this event occurs, try one or both of the following:

- Make sure that your application's health check URL exists. For example, if Elastic Beanstalk makes a health check request to `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.jsp`, ensure that `/myapp/index.jsp` exists and is accessible. Similarly, for PHP, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.php`, make sure that `/myapp/index.php` exists and is accessible. For ASP.NET, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/default.aspx`, make sure that `/myapp/default.aspx` exists and is accessible.
- Make sure you have uploaded a valid `.war` file or a `.zip` file.

## Environment Launches but with Issues

**"Launched Environment: <environment id>. However, There Were Issues During Launch. See Event Log for Details"**

During the launch of a new environment, Elastic Beanstalk monitors the environment to make sure that the application is available. If the application is still unavailable after 6 minutes have passed, the environment enters the ready state; this allows you to take action and make configuration changes. If this event occurs, try one or both of the following:

- Make sure that your application's health check URL exists. For example, if Elastic Beanstalk makes a health check request to `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.jsp`, ensure that `/myapp/index.jsp` exists and is accessible. Similarly, for PHP, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/index.php`, make sure that `/myapp/index.php` exists and is accessible. For ASP.NET, if you have `http://healthcheckrocks.elasticbeanstalk.com:80/myapp/default.aspx`, make sure that `/myapp/default.aspx` exists and is accessible.
- Make sure you have uploaded a valid `.war` file or `.zip` file.
- Check previous events on the **Events** page.

## Amazon EC2 Instances Fail to Launch within the Wait Period

**"'CREATE\_FAILED' Reason: The following resource(s) failed to create: [AWSEBInstanceLaunchWaitCondition]"**

If you receive an event that indicates **Stack named '*awseb-stack-name*' aborted operation. Current state: 'CREATE\_FAILED' Reason: The following resource(s) failed to create: [AWSEBInstanceLaunchWaitCondition]**, this means the Amazon EC2 instances did not communicate to Elastic Beanstalk that they were launched successfully.

If you use Amazon VPC with Elastic Beanstalk, Amazon EC2 instances deployed in a private subnet cannot communicate directly with the Internet. Amazon EC2 instances must have Internet connectivity to communicate to Elastic Beanstalk that they were successfully launched. To provide EC2 instances in a private subnet with Internet connectivity, you must add a load balancer and a NAT device to the public subnet. You must create the appropriate routing rules for inbound and outbound traffic through the load balancer and NAT device. If you're using a NAT instance, you must also configure your security group rules to enable Internet communication. For more information, see [Scenario 2: VPC with Public and Private Subnets \(NAT\)](#) in the *Amazon VPC User Guide*.

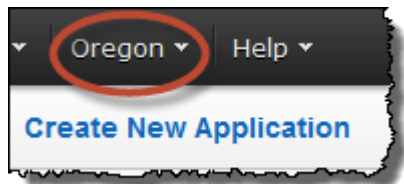
## Launch and Update Environment Operations Succeeded but with Command Timeouts

**"Create environment operation is complete, but with command timeouts. Try increasing the timeout period." or "Update environment operation is complete, but with command timeouts. Try increasing the timeout period."**

This event message appears when an environment is successfully created or updated, but some commands were not completed on the Amazon EC2 instances in the environment within the expected time period. In this situation, check the event stream or logs for details about which on-instance commands were not completed. For more information about viewing events, see [Viewing an Elastic Beanstalk Environment's Event Stream \(p. 317\)](#). For more information about logging, see [Instance Logs \(p. 320\)](#). Then try increasing the command timeout period by doing one of the following.

### To configure a command timeout using the AWS Management Console:

1. Open the [Elastic Beanstalk console](#).
2. From the region list, select a region in which to create the Elastic Beanstalk application.



3. From the region list, select the region that includes the environment that you want to work with.
4. On the Elastic Beanstalk console applications page, click the name of the environment with the settings that you want to edit.
5. In the navigation pane, click **Configuration**.
6. On the **Configuration** page, next to **Updates and Deployments**, click the gear icon (⚙️).
7. Under **Command Timeout**, change **Command timeout** to 900, and then click **Save**.

### To configure a command timeout using a configuration file

- Add the following to a configuration file with the extension `.config` that you place in an `.ebextensions` top-level directory of your source bundle. For more information, see [Customizing the Software on EC2 Instances Running Linux](#) or [Customizing the Software on EC2 Instances Running Windows](#).

```
option_settings:
 - namespace: aws:elasticbeanstalk:command
 option_name: Timeout
 value: 900
```

### To configure a command timeout using the API

- Call **CreateEnvironment** or **UpdateEnvironment** with the following parameters:
  - `EnvironmentName` = `SampleAppEnv2`
  - `VersionLabel` = `Version2`
  - `SolutionStackName` = `32bit Amazon Linux running Tomcat 6`
  - `ApplicationName` = `SampleApp`
  - `OptionSettings.member.1.Namespace` = `aws:elasticbeanstalk:command`
  - `OptionSettings.member.1.OptionName` = `Timeout`
  - `OptionSettings.member.1.Value` = `900`

## Example

```
https://elasticbeanstalk.us-west-2.amazonaws.com/?ApplicationName=SampleApp
&VersionLabel=Version2
&EnvironmentName=SampleAppEnv2
&SolutionStackName=32bit%20Amazon%20Linux%20running%20Tomcat%206
&Operation=CreateEnvironment
&OptionSettings.member.1.Namespace=aws%3Aelasticbeanstalk%3Acommand
&OptionSettings.member.1.OptionName=Timeout
&OptionSettings.member.1.Value=900
&AuthParams
```

## Application Version Deployment Failed

### Error: Failed to create the AWS Elastic Beanstalk application version

Elastic Beanstalk displays this event message when one or more of the following is true:

- The size of the application version (.war or .zip file) exceeds 512 MB. You must reduce the size of your application source bundle if you want to upload it to your application.
- Your environment has reached the [maximum number of application versions](#). Delete unneeded versions or request a limit increase. For more information, see [Managing Application Versions](#) (p. 40).

## Troubleshooting Docker Containers

This section lists the most common Elastic Beanstalk error messages related to Docker containers, the cause of the errors, and how to resolve or work around them. These errors cause your environment to fail to enter a healthy, Green status. Error messages can appear as events on the Elastic Beanstalk console **Events** page or in the tail logs.

### Topics

- [Dockerfile Syntax Errors](#) (p. 815)
- [Dockerrun.aws.json Syntax Errors](#) (p. 816)
- [No EXPOSE Directive Found in Dockerfile](#) (p. 816)
- [Invalid EC2 Key Pair and/or S3 Bucket in Dockerrun.aws.json](#) (p. 817)
- [Invalid auth configuration file](#) (p. 817)

## Dockerfile Syntax Errors

### Error Messages

The **Events** page displays the following sequence of error messages:

```
[Instance: <instance ID> Module: AWSEBAutoScalingGroup ConfigSet: null] Command failed
on instance. Return code: 1 Output: Error occurred during build: Command hooks failed.
```

```
Failed to pull Docker image :latest: <date and timestamp> Invalid repository name (), only [a-
z0-9-_.] are allowed. Tail the logs for more details.
```

```
Script /opt/elasticbeanstalk/hooks/appdeploy/enact/01build.sh failed with returncode 1
```

Additionally, the tail log displays the following series of error messages:

cat: Dockerrun.aws.json: No such file or directory

*<date and timestamp>* Invalid repository name (), only [a-z0-9-\_.] are allowed

*<date and timestamp>* [ERROR] (1938 MainThread) [directoryHooksExecutor.py-33] [root directoryHooksExecutor error] Script /opt/elasticbeanstalk/hooks/appdeploy/enact/01build.sh failed with returncode 1

#### Cause

The dockerfile is syntactically incorrect.

#### Solution

Check the syntax of the dockerfile using a JSON validator. Also verify the dockerfile contents against the requirements described in [Single Container Docker Configuration \(p. 556\)](#).

## Dockerrun.aws.json Syntax Errors

### Error Messages

The **Events** page displays the following sequence of error messages:

[Instance: *<instance ID>* Module: AWSEBAutoScalingGroup ConfigSet: null] Command failed on instance. Return code: 1 Output: Error occurred during build: Command hooks failed.

Script /opt/elasticbeanstalk/hooks/appdeploy/enact/01build.sh failed with returncode 1

Failed to pull Docker image :latest: *<date and timestamp>* Invalid repository name (), only [a-z0-9-\_.] are allowed. Tail the logs for more details.

Additionally, the tail logs display the following sequence of error messages:

parse error: Invalid numeric literal

*<date and timestamp>* Invalid repository name (), only [a-z0-9-\_.] are allowed

[ERROR] (1942 MainThread) [directoryHooksExecutor.py-33] [root directoryHooksExecutor error] Script /opt/elasticbeanstalk/hooks/appdeploy/enact/01build.sh failed with returncode 1

#### Cause

The `dockerrun.aws.json` file is syntactically incorrect.

#### Solution

Check the syntax of the dockerfile using a JSON validator. Also verify the dockerfile contents against `<topic with dockerfile requirements>`.

## No EXPOSE Directive Found in Dockerfile

### Error Messages

The **Events** page includes the following error message:

No EXPOSE directive found in Dockerfile, abort deployment

#### Cause

The dockerfile or the `dockerrun.aws.json` file does not declare the container port.

#### Solution

Do one of the following to declare the port exposed on the image:

- In the dockerfile, include an `EXPOSE` instruction. For example:

```
EXPOSE 80
```

- In the `dockerrun.aws.json` file, include the `Ports` key. For example:

```
{
 "Ports": [
 {
 "ContainerPort": "80"
 }
]
}
```

**Note**

When the `dockerfile` exists and includes the `EXPOSE` instruction, Elastic Beanstalk ignores the `Ports` key and value in the `dockerrun.aws.json` file.

## Invalid EC2 Key Pair and/or S3 Bucket in Dockerrun.aws.json

**Error Messages**

The **Events** page displays the following sequence of error messages:

```
[Instance: <instance ID> Module: AWSEBAutoScalingGroup ConfigSet: null] Command failed on instance. Return code: 1 Output: Error occurred during build: Command hooks failed.
```

```
Failed to download authentication credentials <repository> from <bucket name>
```

```
Script /opt/elasticbeanstalk/hooks/appdeploy/enact/01build.sh failed with returncode 1
```

**Cause**

The `dockerrun.aws.json` provides an invalid EC2 key pair and/or S3 bucket for the `.dockercfg` file. Or, the instance profile does not have `GetObject` authorization for the S3 bucket.

**Solution**

Verify that the `.dockercfg` file contains a valid S3 bucket and EC2 key pair. Grant permissions for the action `s3:GetObject` to the IAM role in the instance profile. For details, go to [Managing Elastic Beanstalk Instance Profiles](#) (p. 333)

## Invalid auth configuration file

**Error Messages**

The **Events** page displays the following of error message:

```
Activity execution failed, because: WARNING: Invalid auth configuration file
```

**Cause**

Your authentication file (`config.json`) is not formatted correctly.

**Solution**

See [Using Images From a Private Repository](#) (p. 582).

# Elastic Beanstalk Resources

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The following related resources can help you as you work with this service.

- **Elastic Beanstalk API Reference** A comprehensive description of all SOAP and Query APIs. Additionally, it contains a list of all SOAP data types.
- **Elastic Beanstalk Sample Code and Libraries** – A link to the command line tool as well as a sample Java web application. See the links below for additional sample applications.
- **Elastic Beanstalk Technical FAQ** – The top questions developers have asked about this product.
- **Elastic Beanstalk Release Notes** – A high-level overview of the current release. This document specifically notes any new features, corrections, and known issues.
  
- **Classes & Workshops** – Links to role-based and specialty courses as well as self-paced labs to help sharpen your AWS skills and gain practical experience.
- **AWS Developer Tools** – Links to developer tools, SDKs, IDE toolkits, and command line tools for developing and managing AWS applications.
- **AWS Whitepapers** – Links to a comprehensive list of technical AWS whitepapers, covering topics such as architecture, security, and economics and authored by AWS Solutions Architects or other technical experts.
- **AWS Support Center** – The hub for creating and managing your AWS Support cases. Also includes links to other helpful resources, such as forums, technical FAQs, service health status, and AWS Trusted Advisor.
- **AWS Support** – The primary web page for information about AWS Support, a one-on-one, fast-response support channel to help you build and run applications in the cloud.
- **Contact Us** – A central contact point for inquiries concerning AWS billing, account, events, abuse, and other issues.
- **AWS Site Terms** – Detailed information about our copyright and trademark; your account, license, and site access; and other topics.

## Sample Applications

The following are download links to the sample applications that are deployed as part of [Getting Started Using Elastic Beanstalk \(p. 3\)](#).

- **Go** – [go-v1.zip](#)



- **Java with Tomcat** – [java-tomcat-v1.zip](#)
- **Java SE** – [java-se-jetty-maven-v1.zip](#)
- **.NET on Windows Server with IIS** – [dotnet-asp-v1.zip](#)
- **Node.js** – [nodejs-v1.zip](#)
- **PHP** – [php-v1.zip](#)
- **Python** – [python-v1.zip](#)
- **Ruby (Passenger Standalone)** – [ruby-passenger-v2.zip](#)
- **Ruby (Puma)** – [ruby-puma-v2.zip](#)
- **Single Container Docker** – [docker-singlecontainer-v1.zip](#)
- **Multicontainer Docker** – [docker-multicontainer-v2.zip](#)
- **Preconfigured Docker (Glassfish)** – [docker-glassfish-v1.zip](#)
- **Preconfigured Docker (Python 3.x)** – [docker-python-v1.zip](#)
- **Preconfigured Docker (Go)** – [docker-golang-v1.zip](#)

# Appendix

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## Topics

- [Customizing AWS Resources \(p. 820\)](#)
- [Platform History \(p. 821\)](#)

## Customizing AWS Resources

This section details the supported resources and type names available for customizing Elastic Beanstalk environments.

For information on updating AWS CloudFormation stacks, see [AWS CloudFormation Stack Updates](#) in the AWS CloudFormation User Guide.

## Topics

- [AWS Resource Types Reference \(p. 820\)](#)
- [Resource Property Types Reference \(p. 821\)](#)

## AWS Resource Types Reference

The following table lists the supported AWS resources and API versions used with Elastic Beanstalk applications.

As we add support for more resources, resource type identifiers will take the following form:

```
AWS:::aws-product-name:::data-type-name
```

AWS Resource	Resource Type Identifier	Supported API Version
Amazon CloudWatch	<a href="#">AWS::CloudWatch::Alarm</a>	2010-05-15
DynamoDB Table	<a href="#">AWS::DynamoDB::Table</a>	2010-05-15
Amazon ElastiCache Cache Cluster	<a href="#">AWS::ElastiCache::CacheCluster</a>	2011-07-15

AWS Resource	Resource Type Identifier	Supported API Version
Amazon ElastiCache Security Group	<a href="#">AWS::ElastiCache::SecurityGroup</a>	2011-07-15
Amazon ElastiCache Security Group Ingress	<a href="#">AWS::ElastiCache::SecurityGroupIngress</a>	2011-07-15
Amazon SNS Subscription	<a href="#">AWS::SNS::Subscription</a>	2010-03-31
Amazon SNS Topic	<a href="#">AWS::SNS::Topic</a>	2010-03-31
Amazon SQS Queue	<a href="#">AWS::SQS::Queue</a>	2009-02-01

Use `AWS::Region` to get the value of the region for the Elastic Beanstalk environment. Use this with the `Ref` function to retrieve the value.

## Resource Property Types Reference

See the following links for information about resource types supported by Elastic Beanstalk Extensions.

- [CloudWatch Metric Dimension Property Type](#)
- [DynamoDB Primary Key](#)
- [DynamoDB Provisioned Throughput](#)
- [SNS Subscription Property Type](#)

## Platform History

### Topics

- [Docker Platform History \(p. 821\)](#)
- [Preconfigured Docker Platform History \(p. 830\)](#)
- [Go Platform History \(p. 849\)](#)
- [Tomcat Platform History \(p. 851\)](#)
- [Java SE Platform History \(p. 866\)](#)
- [.NET on Windows Server with IIS Platform History \(p. 869\)](#)
- [Node.js Platform History \(p. 885\)](#)
- [PHP Platform History \(p. 897\)](#)
- [Python Platform History \(p. 912\)](#)
- [Ruby Platform History \(p. 922\)](#)

## Docker Platform History

This page lists the previous versions of AWS Elastic Beanstalk's Docker platform configurations and the dates that each version was current. Configurations that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](https://aws.amazon.com/releases/notes).

Configuration and Solution Stack Name	AMI	Docker Version	Proxy Server
<b>Single Container Docker 1.11 version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Docker 1.11.2</i>	2016.03.3	1.11.2	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Docker Version	ECS Agent
<b>Multicontainer Docker 1.11 version 2.1.7</b>  <i>64bit Amazon Linux 2016.03 v2.1.7 running Multi-container Docker 1.11.2 (Generic)</i>	2016.03.3	1.11.2	1.11.2

Elastic Beanstalk supports the following platform configurations for Docker environments created between August 24, 2016 and September 15, 2016:

Configuration and Solution Stack Name	AMI	Docker Version	Proxy Server
<b>Single Container Docker 1.11 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Docker 1.11.1</i>	2016.03.2	1.11.1	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Docker Version	ECS Agent
<b>Multicontainer Docker 1.11 version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Multi-container Docker 1.11.2 (Generic)</i>	2016.03.3	1.11.2	1.11.1

Elastic Beanstalk supports the following platform configurations for Docker environments created between June 26, 2016 and August 24, 2016:

Configuration and Solution Stack Name	AMI	Docker Version	Proxy Server
<b>Single Container Docker 1.11 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Docker 1.11.1</i>	2016.03.2	1.11.1	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Docker Version	ECS Agent
<b>Multicontainer Docker 1.11 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Multi-container Docker 1.11.1 (Generic)</i>	2016.03.2	1.11.1	1.10.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between May 9, 2016 and June 26, 2016:

Configuration and Solution Stack Name	AMI	Docker Version	Proxy Server
<b>Single Container Docker 1.9 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Docker 1.9.1</i>	2016.03	1.9.1	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Docker Version	ECS Agent
<b>Multicontainer Docker 1.9 version 2.1.1</b>  <i>64bit Amazon Linux 2016.03 v2.1.1 running Multi-container Docker 1.9.1 (Generic)</i>	2016.03	1.9.1	1.8.2

Elastic Beanstalk supports the following platform configurations for Docker environments created between April 7, 2016 and May 9, 2016:

Configuration and Solution Stack Name	AMI	Docker Version	Proxy Server
<b>Single Container Docker 1.9 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Docker 1.9.1</i>	2016.03	1.9.1	nginx 1.8.1
<b>Multicontainer Docker 1.9 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Multi-container Docker 1.9.1 (Generic)</i>	2016.03	1.9.1	<i>none</i>

Elastic Beanstalk supports the following platform configurations for Docker environments created between February 26, 2016 and April 7, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.9 version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Docker 1.9.1</i>	2015.09	1.9.1	nginx 1.8.0
<b>Multicontainer Docker 1.9 version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Multi-container Docker 1.9.1 (Generic)</i>	2015.09	1.9.1	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between February 11, 2016 and February 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.9 version 2.0.7</b>  <i>64bit Amazon Linux 2015.09 v2.0.7 running Docker 1.9.1</i>	2015.09	1.9.1	nginx 1.8.0
<b>Multicontainer Docker 1.9 version 2.0.7</b>  <i>64bit Amazon Linux 2015.09 v2.0.7 running Multi-container Docker 1.9.1 (Generic)</i>	2015.09	1.9.1	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between January 11, 2016 and February 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.7 version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Docker 1.7.1</i>	2015.09	1.7.1	nginx 1.8.0
<b>Multicontainer Docker 1.7 version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Multi-container Docker 1.7.1 (Generic)</i>	2015.09	1.7.1	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between November 4, 2015 and January 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.7 version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Docker 1.7.1</i>	2015.09	1.7.1	nginx 1.8.0
<b>Multicontainer Docker 1.7 version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Multi-container Docker 1.7.1 (Generic)</i>	2015.09	1.7.1	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between September 25, 2015 and November 4, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.7 version 2.0.2</b>  <i>64bit Amazon Linux 2015.03 v2.0.2 running Docker 1.7.1</i>	2015.03	1.7.1	Nginx 1.6.2
<b>Multicontainer Docker 1.7 version 2.0.2</b>  <i>64bit Amazon Linux 2015.03 v2.0.2 running Multi-container Docker 1.7.1 (Generic)</i>	2015.03	1.7.1	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between September 18, 2015 and September 25, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.6 version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Docker 1.6.2</i>	2015.03	1.6.2	nginx 1.6.2
<b>Multicontainer Docker 1.6 version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Multi-container Docker 1.6.2 (Generic)</i>	2015.03	1.6.2	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between August 11, 2015 and September 18, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.6 version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Docker 1.6.2</i>	2015.03	1.6.2	nginx 1.6.2
<b>Multicontainer Docker 1.6 version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Multi-container Docker 1.6.2 (Generic)</i>	2015.03	1.6.2	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between August 3, 2015 and August 11, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.6 version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Docker 1.6.2</i>	2015.03	1.6.2	nginx 1.6.2
<b>Multicontainer Docker 1.6 version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Multi-container Docker 1.6.2 (Generic)</i>	2015.03	1.6.2	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between July 23, 2015 and August 3, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Docker Version</b>	<b>Web Server</b>
<b>Single Container Docker 1.6 version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Docker 1.6.2</i>	2015.03	1.6.2	nginx 1.6.2
<b>Multicontainer Docker 1.6 version 1.4.5</b>  <i>64bit Amazon Linux 2015.03 v1.4.5 running Multi-container Docker 1.6.2 (Generic)</i>	2015.03	1.6.2	none

Elastic Beanstalk supports the following platform configurations for Docker environments created between June 15, 2015 and July 23, 2015:



Configuration and <i>Solution Stack Name</i>	AMI	Docker Version
<b>Single Container Docker 1.6 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running Docker 1.6.2</i>	2015.03	1.6.2
<b>Multicontainer Docker 1.6 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running Multi-container Docker 1.6.2 (Generic)</i>	2015.03	1.6.2

Elastic Beanstalk supports the following platform configurations for Docker environments created between May 27, 2015 and June 15, 2015:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2015.03 v1.4.1 running Single Container Docker 1.6.0	2015.03	1.6.0
64bit Amazon Linux 2015.03 v1.4.1 running Multi-container Docker 1.6.0 (Generic)	2015.03	1.6.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between May 8, 2015 and May 26, 2015:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2015.03 v1.4.0 running Docker 1.6.0 <sup>1</sup>	2015.03	1.6.0
64bit Amazon Linux 2015.03 v1.4.0 running Multicontainer Docker 1.6.0 (Generic) <sup>1</sup>	2015.03	1.6.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between April 22, 2015 and May 7, 2015:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2015.03 v1.3.1 running Docker 1.5.0	2015.03	1.5.0
64bit Amazon Linux 2014.09 v1.2.1 running Multicontainer Docker 1.3.3 (Generic)	2014.09	1.3.3
64bit Amazon Linux 2014.09 v1.2.0 running Multicontainer Docker 1.3.3 (Generic)	2014.09	1.3.3

Elastic Beanstalk supports the following platform configurations for Docker environments created between March 24, 2015 and April 21, 2015:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.09 v1.2.1 running Docker 1.5.0	2014.09	1.5.0
64bit Amazon Linux 2014.09 v1.2.0 running Multicontainer Docker 1.3.3 (Generic)	2014.09	1.3.3

Elastic Beanstalk supports the following platform configurations for Docker environments created between February 17, 2015 and March 23, 2015:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.09 v1.2.0 running Docker 1.3.3	2014.09	1.3.3

Elastic Beanstalk supports the following platform configurations for Docker environments created between January 28, 2015 and February 16, 2015:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.09 <sup>1</sup> v1.1.0 running Docker 1.3.3	2014.09	1.3.3

Elastic Beanstalk supports the following platform configurations for Docker environments created between December 13, 2014 and January 27, 2015:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.09 <sup>1</sup> v1.0.11 running Docker 1.3.3	2014.09	1.3.3

Elastic Beanstalk supports the following platform configurations for Docker environments created between November 26, 2014 and December 12, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.09 v1.0.10 running Docker 1.3.2	2014.09	1.3.2

Elastic Beanstalk supports the following platform configurations for Docker environments created between October 16, 2014 and November 25, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running Docker 1.2.0	2014.09	1.2.0
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Docker 1.0.0	2014.03	1.0.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between October 9, 2014 and October 15, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.09 v1.0.8 running Docker 1.2.0	2014.09	1.2.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between September 24, 2014 and October 8, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Docker 1.0.0	2014.03	1.0.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between June 30, 2014 and September 23, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.03 v1.0.1 running Docker 1.0.0	2014.03	1.0.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between June 16, 2014 and June 29, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.03 v1.0.0 running Docker 1.0.0	2014.03	1.0.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between June 5, 2014 and June 15, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.03 v1.0.5 <sup>1</sup> running Docker 0.9.0	2014.03	0.9.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between May 5, 2014 and June 4, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.03 v1.0.4 running Docker 0.9.0	2014.03	0.9.0

Elastic Beanstalk supports the following platform configurations for Docker environments created between April 29, 2014 and May 4, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.03 v1.0.3 running Docker 0.9.0	2014.03	0.9.0

Elastic Beanstalk supports the following container types for environments created with Docker containers prior to April 28, 2014:

Docker Configurations		
Name	AMI	Docker Version
64bit Amazon Linux 2014.03 v1.0.2 running Docker 0.9.0	2014.03	0.9.0

## Preconfigured Docker Platform History

This page lists the previous versions of AWS Elastic Beanstalk's preconfigured Docker platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between August 24, 2016 and October 27, 2016:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.1.6</b>  <i>64bit Debian jessie v2.1.6 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.2	Debian Jessie	Java 8	nginx 1.8.1	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.1.6</b>  <i>64bit Debian jessie v2.1.6 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.2	Debian Jessie	Java 7	nginx 1.8.1	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.1.6</b>  <i>64bit Debian jessie v2.1.6 running Go 1.4 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.2	Debian Jessie	Go 1.4.2	nginx 1.8.1	none	golang:1.4.2-onbuild
<b>Go 1.3 (Docker) version 2.1.6</b>  <i>64bit Debian jessie v2.1.6 running Go 1.3 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.2	Debian Jessie	Go 1.3.3	nginx 1.8.1	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.1.6</b>  <i>64bit Debian jessie v2.1.6 running Python 3.4 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.2	Debian Jessie	Python 3.4	nginx 1.8.1	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between between June 26, 2016 and August 24, 2016:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.1.3</b>  <i>64bit Debian jessie v2.1.3 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.1	Debian Jessie	Java 8	nginx 1.8.1	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.1.3</b>  <i>64bit Debian jessie v2.1.3 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.1	Debian Jessie	Java 7	nginx 1.8.1	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.1.3</b>  <i>64bit Debian jessie v2.1.3 running Go 1.4 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.1	Debian Jessie	Go 1.4.2	nginx 1.8.1	none	golang:1.4.2-onbuild
<b>Go 1.3 (Docker) version 2.1.3</b>  <i>64bit Debian jessie v2.1.3 running Go 1.3 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.1	Debian Jessie	Go 1.3.3	nginx 1.8.1	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.1.3</b>  <i>64bit Debian jessie v2.1.3 running Python 3.4 (Preconfigured - Docker)</i>	2016.03.01	Docker 1.11.1	Debian Jessie	Python 3.4	nginx 1.8.1	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between between April 7, 2016 and June 26, 2016:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.1.0</b>  <i>64bit Debian jessie v2.1.0 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2016.03	Docker 1.9.1	Debian Jessie	Java 8	nginx 1.8.1	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.1.0</b>  <i>64bit Debian jessie v2.1.0 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2016.03	Docker 1.9.1	Debian Jessie	Java 7	nginx 1.8.1	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.1.0</b>  <i>64bit Debian jessie v2.1.0 running Go 1.4 (Preconfigured - Docker)</i>	2016.03	Docker 1.9.1	Debian Jessie	Go 1.4.2	nginx 1.8.1	none	golang:1.4.2-onbuild
<b>Go 1.3 (Docker) version 2.1.0</b>  <i>64bit Debian jessie v2.1.0 running Go 1.3 (Preconfigured - Docker)</i>	2016.03	Docker 1.9.1	Debian Jessie	Go 1.3.3	nginx 1.8.1	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.1.0</b>  <i>64bit Debian jessie v2.1.0 running Python 3.4 (Preconfigured - Docker)</i>	2016.03	Docker 1.9.1	Debian Jessie	Python 3.4	nginx 1.8.1	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between February 26, 2016 and April 7, 2016:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.0.8</b>  <i>64bit Debian jessie v2.0.8 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Java 8	nginx 1.8.0	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.0.8</b>  <i>64bit Debian jessie v2.0.8 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Java 7	nginx 1.8.0	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.0.8</b>  <i>64bit Debian jessie v2.0.8 running Go 1.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Go 1.4.1	nginx 1.8.0	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 2.0.8</b>  <i>64bit Debian jessie v2.0.8 running Go 1.3 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Go 1.3.3	nginx 1.8.0	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.0.8</b>  <i>64bit Debian jessie v2.0.8 running Python 3.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Python 3.4	nginx 1.8.0	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between February 11, 2016 and February 26, 2016:



Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.0.7</b>  <i>64bit Debian jessie v2.0.7 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Java 8	nginx 1.8.0	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.0.7</b>  <i>64bit Debian jessie v2.0.7 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Java 7	nginx 1.8.0	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.0.7</b>  <i>64bit Debian jessie v2.0.7 running Go 1.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Go 1.4.1	nginx 1.8.0	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 2.0.7</b>  <i>64bit Debian jessie v2.0.7 running Go 1.3 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Go 1.3.3	nginx 1.8.0	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.0.7</b>  <i>64bit Debian jessie v2.0.7 running Python 3.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.9.1	Debian Jessie	Python 3.4	nginx 1.8.0	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between January 11, 2016 and February 11, 2016:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.0.6</b>  <i>64bit Debian jessie v2.0.6 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Java 1.8.0_40	nginx 1.8.0	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.0.6</b>  <i>64bit Debian jessie v2.0.6 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Java 1.7.0_65	nginx 1.8.0	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.0.6</b>  <i>64bit Debian jessie v2.0.6 running Go 1.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Go 1.4.1	nginx 1.8.0	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 2.0.6</b>  <i>64bit Debian jessie v2.0.6 running Go 1.3 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Go 1.3.3	nginx 1.8.0	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.0.6</b>  <i>64bit Debian jessie v2.0.6 running Python 3.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Python 3.4	nginx 1.8.0	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between November 4, 2015 and January 11, 2016:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.0.4</b>  <i>64bit Debian jessie v2.0.4 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Java 1.8.0_40	nginx 1.8.0	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.0.4</b>  <i>64bit Debian jessie v2.0.4 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Java 1.7.0_65	nginx 1.8.0	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.0.4</b>  <i>64bit Debian jessie v2.0.4 running Go 1.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Go 1.4.1	nginx 1.8.0	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 2.0.4</b>  <i>64bit Debian jessie v2.0.4 running Go 1.3 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Go 1.3.3	nginx 1.8.0	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.0.4</b>  <i>64bit Debian jessie v2.0.4 running Python 3.4 (Preconfigured - Docker)</i>	2015.09	Docker 1.7.1	Debian Jessie	Python 3.4	nginx 1.8.0	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between September 25, 2015 and November 4, 2015:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.0.2</b>  <i>64bit Debian jessie v2.0.2 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.03	Docker 1.7.1	Debian Jessie	Java 1.8.0_40	Nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.0.2</b>  <i>64bit Debian jessie v2.0.2 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.03	Docker 1.7.1	Debian Jessie	Java 1.7.0_65	Nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.0.2</b>  <i>64bit Debian jessie v2.0.2 running Go 1.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.7.1	Debian Jessie	Go 1.4.1	Nginx 1.6.2	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 2.0.2</b>  <i>64bit Debian jessie v2.0.2 running Go 1.3 (Preconfigured - Docker)</i>	2015.03	Docker 1.7.1	Debian Jessie	Go 1.3.3	Nginx 1.6.2	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.0.2</b>  <i>64bit Debian jessie v2.0.2 running Python 3.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.7.1	Debian Jessie	Python 3.4	Nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between September 18, 2015 and September 25, 2015:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.0.1</b>  <i>64bit Debian jessie v2.0.1 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.8.0_40	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.0.1</b>  <i>64bit Debian jessie v2.0.1 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.7.0_65	nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.0.1</b>  <i>64bit Debian jessie v2.0.1 running Go 1.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.4.1	nginx 1.6.2	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 2.0.1</b>  <i>64bit Debian jessie v2.0.1 running Go 1.3 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.3.3	nginx 1.6.2	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.0.1</b>  <i>64bit Debian jessie v2.0.1 running Python 3.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between August 11, 2015 and September 18, 2015:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 2.0.0</b>  <i>64bit Debian jessie v2.0.0 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.8.0_40	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 2.0.0</b>  <i>64bit Debian jessie v2.0.0 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.7.0_65	nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 2.0.0</b>  <i>64bit Debian jessie v2.0.0 running Go 1.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.4.1	nginx 1.6.2	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 2.0.0</b>  <i>64bit Debian jessie v2.0.0 running Go 1.3 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.3.3	nginx 1.6.2	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 2.0.0</b>  <i>64bit Debian jessie v2.0.0 running Python 3.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between August 3, 2015 and August 11, 2015:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 1.4.6</b>  <i>64bit Debian jessie v1.4.6 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.8.0_40	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 1.4.6</b>  <i>64bit Debian jessie v1.4.6 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.7.0_65	nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 1.4.6</b>  <i>64bit Debian jessie v1.4.6 running Go 1.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.4.1	nginx 1.6.2	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 1.4.6</b>  <i>64bit Debian jessie v1.4.6 running Go 1.3 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.3.3	nginx 1.6.2	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 1.4.6</b>  <i>64bit Debian jessie v1.4.6 running Python 3.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between June 15, 2015 and August 3, 2015:

Configuration and Solution Stack Name	AMI	Platform	Container OS	Language	Proxy Server	Application Server	Docker Image
<b>Glassfish 4.1 (Docker) version 1.4.3</b>  <i>64bit Debian jessie v1.4.3 running GlassFish 4.1 Java 8 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.8.0_40	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
<b>Glassfish 4.0 (Docker) version 1.4.3</b>  <i>64bit Debian jessie v1.4.3 running GlassFish 4.0 Java 7 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Java 1.7.0_65	nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
<b>Go 1.4 (Docker) version 1.4.3</b>  <i>64bit Debian jessie v1.4.3 running Go 1.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.4.1	nginx 1.6.2	none	golang:1.4.1-onbuild
<b>Go 1.3 (Docker) version 1.4.3</b>  <i>64bit Debian jessie v1.4.3 running Go 1.3 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Go 1.3.3	nginx 1.6.2	none	golang:1.3.3-onbuild
<b>Python 3.4 with uWSGI 2 (Docker) version 1.4.3</b>  <i>64bit Debian jessie v1.4.3 running Python 3.4 (Preconfigured - Docker)</i>	2015.03	Docker 1.6.2	Debian Jessie	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between May 27, 2015 and June 15, 2015:

Preconfigured Docker Configurations							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name



Preconfigured Docker Configurations							
64bit Debian Jessie v1.4.1 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2015.0	Debian Jessie	1.6.0	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/ aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
64bit Debian Jessie v1.4.1 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2015.0	Debian Jessie	1.6.0	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/ aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
64bit Debian Jessie v1.4.1 running Go 1.4 (Preconfigured - Docker)	2015.0	Debian Jessie	1.6.0	Go 1.4.1	nginx 1.6.2		golang:1.4.1-onbuild
64bit Debian Jessie v1.4.1 running Go 1.3 (Preconfigured - Docker)	2015.0	Debian Jessie	1.6.0	Go 1.3.3	nginx 1.6.2		golang:1.3.3-onbuild
64bit Debian Jessie v1.4.1 running Python 3.4 (Preconfigured - Docker)	2015.0	Debian Jessie	1.6.0	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/ aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between May 8, 2015 and May 26, 2015:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.4.0 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2015.0	Debian Jessie	1.6.0	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/ aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1

Preconfigured Docker Container Types							
64bit Debian Jessie v1.4.0 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2015	Debian Jessie	1.6.0	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/ aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
64bit Debian Jessie v1.4.0 running Go 1.4 (Preconfigured - Docker)	2015	Debian Jessie	1.6.0	Go 1.4.1	nginx 1.6.2		golang:1.4.1-onbuild
64bit Debian Jessie v1.4.0 running Go 1.3 (Preconfigured - Docker)	2015	Debian Jessie	1.6.0	Go 1.3.3	nginx 1.6.2		golang:1.3.3-onbuild
64bit Debian Jessie v1.3.1 running Python 3.4 (Preconfigured - Docker)	2015	Debian Jessie	1.6.0	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/ aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between April 22, 2015 and May 7, 2015:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.3.1 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2015	Debian Jessie	1.5.0	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/ aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
64bit Debian Jessie v1.3.1 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2015	Debian Jessie	1.5.0	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/ aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1

Preconfigured Docker Container Types							
64bit Debian Jessie v1.3.1 running Go 1.4 (Preconfigured - Docker)	2015	Debian Jessie	1.5.0	Go 1.4.1	nginx 1.6.2		golang:1.4.1-onbuild
64bit Debian Jessie v1.3.1 running Go 1.3 (Preconfigured - Docker)	2015	Debian Jessie	1.5.0	Go 1.3.3	nginx 1.6.2		golang:1.3.3-onbuild
64bit Debian Jessie v1.3.1 running Python 3.4 (Preconfigured - Docker)	2015	Debian Jessie	1.5.0	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between March 24, 2015 and April 21, 2015:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.2.1 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2014	Debian Jessie	1.5.0	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
64bit Debian Jessie v1.2.1 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2014	Debian Jessie	1.5.0	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
64bit Debian Jessie v1.2.1 running Go 1.4 (Preconfigured - Docker)	2014	Debian Jessie	1.5.0	Go 1.4.1	nginx 1.6.2		golang:1.4.1-onbuild

Preconfigured Docker Container Types							
64bit Debian Jessie v1.2.1 running Go 1.3 (Preconfigured - Docker)	2014	Debian Jessie	1.5.0	Go 1.3.3	nginx 1.6.2		golang:1.3.3-onbuild
64bit Debian Jessie v1.2.1 running Python 3.4 (Preconfigured - Docker)	2014	Debian Jessie	1.5.0	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between February 17, 2015 and March 23, 2015:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.2.0 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
64bit Debian Jessie v1.2.0 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
64bit Debian Jessie v1.2.0 running Go 1.4 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Go 1.4.1	nginx 1.6.2		golang:1.4.1-onbuild
64bit Debian Jessie v1.2.0 running Go 1.3 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Go 1.3.3	nginx 1.6.2		golang:1.3.3-onbuild

Preconfigured Docker Container Types							
64bit Debian Jessie v1.2.0 running Python 3.4 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/ aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between February 6, 2015 and February 16, 2015:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Docker Image Name	
64bit Debian Jessie v1.1.0 running Go 1.3 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Go 1.3.3	nginx 1.6.2	golang:1.3.3-onbuild	
64bit Debian Jessie v1.1.0 running Go 1.4 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Go 1.4.1	nginx 1.6.2	golang:1.4.1-onbuild	

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between January 28, 2015 and February 5, 2015:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.1.0 <sup>1</sup> running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/ aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
64bit Debian Jessie v1.1.0 <sup>1</sup> running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/ aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1

Preconfigured Docker Container Types							
64bit Debian Jessie v1.1.0 <sup>1</sup> running Python 3.4 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between December 13, 2014 and January 27, 2015:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.0.2 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3 <sup>1</sup>	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
64bit Debian Jessie v1.0.2 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3 <sup>1</sup>	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
64bit Debian Jessie v1.0.2 running Python 3.4 (Preconfigured - Docker)	2014	Debian Jessie	1.3.3 <sup>1</sup>	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following platform configurations for preconfigured Docker environments created between November 26, 2014 and December 12, 2014:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.0.1 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2014	Debian Jessie	1.3.2	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1

Preconfigured Docker Container Types							
64bit Debian Jessie v1.0.1 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2014	Debian Jessie	1.3.2	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/ aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
64bit Debian Jessie v1.0.1 running Python 3.4 (Preconfigured - Docker)	2014	Debian Jessie	1.3.2	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/ aws-eb-python:3.4.2-onbuild-3.5.1

Elastic Beanstalk supports the following container types for environments created with preconfigured Docker containers prior to November 25, 2014:

Preconfigured Docker Container Types							
Name	AMI	Container Operating System	Docker Version	Language	Proxy Server	Application Server	Docker Image Name
64bit Debian Jessie v1.0.0 running Glassfish 4.1 Java 8 (Preconfigured - Docker)	2014	Debian Jessie	1.2.0	Java 8	nginx 1.6.2	Glassfish 4.1	amazon/ aws-eb-glassfish:4.1-jdk8-onbuild-3.5.1
64bit Debian Jessie v1.0.0 running Glassfish 4.0 Java 7 (Preconfigured - Docker)	2014	Debian Jessie	1.2.0	Java 7	nginx 1.6.2	Glassfish 4.0	amazon/ aws-eb-glassfish:4.0-jdk7-onbuild-3.5.1
64bit Debian Jessie v1.0.0 running Python 3.4 (Preconfigured - Docker)	2014	Debian Jessie	1.2.0	Python 3.4	nginx 1.6.2	uWSGI 2.0.8	amazon/ aws-eb-python:3.4.2-onbuild-3.5.1

## Go Platform History

This page lists the previous versions of AWS Elastic Beanstalk's Java platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for Go environments created between August 24, 2016 and October 27, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Proxy Server</b>
<b>Go 1.5 version 2.1.6</b> <i>64bit Amazon Linux 2016.03 v2.1.6 running Go 1.5</i>	2016.03.3	Go 1.5.3	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Go environments created between June 26, 2016 and August 24, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Proxy Server</b>
<b>Go 1.5 version 2.1.3</b> <i>64bit Amazon Linux 2016.03 v2.1.3 running Go 1.5</i>	2016.03.2	Go 1.5.3	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Go environments created between April 7, 2016 and June 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Proxy Server</b>
<b>Go 1.4 version 2.1.0</b> <i>64bit Amazon Linux 2016.03 v2.1.0 running Go 1.4</i>	2016.03	Go 1.4.2	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Go environments created between February 26, 2016 and April 7, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Go 1.4 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running Go 1.4</i>	2015.09	Go 1.4.2	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Go environments created between February 11, 2016 and February 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Go 1.4 version 2.0.7</b>	2015.09	Go 1.4.2	nginx 1.8.0



<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<i>64bit Amazon Linux 2015.09 v2.0.7 running Go 1.4</i>			

Elastic Beanstalk supports the following platform configurations for Go environments created between January 11, 2016 and February 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Go 1.4 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running Go 1.4</i>	2015.09	Go 1.4.2	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Go environments created between November 3, 2015 and January 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Go 1.4 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running Go 1.4</i>	2015.09	Go 1.4.2	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Go environments created between September 28, 2015 and November 3, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Go 1.4 version 2.0.3</b> <i>64bit Amazon Linux 2015.03 v2.0.3 running Go 1.4</i>	2015.03	Go 1.4.2	nginx 1.6.2

## Tomcat Platform History

This page lists the previous versions of AWS Elastic Beanstalk's Tomcat platform configurations and the dates that each version was current. Platform versions that you have used to launch an environment remain available after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between August 24, 2016 and October 27, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Proxy Server</b>
<b>Java 8 with Tomcat 8 version 2.2.0</b>  <i>64bit Amazon Linux 2016.03 v2.2.0 running Tomcat 8 Java 8</i>	2016.03.0	Java 1.8.0_101	Tomcat 8.0.36	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.2.0</b>  <i>64bit Amazon Linux 2016.03 v2.2.0 running Tomcat 7 Java 7</i>	2016.03.0	Java 1.7.0_111	Tomcat 7.0.70	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.2.0</b>  <i>64bit Amazon Linux 2016.03 v2.2.0 running Tomcat 7 Java 6</i>	2016.03.0	Java 1.6.0_39	Tomcat 7.0.70	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between June 26, 2016 and August 24, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Proxy Server</b>
<b>Java 8 with Tomcat 8 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Tomcat 8 Java 8</i>	2016.03.0	Java 1.8.0_91	Tomcat 8.0.35	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Tomcat 7 Java 7</i>	2016.03.0	Java 1.7.0_101	Tomcat 7.0.69	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Tomcat 7 Java 6</i>	2016.03.0	Java 1.6.0_38	Tomcat 7.0.69	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between May 6, 2016 and June 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Proxy Server</b>
<b>Java 8 with Tomcat 8 version 2.1.1</b>  <i>64bit Amazon Linux 2016.03 v2.1.1 running Tomcat 8 Java 8</i>	2016.03	Java 1.8.0_91	Tomcat 8.0.32	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.1.1</b>  <i>64bit Amazon Linux 2016.03 v2.1.1 running Tomcat 7 Java 7</i>	2016.03	Java 1.7.0_101	Tomcat 7.0.68	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.1.1</b>  <i>64bit Amazon Linux 2016.03 v2.1.1 running Tomcat 7 Java 6</i>	2016.03	Java 1.6.0_38	Tomcat 7.0.68	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between April 7, 2016 and May 6, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Proxy Server</b>
<b>Java 8 with Tomcat 8 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Tomcat 8 Java 8</i>	2016.03	Java 1.8.0_71	Tomcat 8.0.30	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Tomcat 7 Java 7</i>	2016.03	Java 1.7.0_95	Tomcat 7.0.67	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Tomcat 7 Java 6</i>	2016.03	Java 1.6.0_38	Tomcat 7.0.67	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between February 26, 2016 and April 7, 2016:

Configuration and Solution Stack Name	AMI	Language	Application Server	Web Server
<b>Java 8 with Tomcat 8 version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Tomcat 8 Java 8</i>	2015.09	Java 1.8.0_71	Tomcat 8.0.30	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Tomcat 7 Java 7</i>	2015.09	Java 1.7.0_95	Tomcat 7.0.67	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Tomcat 7 Java 6</i>	2015.09	Java 1.6.0_38	Tomcat 7.0.67	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between January 11, 2016 and February 11, 2016:

Configuration and Solution Stack Name	AMI	Language	Application Server	Web Server
<b>Java 8 with Tomcat 8 version 2.0.7</b>  <i>64bit Amazon Linux 2015.09 v2.0.7 running Tomcat 8 Java 8</i>	2015.09	Java 1.8.0_65	Tomcat 8.0.28	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.0.7</b>  <i>64bit Amazon Linux 2015.09 v2.0.7 running Tomcat 7 Java 7</i>	2015.09	Java 1.7.0_91	Tomcat 7.0.65	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.0.7</b>  <i>64bit Amazon Linux 2015.09 v2.0.7 running Tomcat 7 Java 6</i>	2015.09	Java 1.6.0_37	Tomcat 7.0.65	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between February 11, 2016 and February 26, 2016:

Configuration and Solution Stack Name	AMI	Language	Application Server	Web Server
<b>Java 8 with Tomcat 8 version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Tomcat 8 Java 8</i>	2015.09	Java 1.8.0_65	Tomcat 8.0.28	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Tomcat 7 Java 7</i>	2015.09	Java 1.7.0_91	Tomcat 7.0.65	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Tomcat 7 Java 6</i>	2015.09	Java 1.6.0_37	Tomcat 7.0.65	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between November 3, 2015 and January 11, 2016:

Configuration and Solution Stack Name	AMI	Language	Application Server	Web Server
<b>Java 8 with Tomcat 8 version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Tomcat 8 Java 8</i>	2015.09	Java 1.8.0_65	Tomcat 8.0.23	Apache 2.2.31
<b>Java 7 with Tomcat 7 version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Tomcat 7 Java 7</i>	2015.09	Java 1.7.0_91	Tomcat 7.0.62	Apache 2.2.31
<b>Java 6 with Tomcat 7 version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Tomcat 7 Java 6</i>	2015.09	Java 1.6.0_36	Tomcat 7.0.62	Apache 2.2.31

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between September 18, 2015 and November 3, 2015:

Configuration and Solution Stack Name	AMI	Language	Application Server	Web Server
<b>Java 8 with Tomcat 8 version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Tomcat 8 Java 8</i>	2015.03	Java 1.8.0_51	Tomcat 8.0.20	Apache 2.2.29
<b>Java 7 with Tomcat 7 version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Tomcat 7 Java 7</i>	2015.03	Java 1.7.0_85	Tomcat 7.0.62	Apache 2.2.29
<b>Java 6 with Tomcat 7 version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Tomcat 7 Java 6</i>	2015.03	Java 1.6.0_35	Tomcat 7.0.62	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between August 11, 2015 and September 18, 2015:

Configuration and Solution Stack Name	AMI	Language	Application Server	Web Server
<b>Java 8 with Tomcat 8 version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Tomcat 8 Java 8</i>	2015.03	Java 1.8.0_51	Tomcat 8.0.20	Apache 2.2.29
<b>Java 7 with Tomcat 7 version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Tomcat 7 Java 7</i>	2015.03	Java 1.7.0_85	Tomcat 7.0.62	Apache 2.2.29
<b>Java 6 with Tomcat 7 version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Tomcat 7 Java 6</i>	2015.03	Java 1.6.0_35	Tomcat 7.0.62	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between July 31, 2015 and August 11, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Java 8 with Tomcat 8 version 1.4.5</b>  <i>64bit Amazon Linux 2015.03 v1.4.5 running Tomcat 8 Java 8</i>	2015.03	Java 1.8.0_51	Tomcat 8.0.20	Apache 2.2.29
<b>Java 7 with Tomcat 7 version 1.4.5</b>  <i>64bit Amazon Linux 2015.03 v1.4.5 running Tomcat 7 Java 7</i>	2015.03	Java 1.7.0_85	Tomcat 7.0.62	Apache 2.2.29
<b>Java 6 with Tomcat 7 version 1.4.5</b>  <i>64bit Amazon Linux 2015.03 v1.4.5 running Tomcat 7 Java 6</i>	2015.03	Java 1.6.0_35	Tomcat 7.0.62	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between July 7, 2015 and July 31, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Java 8 with Tomcat 8 version 1.4.4</b>  <i>64bit Amazon Linux 2015.03 v1.4.4 running Tomcat 8 Java 8</i>	2015.03	Java 1.8.0_45	Tomcat 8.0.20	Apache 2.2.29
<b>Java 7 with Tomcat 7 version 1.4.4</b>  <i>64bit Amazon Linux 2015.03 v1.4.4 running Tomcat 7 Java 7</i>	2015.03	Java 1.7.0_79	Tomcat 7.0.62	Apache 2.2.29
<b>Java 6 with Tomcat 7 version 1.4.4</b>  <i>64bit Amazon Linux 2015.03 v1.4.4 running Tomcat 7 Java 6</i>	2015.03	Java 1.6.0_35	Tomcat 7.0.62	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between June 15, 2015 and July 7, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Java 8 with Tomcat 8 version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Tomcat 8 Java 8</i>	2015.03	Java 1.8.0_45	Tomcat 8.0.20	Apache 2.2.29
<b>Java 7 with Tomcat 7 version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Tomcat 7 Java 7</i>	2015.03	Java 1.7.0_79	Tomcat 7.0.62	Apache 2.2.29
<b>Java 6 with Tomcat 7 version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Tomcat 7 Java 6</i>	2015.03	Java 1.6.0_35	Tomcat 7.0.62	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between May 27, 2015 and June 15, 2015:

<b>Java Configurations</b>				
<b>Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
64bit Amazon Linux 2015.03 v1.4.1 running Tomcat 8 Java 8	2015.03	Java 1.8.0_31	Tomcat 8.0.20	Apache 2.2.29
64bit Amazon Linux 2015.03 v1.4.1 running Tomcat 7 Java 7	2015.03	Java 1.7.0_75	Tomcat 7.0.59	Apache 2.2.29
64bit Amazon Linux 2015.03 v1.4.1 running Tomcat 7 Java 6	2015.03	Java 1.6.0_34	Tomcat 7.0.59	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between April 22, 2015 and May 26, 2015:



Java Configurations				
Name	AMI	Language	Application Server	Web Server
64bit Amazon Linux 2015.03 v1.3.1 running Tomcat 8 Java 8	2015.03	Java 1.8.0_31	Tomcat 8.0.20	Apache 2.2.29
64bit Amazon Linux 2015.03 v1.3.1 running Tomcat 7 Java 7	2015.03	Java 1.7.0_75	Tomcat 7.0.59	Apache 2.2.29
64bit Amazon Linux 2015.03 v1.3.1 running Tomcat 7 Java 6	2015.03	Java 1.6.0_34	Tomcat 7.0.59	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between April 8, 2015 and April 21, 2015:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
64bit Amazon Linux 2015.03 v1.3.0 running Tomcat 8 Java 8	2015.03	Java 1.8.0_31	Tomcat 8.0.20	Apache 2.2.29
64bit Amazon Linux 2015.03 v1.3.0 running Tomcat 7 Java 7	2015.03	Java 1.7.0_75	Tomcat 7.0.59	Apache 2.2.29
64bit Amazon Linux 2015.03 v1.3.0 running Tomcat 7 Java 6	2015.03	Java 1.6.0_34	Tomcat 7.0.59	Apache 2.2.29

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between February 17, 2015 and April 7, 2015:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
64bit Amazon Linux 2014.09 v1.2.0 running Tomcat 8 Java 8	2014.09	Java 1.8.0_31	Tomcat 8.0.15	Apache 2.2.29
64bit Amazon Linux 2014.09 v1.2.0 running Tomcat 7 Java 7	2014.09	Java 1.7.0.75	Tomcat 7.0.57	Apache 2.2.29
64bit Amazon Linux 2014.09 v1.2.0 running Tomcat 7 Java 6	2014.09	Java 1.6.0_33	Tomcat 7.0.57	Apache 2.2.29

Java Configurations				
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between January 28, 2015 and February 16, 2015:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Tomcat 8 Java 8	2014.09	Java 1.8.0_31	Tomcat 8	Apache 2.2.29
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Tomcat 7 Java 7	2014.09	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Tomcat 7 Java 6	2014.09	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.71	Tomcat 7.0.55	Apache 2.2.29
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.71	Tomcat 7.0.55	Apache 2.2.29
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_33	Tomcat 7.0.55	Apache 2.2.29
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_33	Tomcat 7.0.55	Apache 2.2.29

<sup>1</sup>[CVE-2015-0235 Advisory \(Ghost\)](#)

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between November 6, 2014 and January 27, 2015:

Java Configurations				
Name	AMI	Language	Application Server	Web Server

Java Configurations				
64bit Amazon Linux 2014.09 v1.0.0 running Tomcat 8 Java 8	2014.09	Java 1.8.0_25	Tomcat 8	Apache 2.2.29
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running Tomcat 7 Java 7	2014.09	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running Tomcat 7 Java 6	2014.09	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between October 16, 2014 and November 5, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running Tomcat 7 Java 7	2014.09	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running Tomcat 7 Java 6	2014.09	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.55	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26

Java Configurations				
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.55	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between October 9, 2014 and October 15, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux 2014.09 v1.0.8 running Tomcat 7 Java 7	2014.09	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.09 v1.0.8 running Tomcat 7 Java 7	2014.09	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2014.09 v1.0.8 running Tomcat 7 Java 6	2014.09	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.09 v1.0.8 running Tomcat 7 Java 6	2014.09	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between September 24, 2014 and October 8, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between June 30, 2014 and September 23, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
64bit Amazon Linux 2014.03 v1.0.4 running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.4 running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between June 5, 2014 and June 29, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between May 5, 2014 and June 4, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux 2014.03 v1.0.2 running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.03 v1.0.2 running Tomcat 7 Java 7	2014.03	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2014.03 v1.0.2 running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26

Java Configurations				
64bit Amazon Linux 2014.03 v1.0.2 running Tomcat 7 Java 6	2014.03	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between April 7, 2014 and May 4, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Tomcat 7 Java 7	2013.09	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Tomcat 7 Java 7	2013.09	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Tomcat 7 Java 6	2013.09	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Tomcat 7 Java 6	2013.09	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Tomcat 7 Java 7	2013.09	Java 1.7.0_25	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Tomcat 7 Java 7	2013.09	Java 1.7.0_25	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Tomcat 7 Java 6	2013.09	Java 1.6.0_62	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Tomcat 7 Java 6	2013.09	Java 1.6.0_62	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux running Tomcat 6	2012.09	Java 1.6.0_24	Tomcat 6.0.35	Apache 2.2.22
64bit Amazon Linux running Tomcat 6	2012.09	Java 1.6.0_24	Tomcat 6.0.35	Apache 2.2.22

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between March 18, 2014 and April 6, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux 2014.02 running Tomcat 7 Java 7	2013.09	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.02 running Tomcat 7 Java 7	2013.09	Java 1.7.0.51	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2014.02 running Tomcat 7 Java 6	2013.09	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2014.02 running Tomcat 7 Java 6	2013.09	Java 1.6.0_24	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2013.09 running Tomcat 7 Java 7	2013.09	Java 1.7.0_25	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2013.09 running Tomcat 7 Java 7	2013.09	Java 1.7.0_25	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux 2013.09 running Tomcat 7 Java 6	2013.09	Java 1.6.0_62	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2013.09 running Tomcat 7 Java 6	2013.09	Java 1.6.0_62	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux running Tomcat 6	2012.09	Java 1.6.0_24	Tomcat 6.0.35	Apache 2.2.22
64bit Amazon Linux running Tomcat 6	2012.09	Java 1.6.0_24	Tomcat 6.0.35	Apache 2.2.22

Elastic Beanstalk supports the following platform configurations for Tomcat environments created between November 7, 2013 and March 17, 2014:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux 2013.09 running Tomcat 7 Java 7	2013.09	Java 1.7.0_25	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2013.09 running Tomcat 7 Java 7	2013.09	Java 1.7.0_25	Tomcat 7.0.47	Apache 2.2.26

Java Configurations				
32bit Amazon Linux 2013.09 running Tomcat 7 Java 6	2013.09	Java 1.6.0_62	Tomcat 7.0.47	Apache 2.2.26
64bit Amazon Linux 2013.09 running Tomcat 7 Java 6	2013.09	Java 1.6.0_62	Tomcat 7.0.47	Apache 2.2.26
32bit Amazon Linux running Tomcat 6	2012.09	Java 1.6.0_24	Tomcat 6.0.35	Apache 2.2.22
64bit Amazon Linux running Tomcat 6	2012.09	Java 1.6.0_24	Tomcat 6.0.35	Apache 2.2.22

Elastic Beanstalk supports the following platform configurations for Tomcat environments created prior to November 6, 2013:

Java Configurations				
Name	AMI	Language	Application Server	Web Server
32bit Amazon Linux running Tomcat 7	2012.09	Java 1.6.0_24	Tomcat 7.0.27	Apache 2.2.22
64bit Amazon Linux running Tomcat 7	2012.09	Java 1.6.0_24	Tomcat 7.0.27	Apache 2.2.22

## Java SE Platform History

This page lists the previous versions of AWS Elastic Beanstalk's Java platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for Java SE environments created between August 24, 2016 and October 27, 2016:

Configuration and Solution Stack Name	AMI	Language	Tools	Proxy Server
<b>Java 8 version 2.1.6</b> <i>64bit Amazon Linux 2016.03 v2.1.6 running Java 8</i>	2016.03.3	Java 1.8.0_101	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.8.1
<b>Java 7 version 2.1.6</b> <i>64bit Amazon Linux 2016.03 v2.1.6 running Java 7</i>	2016.03.3	Java 1.7.0_111	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.8.1



Elastic Beanstalk supports the following platform configurations for Java SE environments created between June 26, 2016 and August 24, 2016:

Configuration and Solution Stack Name	AMI	Language	Tools	Proxy Server
<b>Java 8 version 2.1.3</b> <i>64bit Amazon Linux 2016.03 v2.1.3 running Java 8</i>	2016.03.2	Java 1.8.0_91	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.8.1
<b>Java 7 version 2.1.3</b> <i>64bit Amazon Linux 2016.03 v2.1.3 running Java 7</i>	2016.03.2	Java 1.7.0_101	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Java SE environments created between May 6, 2016 and June 26, 2016:

Configuration and Solution Stack Name	AMI	Language	Tools	Proxy Server
<b>Java 8 version 2.1.1</b> <i>64bit Amazon Linux 2016.03 v2.1.1 running Java 8</i>	2016.03	Java 1.8.0_91	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.8.1
<b>Java 7 version 2.1.1</b> <i>64bit Amazon Linux 2016.03 v2.1.1 running Java 7</i>	2016.03	Java 1.7.0_101	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Java SE environments created between and April 7, 2016 and May 6, 2016:

Configuration and Solution Stack Name	AMI	Language	Tools	Proxy Server
<b>Java 8 version 2.1.0</b> <i>64bit Amazon Linux 2016.03 v2.1.0 running Java 8</i>	2016.03	Java 1.8.0_71	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.1
<b>Java 7 version 2.1.0</b> <i>64bit Amazon Linux 2016.03 v2.1.0 running Java 7</i>	2016.03	Java 1.7.0_95	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Java SE environments created between February 26, 2016 and April 7, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Tools</b>	<b>Web Server</b>
<b>Java 8 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running Java 8</i>	2015.09	Java 1.8.0_71	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0
<b>Java 7 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running Java 7</i>	2015.09	Java 1.7.0_95	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Java SE environments created between February 11, 2016 and February 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Tools</b>	<b>Web Server</b>
<b>Java 8 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running Java 8</i>	2015.09	Java 1.8.0_65	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0
<b>Java 7 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running Java 7</i>	2015.09	Java 1.7.0_91	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Java SE environments created between January 11, 2016 and February 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Tools</b>	<b>Web Server</b>
<b>Java 8 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running Java 8</i>	2015.09	Java 1.8.0_65	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0
<b>Java 7 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running Java 7</i>	2015.09	Java 1.7.0_91	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Java SE environments created between November 3, 2015 and January 11, 2016:

Configuration and Solution Stack Name	AMI	Language	Tools	Web Server
<b>Java 8 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running Java 8</i>	2015.09	Java 1.8.0_65	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0
<b>Java 7 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running Java 7</i>	2015.09	Java 1.7.0_91	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Java SE environments created between September 28, 2015 and November 3, 2015:

Configuration and Solution Stack Name	AMI	Language	Tools	Web Server
<b>Java 8 version 2.0.2</b> <i>64bit Amazon Linux 2015.03 v2.0.2 running Java 8</i>	2015.03	Java 1.8.0_51	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.6.2
<b>Java 7 version 2.0.2</b> <i>64bit Amazon Linux 2015.03 v2.0.2 running Java 7</i>	2015.03	Java 1.7.0_85	Ant 1.9.6 Gradle 2.7 Maven 3.3.3	nginx 1.6.2

## .NET on Windows Server with IIS Platform History

This page lists the previous versions of AWS Elastic Beanstalk's .NET platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for .NET environments created between September 26, 2016 and October 21, 2016:

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Config	WebDeployment	Proxy Server
<b>Windows Server 2012 R2 with IIS 8.5 version 1.2.0</b> <i>64bit Windows Server 2012 R2 v1.2.0 running IIS 8.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	3.19.1153.0	3.0	IIS 8.5

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2 Command	WebDeployment	Proxy Server
		ASP.NET Core v1.0.1				
<b>Windows Server 2012 R2 Server Core with IIS 8.5 version 1.2.0</b>  <i>64bit Windows Server Core 2012 R2 v1.2.0 running IIS 8.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0  ASP.NET Core v1.0.1	3.9.459.0	0.19.115360		IIS 8.5
<b>Windows Server 2012 with IIS 8 version 1.2.0</b>  <i>64bit Windows Server 2012 v1.2.0 running IIS 8</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0  ASP.NET Core v1.0.1	3.9.459.0	0.19.115360		IIS 8
<b>Windows Server 2008 R2 with IIS 7.5 version 1.2.0</b>  <i>64bit Windows Server 2008 R2 v1.2.0 running IIS 7.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0  ASP.NET Core v1.0.1	3.9.459.0	0.19.115360		IIS 7.5
<b>Windows Server 2012 R2 with IIS 8.5</b>  <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	0.19.115360		IIS 8.5
<b>Windows Server 2012 R2 Server Core with IIS 8.5</b>  <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	0.19.115360		IIS 8.5
<b>Windows Server 2012 with IIS 8</b>  <i>64bit Windows Server 2012 running IIS 8</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	0.19.115360		IIS 8

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2 Command	WebDeployment	Proxy Server
<b>Windows Server 2008 R2 with IIS 7.5</b>  <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.09.11	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.459.0	3.19.11.330	3.0	IIS 7.5

<sup>1</sup> [Microsoft Security Bulletin Summary for September 2016](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between August 23, 2016 and September 26, 2016:

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2 Command	WebDeployment	Proxy Server
<b>Windows Server 2012 R2 with IIS 8.5 version 1.2.0</b>  <i>64bit Windows Server 2012 R2 v1.2.0 running IIS 8.5</i>	2016.07.26	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0  ASP.NET Core v1.0	3.9.406.0	3.18.11.136	3.0	IIS 8.5
<b>Windows Server 2012 R2 Server Core with IIS 8.5 version 1.2.0</b>  <i>64bit Windows Server Core 2012 R2 v1.2.0 running IIS 8.5</i>	2016.07.26	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0  ASP.NET Core v1.0	3.9.406.0	3.18.11.136	3.0	IIS 8.5
<b>Windows Server 2012 with IIS 8 version 1.2.0</b>  <i>64bit Windows Server 2012 v1.2.0 running IIS 8</i>	2016.07.26	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0  ASP.NET Core v1.0	3.9.406.0	3.18.11.136	3.0	IIS 8
<b>Windows Server 2008 R2 with IIS 7.5 version 1.2.0</b>  <i>64bit Windows Server 2008 R2 v1.2.0 running IIS 7.5</i>	2016.07.26	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.406.0	3.18.11.136	3.0	IIS 7.5

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2 Command Line	WebDeployment	Proxy Server
		ASP.NET Core v1.0				
<b>Windows Server 2012 R2 with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.07.20	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.406.0	g.18.11.136	136	IIS 8.5
<b>Windows Server 2012 R2 Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.07.20	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.406.0	g.18.11.136	136	IIS 8.5
<b>Windows Server 2012 with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	2016.07.20	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.406.0	g.18.11.136	136	IIS 8
<b>Windows Server 2008 R2 with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.07.20	.NET v4.6.2, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.406.0	g.18.11.136	136	IIS 7.5

<sup>1</sup> [Microsoft Security Bulletin Summary for July 2016](#), [Microsoft Security Bulletin Summary for August 2016](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between June 21, 2016 and August 23, 2016:

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2 Command Line	WebDeployment	Proxy Server
<b>Windows Server 2012 R2 with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5</i>	2016.05.11	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	g.15.8803.6	03.6	IIS 8.5
<b>Windows Server 2012 R2 Server Core with IIS 8.5 version 1.1.0</b>	2016.05.11	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	g.15.8803.6	03.6	IIS 8.5

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Core	WebDeployment	Proxy Server
<i>64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5</i>						
<b>Windows Server 2012 with IIS 8 version 1.1.0</b> <i>64bit Windows Server 2012 v1.1.0 running IIS 8</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	3.15.880.6	3.6	IIS 8
<b>Windows Server 2008 R2 with IIS 7.5 version 1.1.0</b> <i>64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	3.15.880.6	3.6	IIS 7.5
<b>Windows Server 2012 R2 with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	3.15.880.6	3.6	IIS 8.5
<b>Windows Server 2012 R2 Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	3.15.880.6	3.6	IIS 8.5
<b>Windows Server 2012 with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	3.15.880.6	3.6	IIS 8
<b>Windows Server 2008 R2 with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	3.15.880.6	3.6	IIS 7.5

<sup>1</sup> [Microsoft Security Bulletin Summary for June 2016](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between May 25, 2016 and June 21, 2016:

Configuration and <i>Solution Stack Name</i>	AMI version	Framework	AWS SDK for .NET	EC2Co	WebDe	Proxy Server
<b>Windows Server 2012 R2 with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	0.15.880	0.6	IIS 8.5
<b>Windows Server 2012 R2 Server Core with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	0.15.880	0.6	IIS 8.5
<b>Windows Server 2012 with IIS 8 version 1.1.0</b> <i>64bit Windows Server 2012 v1.1.0 running IIS 8</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	0.15.880	0.6	IIS 8
<b>Windows Server 2008 R2 with IIS 7.5 version 1.1.0</b> <i>64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	0.15.880	0.6	IIS 7.5
<b>Windows Server 2012 R2 with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	0.15.880	0.6	IIS 8.5
<b>Windows Server 2012 R2 Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	0.15.880	0.6	IIS 8.5
<b>Windows Server 2012 with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	2016.05	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	0.15.880	0.6	IIS 8



Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Config	WebDeployment	Proxy Server
<b>Windows Server 2008 R2 with IIS 7.5</b>  <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.05.01	.NET v4.6.1, Supports runtimes 4, 2.0, 1.1 and 1.0	3.9.329.0	3.15.8803.6	3.6	IIS 7.5

<sup>1</sup> [Microsoft Security Bulletin Summary for May 2016](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between April 25, 2016 and May 25, 2016:

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Config	WebDeployment	Proxy Server
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5 version 1.1.0</b>  <i>64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5</i>	2016.03.01	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5 version 1.1.0</b>  <i>64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5</i>	2016.03.01	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8 version 1.1.0</b>  <i>64bit Windows Server 2012 v1.1.0 running IIS 8</i>	2016.03.01	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5 version 1.1.0</b>  <i>64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5</i>	2016.03.01	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 7.5
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b>  <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.03.01	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b>  <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.03.01	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 8.5

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Core	WebDe	Proxy Server
<i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>		Supports runtimes 4, 2.0, 1.1 and 1.0				
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	2016.03.09	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.03.09	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	3.8.306.0	3.14.7863.6	3.6	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for April 2016](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between March 23, 2016 and April 25, 2016:

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Core	Proxy Server
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5</i>	2016.02.11	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.0	3.12.649	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5</i>	2016.02.11	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.0	3.12.649	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8 version 1.1.0</b> <i>64bit Windows Server 2012 v1.1.0 running IIS 8</i>	2016.02.11	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.0	3.12.649	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5 version 1.1.0</b> <i>64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5</i>	2016.02.11	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.0	3.12.649	IIS 7.5

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Cor	Proxy Server
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.02.1	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.02.1	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	2016.02.1	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.02.1	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for March 2016](#)

For information on previous configurations, see [.NET on Windows Server with IIS Platform History](#) (p. 869).

Elastic Beanstalk supports the following platform configurations for .NET environments created between February 29, 2016 and March 23, 2016:

Configuration and Solution Stack Name	AMI version	Framework	AWS SDK for .NET	EC2Cor	Web Server
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5</i>	2016.01.2	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5</i>	2016.01.2	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8.5

Configuration and <i>Solution Stack Name</i>	AMI version	Framework	AWS SDK for .NET	EC2Cor	Web Server
<b>Windows Server 2012<sup>1</sup> with IIS 8 version 1.1.0</b> <i>64bit Windows Server 2012 v1.1.0 running IIS 8</i>	2016.01.25	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5 version 1.1.0</b> <i>64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5</i>	2016.01.25	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 7.5
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2016.01.25	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2016.01.25	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	2016.01.25	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2016.01.25	.NET v4.6.1 Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36	3.12.649	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for February 2016](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between January 28, 2016 and February 29, 2016:

Configuration and <i>Solution Stack Name</i>	AMI version	Framework	AWS SDK for .NET	Web Server
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5 version 1.1.0</b>	2015.12.3	.NET v4.6.1	v3.1.36	IIS 8.5

Configuration and <i>Solution Stack Name</i>	AMI version	Framework	AWS SDK for .NET	Web Server
<i>64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5</i>		Supports runtimes 4, 2.0, 1.1 and 1.0		
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5</i>	2015.12.3	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.1	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8 version 1.1.0</b> <i>64bit Windows Server 2012 v1.1.0 running IIS 8</i>	2015.12.3	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.1	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5 version 1.1.0</b> <i>64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5</i>	2015.12.3	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.1	IIS 7.5
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	2015.12.3	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.1	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	2015.12.3	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.1	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	2015.12.3	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.1	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	2015.12.3	.NET v4.6.1  Supports runtimes 4, 2.0, 1.1 and 1.0	v3.1.36.1	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for January 2016](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between December 15, 2015 and January 28, 2016:

Configuration and <i>Solution Stack Name</i>	Framework	Web Server
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5 version 1.1.0</b>	.NET v4.6	IIS 8.5

<b>Configuration and <i>Solution Stack Name</i></b>	<b>Framework</b>	<b>Web Server</b>
<i>64bit Windows Server 2012 R2 v1.1.0 running IIS 8.5</i>	Supports runtimes 4, 2.0, 1.1 and 1.0	
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5 version 1.1.0</b> <i>64bit Windows Server Core 2012 R2 v1.1.0 running IIS 8.5</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8 version 1.1.0</b> <i>64bit Windows Server 2012 v1.1.0 running IIS 8</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5 version 1.1.0</b> <i>64bit Windows Server 2008 R2 v1.1.0 running IIS 7.5</i>	.NET v4.5 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 7.5
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	.NET v4.5 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for November 2015](#), [Microsoft Security Bulletin Summary for December 2015](#)

For information on previous configurations, see [.NET on Windows Server with IIS Platform History](#) (p. 869).

Elastic Beanstalk supports the following platform configurations for .NET environments created between October 21, 2015 and December 15, 2015:

<b>Configuration and <i>Solution Stack Name</i></b>	<b>Framework</b>	<b>Web Server</b>
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5 version 1.0.0</b>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8.5

<b>Configuration and <i>Solution Stack Name</i></b>	<b>Framework</b>	<b>Web Server</b>
<i>64bit Windows Server 2012 R2 v1.0.0 running IIS 8.5</i>		
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5 version 1.0.0</b> <i>64bit Windows Server Core 2012 R2 v1.0.0 running IIS 8.5</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8 version 1.0.0</b> <i>64bit Windows Server 2012 v1.0.0 running IIS 8</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5 version 1.0.0</b> <i>64bit Windows Server 2008 R2 v1.0.0 running IIS 7.5</i>	.NET v4.5 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 7.5
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	.NET v4.6 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	.NET v4.5 Supports runtimes 4, 2.0, 1.1 and 1.0	IIS 7.5

Elastic Beanstalk supports the following platform configurations for .NET environments created between September 14, 2015 and October 21, 2015:

<b>Configuration and <i>Solution Stack Name</i></b>	<b>Framework</b>	<b>Web Server</b>
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5

<b>Configuration and Solution Stack Name</b>	<b>Framework</b>	<b>Web Server</b>
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b>  <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b>  <i>64bit Windows Server 2012 running IIS 8</i>	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b>  <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for September 2015](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between August 20, 2015 and September 14, 2015:

<b>Configuration and Solution Stack Name</b>	<b>Framework</b>	<b>Web Server</b>
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b>  <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b>  <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b>  <i>64bit Windows Server 2012 running IIS 8</i>	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b>  <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for August 2015](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between July 21, 2015 and August 20, 2015:



<b>Configuration and <i>Solution Stack Name</i></b>	<b>Framework</b>	<b>Web Server</b>
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for July 2015](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between June 12, 2015 and July 21, 2015:

<b>Configuration and <i>Solution Stack Name</i></b>	<b>Framework</b>	<b>Web Server</b>
<b>Windows Server 2012 R2<sup>1</sup> with IIS 8.5</b> <i>64bit Windows Server 2012 R2 running IIS 8.5</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012 R2<sup>1</sup> Server Core with IIS 8.5</b> <i>64bit Windows Server Core 2012 R2 running IIS 8.5</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5
<b>Windows Server 2012<sup>1</sup> with IIS 8</b> <i>64bit Windows Server 2012 running IIS 8</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8
<b>Windows Server 2008 R2<sup>1</sup> with IIS 7.5</b> <i>64bit Windows Server 2008 R2 running IIS 7.5</i>	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 7.5

<sup>1</sup>[Microsoft Security Bulletin Summary for June 2015](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between April 16, 2015 and June 12, 2015:

IIS Configurations				
Name	AMI	Language	Web Server	
64bit Windows Server 2012 R2 <sup>1</sup> running IIS 8.5	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5	
64bit Windows Server Core 2012 R2 <sup>1</sup> running IIS 8.5	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5	
64bit Windows Server 2012 <sup>1</sup> running IIS 8	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8	
64bit Windows Server 2008 R2 <sup>1</sup> running IIS 7.5	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 7.5	

<sup>1</sup>[Microsoft Security Bulletin Summary for May 2015](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created between August 6, 2014 and April 16, 2015:

IIS Configurations				
Name	AMI	Language	Web Server	
64bit Windows Server 2012 R2 <sup>1</sup> running IIS 8.5	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5	
64bit Windows Server Core 2012 R2 <sup>1</sup> running IIS 8.5	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8.5	
64bit Windows Server 2012 <sup>1</sup> running IIS 8	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8	
64bit Windows Server 2008 R2 <sup>1</sup> running IIS 7.5	Custom	.NET v4.5 Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 7.5	

<sup>1</sup>[Microsoft Security Bulletin MS14-066 - Critical](#)

Elastic Beanstalk supports the following platform configurations for .NET environments created prior to August 6, 2014:

IIS Configurations				
Name	AMI	Language	Web Server	
64bit Windows Server 2012 <sup>1</sup> running IIS 8	Custom	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 8	
64bit Windows Server 2008 R2 <sup>1</sup> running IIS 7.5	Custom	.NET v4.5  Also supports 4.0, 3.5, 3.0, 2.0, 1.1 and 1.0	IIS 7.5	

<sup>1</sup>[Microsoft Security Bulletin MS14-066 - Critical](#)

## Node.js Platform History

This page lists the previous versions of AWS Elastic Beanstalk's Node.js platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for Node.js environments created between June 26, 2016 and October 27, 2016:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Proxy Server	Git
<b>Node.js version 2.1.3</b> <i>64bit Amazon Linux 2016.03 v2.1.3 running Node.js</i>	2016.03.2	Node.js 4.4.6, Also supports 6.2.2, 5.12.0, 0.12.15, 0.10.46, 0.8.28	NPM 2.15.5	nginx 1.8.1, Apache 2.4.18	2.7.4

Elastic Beanstalk supports the following platform configurations for Node.js environments created between May 9, 2016 and June 26, 2016:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Proxy Server	Git
<b>Node.js version 2.1.1</b> <i>64bit Amazon Linux 2016.03 v2.1.1 running Node.js</i>	2016.03	Node.js 4.4.3, Also supports 0.12.13, 0.10.44, 0.8.28	NPM 2.15.1	nginx 1.8.1, Apache 2.4.18	2.7.4

Elastic Beanstalk supports the following platform configurations for Node.js environments created between April 7, 2016 and May 9, 2016:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Proxy Server	Git
<b>Node.js version 2.1.0</b> <i>64bit Amazon Linux 2016.03 v2.1.0 running Node.js</i>	2016.03	Node.js 4.3.0  Also supports 0.12.10, 0.10.42, 0.8.28	NPM 2.14.7	nginx 1.8.1 or Apache 2.4.18	Git 2.7.4

Elastic Beanstalk supports the following platform configurations for Node.js environments created between February 26, 2016 and April 7, 2016:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Web Server	Git
<b>Node.js version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running Node.js</i>	2015.09	Node.js 4.3.0  Also supports 0.12.10, 0.10.42, 0.8.28	NPM 2.14.7	nginx 1.8.0 or Apache 2.4.16	Git 2.4.3

Elastic Beanstalk supports the following platform configurations for Node.js environments created between February 11, 2016 and February 26, 2016:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Web Server	Git
<b>Node.js version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running Node.js</i>	2015.09	Node.js 4.2.3  Also supports 0.12.9, 0.10.41, 0.8.28	NPM 2.14.7	nginx 1.8.0 or Apache 2.4.16	Git 2.4.3

Elastic Beanstalk supports the following platform configurations for Node.js environments created between January 11, 2016 and February 11, 2016:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Web Server	Git
<b>Node.js version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running Node.js</i>	2015.09	Node.js 4.2.3  Also supports 0.12.9, 0.10.41, 0.8.28	NPM 2.14.7	nginx 1.8.0 or Apache 2.4.16	Git 2.1.0

Elastic Beanstalk supports the following platform configurations for Node.js environments created between December 18, 2015 and January 11, 2016:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Web Server	Git
<b>Node.js version 2.0.5</b> <i>64bit Amazon Linux 2015.09 v2.0.5 running Node.js</i>	2015.09	Node.js 4.2.3  Also supports 0.12.9, 0.10.41, 0.8.28	NPM 2.14.7	nginx 1.8.0 or Apache 2.4.16	Git 2.1.0

Elastic Beanstalk supports the following platform configurations for Node.js environments created between November 2, 2015 and December 18, 2015:

Configuration and Solution Stack Name	AMI	Platform	Package Manager	Web Server	Git
<b>Node.js version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running Node.js</i>	2015.09	Node.js 4.2.1  Also supports 0.12.7, 0.12.6, 0.10.39, 0.10.38, 0.10.31, 0.8.28	NPM 2.14.7	nginx 1.8.0 or Apache 2.4.16	Git 2.1.0

Elastic Beanstalk supports the following platform configurations for Node.js environments created between September 18, 2015 and November 2, 2015:

Configuration and Solution Stack Name	AMI	Platform	Web Server	Git
<b>Node.js version 2.0.1</b> <i>64bit Amazon Linux 2015.03 v2.0.1 running Node.js</i>	2015.03	Node.js 0.12.6  Also supports 0.10.39, 0.10.38, 0.10.31, 0.8.28	Nginx 1.6.2 or Apache 2.4.12	Git 2.1.0

Elastic Beanstalk supports the following platform configurations for Node.js environments created between August 11, 2015 and September 18, 2015:

Configuration and Solution Stack Name	AMI	Platform	Web Server	Git
<b>Node.js version 2.0.0</b> <i>64bit Amazon Linux 2015.03 v2.0.0 running Node.js</i>	2015.03	Node.js 0.12.6  Also supports 0.10.39, 0.10.38, 0.10.31, 0.8.28	nginx 1.6.2 or Apache 2.4.12	Git 2.1.0

Elastic Beanstalk supports the following platform configurations for Node.js environments created between August 3, 2015 and August 11, 2015:

Configuration and Solution Stack Name	AMI	Platform	Web Server	Git
<b>Node.js version 1.4.6</b>	2015.03	Node.js 0.12.6	nginx 1.6.2 or Apache 2.4.12	Git 2.1.0

Configuration and Solution Stack Name	AMI	Platform	Web Server	Git
64bit Amazon Linux 2015.03 v1.4.6 running Node.js		Also supports 0.10.39, 0.10.38, 0.10.31, 0.8.28		

Elastic Beanstalk supports the following platform configurations for Node.js environments created between July 7, 2015 and August 3, 2015:

Configuration and Solution Stack Name	AMI	Platform	Web Server
<b>Node.js version 1.4.4</b> 64bit Amazon Linux 2015.03 v1.4.4 running Node.js	2015.03	Node.js 0.12.6 Also supports 0.10.39, 0.10.38, 0.10.31, 0.8.28	nginx 1.6.2 or Apache 2.4.12

Elastic Beanstalk supports the following platform configurations for Node.js environments created between June 15, 2015 and July 7, 2015:

Configuration and Solution Stack Name	AMI	Platform	Web Server
<b>Node.js version 1.4.3</b> 64bit Amazon Linux 2015.03 v1.4.3 running Node.js	2015.03	Node.js 0.12.4 Also supports 0.12.2, 0.12.0, 0.10.38, 0.10.31, 0.8.28	nginx 1.6.2 or Apache 2.4.12

Elastic Beanstalk supports the following platform configurations for Node.js environments created between May 27, 2015 and June 15, 2015:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
64bit Amazon Linux 2015.03 v1.4.1 running Node.js	2015.03	JavaScript	0.8.26 0.8.28 0.10.21 0.10.26 0.10.31 0.10.38 0.12.0 0.12.2	nginx 1.6.2 or Apache 2.4.12

Elastic Beanstalk supports the following platform configurations for Node.js environments created between April 22, 2015 and May 26, 2015:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
64bit Amazon Linux 2015.03 v1.3.1 running Node.js	2015.03	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.12
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	
			0.10.38	
			0.12.0	
			0.12.2	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between April 8, 2015 and April 21, 2015:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
64bit Amazon Linux 2015.03 v1.3.1 running Node.js	2015.03	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.10
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	
			0.10.38	
			0.12.0	
			0.12.2	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between March 24, 2015 and April 7, 2015:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server

Node.js Configurations				
64bit Amazon Linux 2014.09 v1.2.1 running Node.js	2014.09	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.10
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	
			0.12.0	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between February 17, 2015 and March 23, 2015:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
64bit Amazon Linux 2014.09 v1.2.0 running Node.js	2014.09	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.10
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between January 28, 2015 and February 16, 2015:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Node.js	2014.09	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.6
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.26	nginx 1.4.7 or Apache 2.4.10
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	



Node.js Configurations				
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.26	nginx 1.4.7 or Apache 2.4.10
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between October 16, 2014 and January 27, 2015:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running Node.js	2014.09	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.6
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.6
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.26	nginx 1.6.2 or Apache 2.4.6
			0.8.28	
			0.10.21	
			0.10.26	
			0.10.31	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between October 9, 2014 and October 15, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server

Node.js Configurations				
64bit Amazon Linux 2014.09 v1.0.8 running Node.js	2014.09	JavaScript	0.8.6 through 0.8.21	nginx 1.4.7 or Apache 2.4.6
			0.8.24	
			0.8.26	
			0.10.10	
			0.10.21	
			0.10.26	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between September 24, 2014 and October 8, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.6 through 0.8.21	nginx 1.4.7 or Apache 2.4.6
			0.8.24	
			0.8.26	
			0.10.10	
			0.10.21	
			0.10.26	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.6 through 0.8.21	nginx 1.4.7 or Apache 2.4.6
			0.8.24	
			0.8.26	
			0.10.10	
			0.10.21	
			0.10.26	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between June 30, 2014 and September 23, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server

Node.js Configurations				
64bit Amazon Linux 2014.03 v1.0.4 running Node.js	2014.03	JavaScript	0.8.6 through 0.8.21	nginx 1.4.7 or Apache 2.4.6
			0.8.24	
			0.8.26	
			0.10.10	
			0.10.21	
			0.10.26	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between June 5, 2014 and June 29, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.6 through 0.8.21	nginx 1.4.7 or Apache 2.4.6
			0.8.24	
			0.8.26	
			0.10.10	
			0.10.21	
			0.10.26	
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Node.js	2014.03	JavaScript	0.8.6 through 0.8.21	nginx 1.4.7 or Apache 2.4.6
			0.8.24	
			0.8.26	
			0.10.10	
			0.10.21	
			0.10.26	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between May 5, 2014 and June 4, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server

Node.js Configurations				
32bit Amazon Linux 2014.03 v1.0.2 running Node.js	2014.03	JavaScript	0.8.6 through 0.8.21 0.8.24 0.8.26 0.10.10 0.10.21 0.10.26	nginx 1.4.7 or Apache 2.4.6
64bit Amazon Linux 2014.03 v1.0.2 running Node.js	2014.03	JavaScript	0.8.6 through 0.8.21 0.8.24 0.8.26 0.10.10 0.10.21 0.10.26	nginx 1.4.7 or Apache 2.4.6

Elastic Beanstalk supports the following platform configurations for Node.js environments created between April 7, 2014 and May 4, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
32bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21 0.8.24 0.8.26 0.10.10 0.10.21 0.10.26	nginx 1.4.3 or Apache 2.4.6
64bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21 0.8.24 0.8.26 0.10.10 0.10.21 0.10.26	nginx 1.4.3 or Apache 2.4.6

Node.js Configurations				
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21 0.8.24 0.10.10 0.10.21	nginx 1.4.3 or Apache 2.4.6
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21 0.8.24 0.10.10 0.10.21	nginx 1.4.3 or Apache 2.4.6

Elastic Beanstalk supports the following platform configurations for Node.js environments created between March 18, 2014 and April 6, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
32bit Amazon Linux 2014.02 running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21 0.8.24 0.8.26 0.10.10 0.10.21 0.10.26	nginx 1.4.3 or Apache 2.4.6
64bit Amazon Linux 2014.02 running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21 0.8.24 0.8.26 0.10.10 0.10.21 0.10.26	nginx 1.4.3 or Apache 2.4.6
32bit Amazon Linux 2013.09 running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21 0.8.24 0.10.10 0.10.21	nginx 1.4.3 or Apache 2.4.6

Node.js Configurations				
64bit Amazon Linux 2013.09 running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21	nginx 1.4.3 or Apache 2.4.6
			0.8.24	
			0.10.10	
			0.10.21	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between October 29, 2013 and March 17, 2014:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
32bit Amazon Linux 2013.09 running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21	nginx 1.4.3 or Apache 2.4.6
			0.8.24	
			0.10.10	
			0.10.21	
64bit Amazon Linux 2013.09 running Node.js	2013.09	JavaScript	0.8.6 through 0.8.21	nginx 1.4.3 or Apache 2.4.6
			0.8.24	
			0.10.10	
			0.10.21	

Elastic Beanstalk supports the following platform configurations for Node.js environments created between August 15, 2013 and October 28, 2013:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server
32bit Amazon Linux running Node.js	2013.03	JavaScript	0.8.6 through 0.8.21	nginx 1.2.9 or Apache 2.4.4
			0.8.24	
			0.10.10	
64bit Amazon Linux running Node.js	2013.03	JavaScript	0.8.6 through 0.8.21	nginx 1.2.9 or Apache 2.4.4
			0.8.24	
			0.10.10	

Elastic Beanstalk supports the following configurations for environments created with Node.js containers prior to August 15, 2013:

Node.js Configurations				
Name	AMI	Language	Node.js Version	Web Server

Node.js Configurations				
32bit Amazon Linux 2012.09 running Node.js	2012.09	JavaScript	0.8.6 through 0.8.21 0.8.24	nginx 1.2.6 or Apache 2.4.3
64bit Amazon Linux 2012.09 running Node.js	2012.09	JavaScript	0.8.6 through 0.8.21 0.8.24	nginx 1.2.6 or Apache 2.4.3

## PHP Platform History

This page lists the previous versions of AWS Elastic Beanstalk's PHP platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releasenotes](http://aws.amazon.com/releasenotes).

Elastic Beanstalk supports the following platform configurations for PHP environments created between between September 6, 2016 and October 27, 2016:

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<b>PHP 7.0 version 2.1.7</b> <i>64bit Amazon Linux 2016.03 v2.1.7 running PHP 7.0</i>	2016.03.3	PHP 7.0.9	1.2.0	Apache 2.4.23
<b>PHP 5.6 version 2.1.7</b> <i>64bit Amazon Linux 2016.03 v2.1.7 running PHP 5.6</i>	2016.03.3	PHP 5.6.25	1.2.0	Apache 2.4.23
<b>PHP 5.5 version 2.1.7</b> <i>64bit Amazon Linux 2016.03 v2.1.7 running PHP 5.5</i>	2016.03.3	PHP 5.5.38	1.2.0	Apache 2.4.23
<b>PHP 5.4 version 2.1.7</b> <i>64bit Amazon Linux 2016.03 v2.1.7 running PHP 5.4</i>	2016.03.3	PHP 5.4.45	1.2.0	Apache 2.4.23

Elastic Beanstalk supports the following platform configurations for PHP environments created between between August 24, 2016 and September 6, 2016:

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<b>PHP 7.0 version 2.1.6</b>	2016.03.3	PHP 7.0.9	1.2.0	Apache 2.4.23

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<i>64bit Amazon Linux 2016.03 v2.1.6 running PHP 7.0</i>				
<b>PHP 5.6 version 2.1.6</b> <i>64bit Amazon Linux 2016.03 v2.1.6 running PHP 5.6</i>	2016.03.3	PHP 5.6.24	1.2.0	Apache 2.4.23
<b>PHP 5.5 version 2.1.6</b> <i>64bit Amazon Linux 2016.03 v2.1.6 running PHP 5.5</i>	2016.03.3	PHP 5.5.38	1.2.0	Apache 2.4.23
<b>PHP 5.4 version 2.1.6</b> <i>64bit Amazon Linux 2016.03 v2.1.6 running PHP 5.4</i>	2016.03.3	PHP 5.4.45	1.2.0	Apache 2.4.23

Elastic Beanstalk supports the following platform configurations for PHP environments created between between August 8, 2016 and August 24, 2016:

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<b>PHP 7.0 version 2.1.5</b> <i>64bit Amazon Linux 2016.03 v2.1.5 running PHP 7.0</i>	2016.03.2	PHP 7.0.9	1.2.0	Apache 2.4.23
<b>PHP 5.6 version 2.1.5</b> <i>64bit Amazon Linux 2016.03 v2.1.5 running PHP 5.6</i>	2016.03.2	PHP 5.6.24	1.2.0	Apache 2.4.23
<b>PHP 5.5 version 2.1.5</b> <i>64bit Amazon Linux 2016.03 v2.1.5 running PHP 5.5</i>	2016.03.2	PHP 5.5.38	1.2.0	Apache 2.4.23
<b>PHP 5.4 version 2.1.5</b> <i>64bit Amazon Linux 2016.03 v2.1.5 running PHP 5.4</i>	2016.03.2	PHP 5.4.45	1.2.0	Apache 2.4.23

Elastic Beanstalk supports the following platform configurations for PHP environments created between between July 18, 2016 and August 8, 2016:



<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Proxy Server</b>
<b>PHP 5.6 version 2.1.4</b> <i>64bit Amazon Linux 2016.03 v2.1.4 running PHP 5.6</i>	2016.03.2	PHP 5.6.22	1.1.2	Apache 2.4.18
<b>PHP 5.5 version 2.1.4</b> <i>64bit Amazon Linux 2016.03 v2.1.4 running PHP 5.5</i>	2016.03.2	PHP 5.5.36	1.1.2	Apache 2.4.18
<b>PHP 5.4 version 2.1.4</b> <i>64bit Amazon Linux 2016.03 v2.1.4 running PHP 5.4</i>	2016.03.2	PHP 5.4.45	1.1.2	Apache 2.4.18

Elastic Beanstalk supports the following platform configurations for PHP environments created between between June 26, 2016 and July 18, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Proxy Server</b>
<b>PHP 5.6 version 2.1.3</b> <i>64bit Amazon Linux 2016.03 v2.1.3 running PHP 5.6</i>	2016.03.2	PHP 5.6.22	1.1.2	Apache 2.4.18
<b>PHP 5.5 version 2.1.3</b> <i>64bit Amazon Linux 2016.03 v2.1.3 running PHP 5.5</i>	2016.03.2	PHP 5.5.36	1.1.2	Apache 2.4.18
<b>PHP 5.4 version 2.1.3</b> <i>64bit Amazon Linux 2016.03 v2.1.3 running PHP 5.4</i>	2016.03.2	PHP 5.4.45	1.1.2	Apache 2.4.18

Elastic Beanstalk supports the following platform configurations for PHP environments created between between May 13, 2016 and June 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Proxy Server</b>
<b>PHP 5.6 version 2.1.2</b> <i>64bit Amazon Linux 2016.03 v2.1.2 running PHP 5.6</i>	2016.03	PHP 5.6.21	1.1.0	Apache 2.4.18

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<b>PHP 5.5 version 2.1.2</b> <i>64bit Amazon Linux 2016.03 v2.1.2 running PHP 5.5</i>	2016.03	PHP 5.5.35	1.1.0	Apache 2.4.18
<b>PHP 5.4 version 2.1.2</b> <i>64bit Amazon Linux 2016.03 v2.1.2 running PHP 5.4</i>	2016.03	PHP 5.4.45	1.1.0	Apache 2.4.18

Elastic Beanstalk supports the following platform configurations for PHP environments created between between May 9, 2016 and May 13, 2016:

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<b>PHP 5.6 version 2.1.1</b> <i>64bit Amazon Linux 2016.03 v2.1.1 running PHP 5.6</i>	2016.03	PHP 5.6.21	1.1.0-RC	Apache 2.4.18
<b>PHP 5.5 version 2.1.1</b> <i>64bit Amazon Linux 2016.03 v2.1.1 running PHP 5.5</i>	2016.03	PHP 5.5.35	1.1.0-RC	Apache 2.4.18
<b>PHP 5.4 version 2.1.1</b> <i>64bit Amazon Linux 2016.03 v2.1.1 running PHP 5.4</i>	2016.03	PHP 5.4.45	1.1.0-RC	Apache 2.4.18

Elastic Beanstalk supports the following platform configurations for PHP environments created between between April 7, 2016 and May 9, 2016:

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<b>PHP 5.6 version 2.1.0</b> <i>64bit Amazon Linux 2016.03 v2.1.0 running PHP 5.6</i>	2016.03	PHP 5.6.17	1.0.0-alpha11	Apache 2.4.18
<b>PHP 5.5 version 2.1.0</b> <i>64bit Amazon Linux 2016.03 v2.1.0 running PHP 5.5</i>	2016.03	PHP 5.5.31	1.0.0-alpha11	Apache 2.4.18

Configuration and Solution Stack Name	AMI	Language	Composer	Proxy Server
<b>PHP 5.4 version 2.1.0</b> <i>64bit Amazon Linux 2016.03 v2.1.0 running PHP 5.4</i>	2016.03	PHP 5.4.45	1.0.0-alpha11	Apache 2.4.18

Elastic Beanstalk supports the following platform configurations for PHP environments created between February 26, 2016 and April 7, 2016:

Configuration and Solution Stack Name	AMI	Language	Composer	Web Server
<b>PHP 5.6 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running PHP 5.6</i>	2015.09	PHP 5.6.17	1.0.0-alpha11	Apache 2.4.16
<b>PHP 5.5 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running PHP 5.5</i>	2015.09	PHP 5.5.31	1.0.0-alpha11	Apache 2.4.16
<b>PHP 5.4 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running PHP 5.4</i>	2015.09	PHP 5.4.45	1.0.0-alpha11	Apache 2.4.16

Elastic Beanstalk supports the following platform configurations for PHP environments created between February 11, 2016 and February 26, 2016:

Configuration and Solution Stack Name	AMI	Language	Composer	Web Server
<b>PHP 5.6 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running PHP 5.6</i>	2015.09	PHP 5.6.17	1.0.0-alpha11	Apache 2.4.16
<b>PHP 5.5 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running PHP 5.5</i>	2015.09	PHP 5.5.31	1.0.0-alpha11	Apache 2.4.16
<b>PHP 5.4 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running PHP 5.4</i>	2015.09	PHP 5.4.45	1.0.0-alpha11	Apache 2.4.16

Elastic Beanstalk supports the following platform configurations for PHP environments created between January 11, 2016 and February 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Web Server</b>
<b>PHP 5.6 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running PHP 5.6</i>	2015.09	PHP 5.6.13	1.0.0-alpha10	Apache 2.4.16
<b>PHP 5.5 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running PHP 5.5</i>	2015.09	PHP 5.5.29	1.0.0-alpha10	Apache 2.4.16
<b>PHP 5.4 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running PHP 5.4</i>	2015.09	PHP 5.4.45	1.0.0-alpha10	Apache 2.4.16

Elastic Beanstalk supports the following platform configurations for PHP environments created between November 2, 2015 and January 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Web Server</b>
<b>PHP 5.6 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running PHP 5.6</i>	2015.09	PHP 5.6.13	1.0.0-alpha10	Apache 2.4.16
<b>PHP 5.5 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running PHP 5.5</i>	2015.09	PHP 5.5.29	1.0.0-alpha10	Apache 2.4.16
<b>PHP 5.4 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running PHP 5.4</i>	2015.09	PHP 5.4.45	1.0.0-alpha10	Apache 2.4.16

Elastic Beanstalk supports the following platform configurations for PHP environments created between September 18, 2015 and November 2, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Web Server</b>
<b>PHP 5.6 version 2.0.1</b> <i>64bit Amazon Linux 2015.03 v2.0.1 running PHP 5.6</i>	2015.03	PHP 5.6.9	1.0.0-alpha10	Apache 2.4.12
<b>PHP 5.5 version 2.0.1</b> <i>64bit Amazon Linux 2015.03 v2.0.1 running PHP 5.5</i>	2015.03	PHP 5.5.25	1.0.0-alpha10	Apache 2.4.12
<b>PHP 5.4 version 2.0.1</b> <i>64bit Amazon Linux 2015.03 v2.0.1 running PHP 5.4</i>	2015.03	PHP 5.4.41	1.0.0-alpha10	Apache 2.4.12

Elastic Beanstalk supports the following platform configurations for PHP environments created between August 11, 2015 and September 18, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Web Server</b>
<b>PHP 5.6 version 2.0.0</b> <i>64bit Amazon Linux 2015.03 v2.0.0 running PHP 5.6</i>	2015.03	PHP 5.6.9	1.0.0-alpha10	Apache 2.4.12
<b>PHP 5.5 version 2.0.0</b> <i>64bit Amazon Linux 2015.03 v2.0.0 running PHP 5.5</i>	2015.03	PHP 5.5.25	1.0.0-alpha10	Apache 2.4.12
<b>PHP 5.4 version 2.0.0</b> <i>64bit Amazon Linux 2015.03 v2.0.0 running PHP 5.4</i>	2015.03	PHP 5.4.41	1.0.0-alpha10	Apache 2.4.12

Elastic Beanstalk supports the following platform configurations for PHP environments created between August 3, 2015 and August 11, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Composer</b>	<b>Web Server</b>
<b>PHP 5.6 version 1.4.6</b> <i>64bit Amazon Linux 2015.03 v1.4.6 running PHP 5.6</i>	2015.03	PHP 5.6.9	1.0.0-alpha10	Apache 2.4.12

Configuration and Solution Stack Name	AMI	Language	Composer	Web Server
<b>PHP 5.5 version 1.4.6</b> <i>64bit Amazon Linux 2015.03 v1.4.6 running PHP 5.5</i>	2015.03	PHP 5.5.25	1.0.0-alpha10	Apache 2.4.12
<b>PHP 5.4 version 1.4.6</b> <i>64bit Amazon Linux 2015.03 v1.4.6 running PHP 5.4</i>	2015.03	PHP 5.4.41	1.0.0-alpha10	Apache 2.4.12

Elastic Beanstalk supports the following platform configurations for PHP environments created between June 15, 2015 and August 3, 2015:

Configuration and Solution Stack Name	AMI	Language	Composer	Web Server
<b>PHP 5.6 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running PHP 5.6</i>	2015.03	PHP 5.6.9	1.0.0-alpha10	Apache 2.4.12
<b>PHP 5.5 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running PHP 5.5</i>	2015.03	PHP 5.5.25	1.0.0-alpha10	Apache 2.4.12
<b>PHP 5.4 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running PHP 5.4</i>	2015.03	PHP 5.4.41	1.0.0-alpha10	Apache 2.4.12

Elastic Beanstalk supports the following platform configurations for PHP environments created between May 29, 2015 and June 15, 2015:

PHP Configurations				
Name	AMI	Language	Web Server	Composer
64bit Amazon Linux 2015.03 v1.4.2 running PHP 5.6	2015.03	PHP 5.6.8	Apache 2.4.12	1.0.0-alpha10
64bit Amazon Linux 2015.03 v1.4.2 running PHP 5.5	2015.03	PHP 5.5.24	Apache 2.4.12	1.0.0-alpha10
64bit Amazon Linux 2015.03 v1.4.2 running PHP 5.4	2015.03	PHP 5.4.40	Apache 2.4.12	1.0.0-alpha10

Elastic Beanstalk supports the following platform configurations for PHP environments created between May 27, 2015 and May 28, 2015:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2015.03 v1.4.1 running PHP 5.6	2015.03	PHP 5.6.8	Apache 2.4.12	
64bit Amazon Linux 2015.03 v1.4.1 running PHP 5.5	2015.03	PHP 5.5.24	Apache 2.4.12	
64bit Amazon Linux 2015.03 v1.4.1 running PHP 5.4	2015.03	PHP 5.4.40	Apache 2.4.12	

Elastic Beanstalk supports the following platform configurations for PHP environments created between May 1, 2015 and May 26, 2015:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2015.03 v1.3.2 running PHP 5.6	2015.03	PHP 5.6.8	Apache 2.4.12	
64bit Amazon Linux 2015.03 v1.3.2 running PHP 5.5	2015.03	PHP 5.5.24	Apache 2.4.12	
64bit Amazon Linux 2015.03 v1.3.2 running PHP 5.4	2015.03	PHP 5.4.40	Apache 2.4.12	

Elastic Beanstalk supports the following platform configurations for PHP environments created between April 22, 2015 and April 30, 2015:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2015.03 v1.3.1 running PHP 5.5	2015.03	PHP 5.5.22	Apache 2.4.12	
64bit Amazon Linux 2015.03 v1.3.1 running PHP 5.4	2015.03	PHP 5.4.38	Apache 2.4.12	

Elastic Beanstalk supports the following platform configurations for PHP environments created between April 8, 2015 and April 21, 2015:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2015.03 v1.3.0 running PHP 5.5	2015.03	PHP 5.5.22	Apache 2.4.12	
64bit Amazon Linux 2015.03 v1.3.0 running PHP 5.4	2015.03	PHP 5.4.38	Apache 2.4.12	

Elastic Beanstalk supports the following platform configurations for PHP environments created between February 17, 2015 and April 7, 2015:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.09 v1.2.0 running PHP 5.5	2014.09	PHP 5.5.20	Apache 2.4.10	
64bit Amazon Linux 2014.09 v1.2.0 running PHP 5.4	2014.09	PHP 5.4.36	Apache 2.4.10	

Elastic Beanstalk supports the following platform configurations for PHP environments created between January 28, 2015 and February 16, 2015:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running PHP 5.5	2014.09	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running PHP 5.4	2014.09	PHP 5.4.20	Apache 2.4.6	
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.14	Apache 2.4.10	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.14	Apache 2.4.10	
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.30	Apache 2.4.10	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.30	Apache 2.4.10	



Elastic Beanstalk supports the following platform configurations for PHP environments created between October 16, 2014 and January 27, 2015:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running PHP 5.5	2014.09	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.09 v1.0.9 <sup>1</sup> running PHP 5.4	2014.09	PHP 5.4.20	Apache 2.4.6	
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between October 9, 2014 and October 15, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.09 v1.0.8 running PHP 5.5	2014.09	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.09 v1.0.8 running PHP 5.5	2014.09	PHP 5.5.7	Apache 2.4.6	
32bit Amazon Linux 2014.09 v1.0.8 running PHP 5.4	2014.09	PHP 5.4.20	Apache 2.4.6	
64bit Amazon Linux 2014.09 v1.0.8 running PHP 5.4	2014.09	PHP 5.4.20	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between September 24, 2014 and October 8, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between June 30, 2014 and September 23, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.03 v1.0.4 running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.4 running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between June 5, 2014 and June 29, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between May 5, 2014 and June 4, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.03 v1.0.2 running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.2 running PHP 5.5	2014.03	PHP 5.5.7	Apache 2.4.6	
32bit Amazon Linux 2014.03 v1.0.2 running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	
64bit Amazon Linux 2014.03 v1.0.2 running PHP 5.4	2014.03	PHP 5.4.20	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between April 7, 2014 and May 4, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running PHP 5.5	2013.09	PHP 5.5.7	Apache 2.4.6	
64bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running PHP 5.5	2013.09	PHP 5.5.7	Apache 2.4.6	
32bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running PHP 5.4	2013.09	PHP 5.4.20	Apache 2.4.6	
64bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running PHP 5.4	2013.09	PHP 5.4.20	Apache 2.4.6	
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running PHP 5.5	2013.09	PHP 5.5	Apache 2.4.6	
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running PHP 5.5	2013.09	PHP 5.5	Apache 2.4.6	
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running PHP 5.4	2013.09	PHP 5.4	Apache 2.4.6	

PHP Container Types				
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running PHP 5.4	2013.09	PHP 5.4	Apache 2.4.6	
32bit Amazon Linux running PHP 5.3	2013.03	PHP 5.3	Apache 2.4.6	
64bit Amazon Linux running PHP 5.3	2013.03	PHP 5.3	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between March 18, 2014 and April 6, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.02 running PHP 5.5	2013.09	PHP 5.5.7	Apache 2.2.26	
64bit Amazon Linux 2014.02 running PHP 5.5	2013.09	PHP 5.5.7	Apache 2.2.26	
32bit Amazon Linux 2014.02 running PHP 5.4	2013.09	PHP 5.4.20	Apache 2.2.26	
64bit Amazon Linux 2014.02 running PHP 5.4	2013.09	PHP 5.4.20	Apache 2.2.26	
32bit Amazon Linux 2013.09 running PHP 5.5	2013.09	PHP 5.5	Apache 2.4.6	
64bit Amazon Linux 2013.09 running PHP 5.5	2013.09	PHP 5.5	Apache 2.4.6	
32bit Amazon Linux 2013.09 running PHP 5.4	2013.09	PHP 5.4	Apache 2.4.6	
64bit Amazon Linux 2013.09 running PHP 5.4	2013.09	PHP 5.4	Apache 2.4.6	
32bit Amazon Linux running PHP 5.3	2013.03	PHP 5.3	Apache 2.4.6	
64bit Amazon Linux running PHP 5.3	2013.03	PHP 5.3	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between October 30, 2013 and March 17, 2014:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2013.09 running PHP 5.5	2013.09	PHP 5.5	Apache 2.4.6	
64bit Amazon Linux 2013.09 running PHP 5.5	2013.09	PHP 5.5	Apache 2.4.6	
32bit Amazon Linux 2013.09 running PHP 5.4	2013.09	PHP 5.4	Apache 2.4.6	
64bit Amazon Linux 2013.09 running PHP 5.4	2013.09	PHP 5.4	Apache 2.4.6	
32bit Amazon Linux running PHP 5.3	2013.03	PHP 5.3	Apache 2.4.6	
64bit Amazon Linux running PHP 5.3	2013.03	PHP 5.3	Apache 2.4.6	

Elastic Beanstalk supports the following platform configurations for PHP environments created between August 29, 2013 and October 29, 2013:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux running PHP 5.4	2013.03	PHP 5.4	Apache 2.4.6	
64bit Amazon Linux running PHP 5.4	2013.03	PHP 5.4	Apache 2.4.6	

Elastic Beanstalk supports the following container types for environments created with PHP containers prior to August 29, 2013:

PHP Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2012.09 running PHP 5.4	2012.09	PHP 5.4	Apache 2.4.3	
64bit Amazon Linux 2012.09 running PHP 5.4	2012.09	PHP 5.4	Apache 2.4.3	

PHP Container Types				
32bit Amazon Linux 2012.09 running PHP 5.3	2012.09	PHP 5.3	Apache 2.4.3	
64bit Amazon Linux 2012.09 running PHP 5.3	2012.09	PHP 5.3	Apache 2.4.3	

## Python Platform History

This page lists the previous versions of AWS Elastic Beanstalk's Python platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for Python environments created between between August 24, 2016 and October 27, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Packager	meld3	Proxy Server
<b>Python 3.4 version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Python 3.4</i>	2016.03	Python 3.4.3	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5
<b>Python 2.7 version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Python 2.7</i>	2016.03	Python 2.7.10	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5
<b>Python 2.6 version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Python</i>	2016.03	Python 2.6.9	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between between June 26, 2016 and August 24, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Packager	meld3	Proxy Server
<b>Python 3.4 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Python 3.4</i>	2016.03	Python 3.4.3	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5
<b>Python 2.7 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Python 2.7</i>	2016.03	Python 2.7.10	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5
<b>Python 2.6 version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Python</i>	2016.03	Python 2.6.9	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between between April 7, 2016 and June 26, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Packager	meld3	Proxy Server
<b>Python 3.4 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Python 3.4</i>	2016.03	Python 3.4.3	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5
<b>Python 2.7 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Python 2.7</i>	2016.03	Python 2.7.10	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5
<b>Python 2.6 version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Python</i>	2016.03	Python 2.6.9	pip 7.1.2	setuptools 18.4	meld3 1.0.2	Apache 2.4.18 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between February 26, 2016 and April 7, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running Python 3.4</i>	2015.09	Python 3.4.3	Apache 2.4.16 with mod_wsgi 3.5
<b>Python 2.7 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running Python 2.7</i>	2015.09	Python 2.7.10	Apache 2.4.16 with mod_wsgi 3.5
<b>Python 2.6 version 2.0.8</b> <i>64bit Amazon Linux 2015.09 v2.0.8 running Python</i>	2015.09	Python 2.6.9	Apache 2.4.16 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between February 11, 2016 and February 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running Python 3.4</i>	2015.09	Python 3.4.3	Apache 2.4.16 with mod_wsgi 3.5
<b>Python 2.7 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running Python 2.7</i>	2015.09	Python 2.7.10	Apache 2.4.16 with mod_wsgi 3.5
<b>Python 2.6 version 2.0.7</b> <i>64bit Amazon Linux 2015.09 v2.0.7 running Python</i>	2015.09	Python 2.6.9	Apache 2.4.16 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between January 11, 2016 and February 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running Python 3.4</i>	2015.09	Python 3.4.3	Apache 2.4.16 with mod_wsgi 3.5
<b>Python 2.7 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running Python 2.7</i>	2015.09	Python 2.7.10	Apache 2.4.16 with mod_wsgi 3.5



<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 2.6 version 2.0.6</b> <i>64bit Amazon Linux 2015.09 v2.0.6 running Python</i>	2015.09	Python 2.6.9	Apache 2.4.16 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between November 2, 2015 and January 11, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running Python 3.4</i>	2015.09	Python 3.4.3	Apache 2.4.16 with mod_wsgi 3.5
<b>Python 2.7 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running Python 2.7</i>	2015.09	Python 2.7.10	Apache 2.4.16 with mod_wsgi 3.5
<b>Python 2.6 version 2.0.4</b> <i>64bit Amazon Linux 2015.09 v2.0.4 running Python</i>	2015.09	Python 2.6.9	Apache 2.4.16 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between September 18, 2015 and November 2, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 2.0.1</b> <i>64bit Amazon Linux 2015.03 v2.0.1 running Python 3.4</i>	2015.03	Python 3.4.3	Apache 2.4.12 with mod_wsgi 3.5
<b>Python 2.7 version 2.0.1</b> <i>64bit Amazon Linux 2015.03 v2.0.1 running Python 2.7</i>	2015.03	Python 2.7.9	Apache 2.4.12 with mod_wsgi 3.5
<b>Python 2.6 version 2.0.1</b> <i>64bit Amazon Linux 2015.03 v2.0.1 running Python</i>	2015.03	Python 2.6.9	Apache 2.4.12 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between August 11, 2015 and September 18, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 2.0.0</b> <i>64bit Amazon Linux 2015.03 v2.0.0 running Python 3.4</i>	2015.03	Python 3.4.3	Apache 2.4.12 with mod_wsgi 3.5
<b>Python 2.7 version 2.0.0</b> <i>64bit Amazon Linux 2015.03 v2.0.0 running Python 2.7</i>	2015.03	Python 2.7.9	Apache 2.4.12 with mod_wsgi 3.5
<b>Python 2.6 version 2.0.0</b> <i>64bit Amazon Linux 2015.03 v2.0.0 running Python</i>	2015.03	Python 2.6.9	Apache 2.4.12 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between August 3, 2015 and August 11, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 1.4.6</b> <i>64bit Amazon Linux 2015.03 v1.4.6 running Python 3.4</i>	2015.03	Python 3.4.3	Apache 2.4.12 with mod_wsgi 3.5
<b>Python 2.7 version 1.4.6</b> <i>64bit Amazon Linux 2015.03 v1.4.6 running Python 2.7</i>	2015.03	Python 2.7.9	Apache 2.4.12 with mod_wsgi 3.5
<b>Python 2.6 version 1.4.6</b> <i>64bit Amazon Linux 2015.03 v1.4.6 running Python</i>	2015.03	Python 2.6.9	Apache 2.4.12 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between June 15, 2015 and August 3, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Web Server</b>
<b>Python 3.4 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running Python 3.4</i>	2015.03	Python 3.4.3	Apache 2.4.12 with mod_wsgi 3.5
<b>Python 2.7 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running Python 2.7</i>	2015.03	Python 2.7.9	Apache 2.4.12 with mod_wsgi 3.5

Configuration and Solution Stack Name	AMI	Language	Web Server
<b>Python 2.6 version 1.4.3</b> <i>64bit Amazon Linux 2015.03 v1.4.3 running Python</i>	2015.03	Python 2.6.9	Apache 2.4.12 with mod_wsgi 3.5

Elastic Beanstalk supports the following platform configurations for Python environments created between May 27, 2015 and June 15, 2015:

Python Configurations				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2015.03 v1.4.1 running Python 3.4	2015.03	Python 3.4.3	Apache 2.4.12 with mod_wsgi 3.5	
64bit Amazon Linux 2015.03 v1.4.1 running Python 2.7	2015.03	Python 2.7.9	Apache 2.4.12 with mod_wsgi 3.5	
64bit Amazon Linux 2015.03 v1.4.1 running Python 2.6	2015.03	Python 2.6.9	Apache 2.4.12 with mod_wsgi 3.5	

Elastic Beanstalk supports the following platform configurations for Python environments created between April 22, 2015 and May 26, 2015:

Python Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2015.03 v1.3.1 running Python 3.4	2015.03	Python 3.4.3	Apache 2.4.12 with mod_wsgi 3.5	
64bit Amazon Linux 2015.03 v1.3.1 running Python 2.7	2015.03	Python 2.7.9	Apache 2.4.12 with mod_wsgi 3.5	
64bit Amazon Linux 2015.03 v1.3.1 running Python 2.6	2015.03	Python 2.6.9	Apache 2.4.12 with mod_wsgi 3.5	

Elastic Beanstalk supports the following platform configurations for Python environments created between April 8, 2015 and April 21, 2015:

Python Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2015.03 v1.3.0 running Python 3.4	2015.03	Python 3.4.3	Apache 2.4.12 with mod_wsgi 3.5	

Python Container Types				
64bit Amazon Linux 2015.03 v1.3.0 running Python 2.7	2015.03	Python 2.7.9	Apache 2.4.12 with mod_wsgi 3.5	
64bit Amazon Linux 2015.03 v1.3.0 running Python 2.6	2015.03	Python 2.6.9	Apache 2.4.12 with mod_wsgi 3.5	

Elastic Beanstalk supports the following platform configurations for Python environments created between February 17, 2015 and April 7, 2015:

Python Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.09 v1.2.0 running Python 2.7	2014.09	Python 2.7.8	Apache 2.4.10 with mod_wsgi 3.5	
64bit Amazon Linux 2014.09 v1.2.0 running Python 2.6	2014.09	Python 2.6.9	Apache 2.4.10 with mod_wsgi 3.5	

Elastic Beanstalk supports the following platform configurations for Python environments created between January 28, 2015 and February 16, 2015:

Python Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Python 2.7	2014.09	Python 2.7.5	Apache 2.4.10 with mod_wsgi 3.5	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Python	2014.09	Python 2.6.9	Apache 2.4.10 with mod_wsgi 3.5	
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Python 2.7	2014.03	Python 2.7.5	Apache 2.4.10 with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Python 2.7	2014.03	Python 2.7.5	Apache 2.4.10 with mod_wsgi 3.2	
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Python	2014.03	Python 2.6.9	Apache 2.4.10 with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Python	2014.03	Python 2.6.9	Apache 2.4.10 with mod_wsgi 3.2	

Elastic Beanstalk supports the following platform configurations for Python environments created between October 31, 2014 and January 27, 2015:

Python Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.09 v1.0.9 running Python 2.7	2014.09	Python 2.7.5	Apache 2.4.10 with mod_wsgi 3.5	
64bit Amazon Linux 2014.09 v1.0.9 running Python	2014.09	Python 2.6.9	Apache 2.4.10 with mod_wsgi 3.5	

Elastic Beanstalk supports the following platform configurations for Python environments created between October 16, 2014 and October 30, 2014:

Python Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	

Elastic Beanstalk supports the following platform configurations for Python environments created between September 24, 2014 and October 15, 2014:

Python Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	

Python Container Types				
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	

Elastic Beanstalk supports the following platform configurations for Python environments created between June 30, 2014 and September 23, 2014:

Python Container Types				
Name	AMI	Language	Web Server	
64bit Amazon Linux 2014.03 v1.0.4 running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.0.4 running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	

Elastic Beanstalk supports the following platform configurations for Python environments created between June 5, 2014 and June 29, 2014:

Python Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	

Elastic Beanstalk supports the following platform configurations for Python environments created between May 5, 2014 and June 4, 2014:

Python Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2014.03 v1.0.2 running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	

Python Container Types				
64bit Amazon Linux 2014.03 v1.0.2 running Python 2.7	2014.03	Python 2.7	Apache with mod_wsgi 3.2	
32bit Amazon Linux 2014.03 v1.0.2 running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2014.03 v1.0.2 running Python	2014.03	Python 2.6	Apache with mod_wsgi 3.2	

Elastic Beanstalk supports the following platform configurations for Python environments created between April 7, 2014 and May 4, 2014:

Python Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Python 2.7	2013.09	Python 2.7	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Python 2.7	2013.09	Python 2.7	Apache with mod_wsgi 3.2	
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Python	2013.09	Python 2.6	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Python	2013.09	Python 2.6	Apache with mod_wsgi 3.2	

Elastic Beanstalk supports the following platform configurations for Python environments created between November 7, 2013 and April 6, 2014:

Python Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux 2013.09 running Python 2.7	2013.09	Python 2.7	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2013.09 running Python 2.7	2013.09	Python 2.7	Apache with mod_wsgi 3.2	
32bit Amazon Linux 2013.09 running Python	2013.09	Python 2.6	Apache with mod_wsgi 3.2	
64bit Amazon Linux 2013.09 running Python	2013.09	Python 2.6	Apache with mod_wsgi 3.2	

Elastic Beanstalk supports the following container types for environments created with Python containers prior to November 7, 2013:

Python Container Types				
Name	AMI	Language	Web Server	
32bit Amazon Linux running Python	2012.09	Python 2.6	Apache with mod_wsgi 3.2	
64bit Amazon Linux running Python	2012.09	Python 2.6	Apache with mod_wsgi 3.2	

## Ruby Platform History

This page lists the previous versions of AWS Elastic Beanstalk's Ruby platforms and the dates that each version was current. Platform versions that you have used to launch an environment remain available even after they are no longer current.

See the [Supported Platforms \(p. 24\)](#) page for information on the latest version of each platform supported by Elastic Beanstalk. Detailed release notes are available for recent releases at [aws.amazon.com/releases/notes](http://aws.amazon.com/releases/notes).

Elastic Beanstalk supports the following platform configurations for Ruby environments created between between August 24, 2016 and October 27, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manag	Application Server	Proxy Server
<b>Ruby 2.3 with Puma version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.3 (Puma)</i>	2016.03.3	Ruby 2.3.1-p112	RubyGems 2.5.1	Puma 2.16.0	nginx 1.8.1
<b>Ruby 2.3 with Passenger version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.3 (Passenger Standalone)</i>	2016.03.3	Ruby 2.3.1-p112	RubyGems 2.5.1	Passenger 4.0.60	nginx 1.8.1
<b>Ruby 2.2 with Puma version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.2 (Puma)</i>	2016.03.3	Ruby 2.2.5-p319	RubyGems 2.4.5.1	Puma 2.16.0	nginx 1.8.1



Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 2.2 with Passenger version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.2 (Passenger Standalone)</i>	2016.03.3	Ruby 2.2.5-p319	RubyGems 2.4.5.1	Passenger 4.0.60	nginx 1.8.1
<b>Ruby 2.1 with Puma version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.1 (Puma)</i>	2016.03.3	Ruby 2.1.9-p490	RubyGems 2.2.5	Puma 2.16.0	nginx 1.8.1
<b>Ruby 2.1 with Passenger version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.1 (Passenger Standalone)</i>	2016.03.3	Ruby 2.1.9-p490	RubyGems 2.2.5	Passenger 4.0.60	nginx 1.8.1
<b>Ruby 2.0 with Puma version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.0 (Puma)</i>	2016.03.3	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Puma 2.16.0	nginx 1.8.1
<b>Ruby 2.0 with Passenger version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 2.0 (Passenger Standalone)</i>	2016.03.3	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Passenger 4.0.60	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 1.9 with Passenger version 2.1.6</b>  <i>64bit Amazon Linux 2016.03 v2.1.6 running Ruby 1.9.3</i>	2016.03.2	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.60	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Ruby environments created between between June 26, 2016 and August 24, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 2.3 with Puma version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.3 (Puma)</i>	2016.03.2	Ruby 2.3.1-p112	RubyGems 2.5.1	Puma 2.16.0	nginx 1.8.1
<b>Ruby 2.3 with Passenger version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.3 (Passenger Standalone)</i>	2016.03.2	Ruby 2.3.1-p112	RubyGems 2.5.1	Passenger 4.0.60	nginx 1.8.1
<b>Ruby 2.2 with Puma version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.2 (Puma)</i>	2016.03.2	Ruby 2.2.5-p319	RubyGems 2.4.5.1	Puma 2.16.0	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 2.2 with Passenger version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.2 (Passenger Standalone)</i>	2016.03.2	Ruby 2.2.5-p319	RubyGems 2.4.5.1	Passenger 4.0.60	nginx 1.8.1
<b>Ruby 2.1 with Puma version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.1 (Puma)</i>	2016.03.2	Ruby 2.1.9-p490	RubyGems 2.2.5	Puma 2.16.0	nginx 1.8.1
<b>Ruby 2.1 with Passenger version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.1 (Passenger Standalone)</i>	2016.03.2	Ruby 2.1.9-p490	RubyGems 2.2.5	Passenger 4.0.60	nginx 1.8.1
<b>Ruby 2.0 with Puma version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.0 (Puma)</i>	2016.03.2	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Puma 2.16.0	nginx 1.8.1
<b>Ruby 2.0 with Passenger version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 2.0 (Passenger Standalone)</i>	2016.03.2	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Passenger 4.0.60	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 1.9 with Passenger version 2.1.3</b>  <i>64bit Amazon Linux 2016.03 v2.1.3 running Ruby 1.9.3</i>	2016.03.2	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.60	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Ruby environments created between between May 13, 2016 and June 26, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 2.3 with Puma version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.3 (Puma)</i>	2016.03	Ruby 2.3	RubyGems 2.5.1	Puma 2.10.2	nginx 1.8.1
<b>Ruby 2.3 with Passenger version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.3 (Passenger Standalone)</i>	2016.03	Ruby 2.3	RubyGems 2.5.1	Passenger 4.0.59	nginx 1.8.1
<b>Ruby 2.2 with Puma version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.2 (Puma)</i>	2016.03	Ruby 2.2.4-p230	RubyGems 2.4.5.1	Puma 2.10.2	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 2.2 with Passenger version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.2 (Passenger Standalone)</i>	2016.03	Ruby 2.2.4-p230	RubyGems 2.4.5.1	Passenger 4.0.59	nginx 1.8.1
<b>Ruby 2.1 with Puma version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.1 (Puma)</i>	2016.03	Ruby 2.1.8-p440	RubyGems 2.2.5	Puma 2.10.2	nginx 1.8.1
<b>Ruby 2.1 with Passenger version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.1 (Passenger Standalone)</i>	2016.03	Ruby 2.1.8-p440	RubyGems 2.2.5	Passenger 4.0.59	nginx 1.8.1
<b>Ruby 2.0 with Puma version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.0 (Puma)</i>	2016.03	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Puma 2.10.2	nginx 1.8.1
<b>Ruby 2.0 with Passenger version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 2.0 (Passenger Standalone)</i>	2016.03	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Passenger 4.0.59	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 1.9 with Passenger version 2.1.2</b>  <i>64bit Amazon Linux 2016.03 v2.1.2 running Ruby 1.9.3</i>	2016.03	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.59	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Ruby environments created between between April 7, 2016 and May 13, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 2.3 with Puma version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.3 (Puma)</i>	2016.03	Ruby 2.3	RubyGems 2.5.1	Puma 2.10.2	nginx 1.8.1
<b>Ruby 2.3 with Passenger version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.3 (Passenger Standalone)</i>	2016.03	Ruby 2.3	RubyGems 2.5.1	Passenger 4.0.59	nginx 1.8.1
<b>Ruby 2.2 with Puma version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.2 (Puma)</i>	2016.03	Ruby 2.2.4-p230	RubyGems 2.4.5.1	Puma 2.10.2	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 2.2 with Passenger version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.2 (Passenger Standalone)</i>	2016.03	Ruby 2.2.4-p230	RubyGems 2.4.5.1	Passenger 4.0.59	nginx 1.8.1
<b>Ruby 2.1 with Puma version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.1 (Puma)</i>	2016.03	Ruby 2.1.8-p440	RubyGems 2.2.5	Puma 2.10.2	nginx 1.8.1
<b>Ruby 2.1 with Passenger version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.1 (Passenger Standalone)</i>	2016.03	Ruby 2.1.8-p440	RubyGems 2.2.5	Passenger 4.0.59	nginx 1.8.1
<b>Ruby 2.0 with Puma version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.0 (Puma)</i>	2016.03	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Puma 2.10.2	nginx 1.8.1
<b>Ruby 2.0 with Passenger version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 2.0 (Passenger Standalone)</i>	2016.03	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Passenger 4.0.59	nginx 1.8.1

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Proxy Server
<b>Ruby 1.9 with Passenger version 2.1.0</b>  <i>64bit Amazon Linux 2016.03 v2.1.0 running Ruby 1.9.3</i>	2016.03	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.59	nginx 1.8.1

Elastic Beanstalk supports the following platform configurations for Ruby environments created between February 26, 2016 and April 7, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Web Server
<b>Ruby 2.2 with Puma version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Ruby 2.2 (Puma)</i>	2015.09	Ruby 2.2.4-p230	RubyGems 2.4.5.1	Puma 2.10.2	nginx 1.8.0
<b>Ruby 2.2 with Passenger version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Ruby 2.2 (Passenger Standalone)</i>	2015.09	Ruby 2.2.4-p230	RubyGems 2.4.5.1	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 2.1 with Puma version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Ruby 2.1 (Puma)</i>	2015.09	Ruby 2.1.8-p440	RubyGems 2.2.5	Puma 2.10.2	nginx 1.8.0



<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Package Manager</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.1 with Passenger version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Ruby 2.1 (Passenger Standalone)</i>	2015.09	Ruby 2.1.8-p440	RubyGems 2.2.5	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 2.0 with Puma version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Ruby 2.0 (Puma)</i>	2015.09	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Puma 2.10.2	nginx 1.8.0
<b>Ruby 2.0 with Passenger version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Ruby 2.0 (Passenger Standalone)</i>	2015.09	Ruby 2.0.0-p648	RubyGems 2.0.14.1	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 1.9 with Passenger version 2.0.8</b>  <i>64bit Amazon Linux 2015.09 v2.0.8 running Ruby 1.9.3</i>	2015.09	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.59	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Ruby environments created between January 11, 2016 and February 26, 2016:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Package Manager</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.2 with Puma version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.2 (Puma)</i>	2015.09	Ruby 2.2.3	RubyGems 2.4.5.1	Puma 2.10.2	nginx 1.8.0
<b>Ruby 2.2 with Passenger version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.2 (Passenger Standalone)</i>	2015.09	Ruby 2.2.3	RubyGems 2.4.5.1	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 2.1 with Puma version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.1 (Puma)</i>	2015.09	Ruby 2.1.7	RubyGems 2.2.5	Puma 2.10.2	nginx 1.8.0
<b>Ruby 2.1 with Passenger version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.1 (Passenger Standalone)</i>	2015.09	Ruby 2.1.7	RubyGems 2.2.5	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 2.0 with Puma version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.0 (Puma)</i>	2015.09	Ruby 2.0.0-p647	RubyGems 2.0.14.1	Puma 2.10.2	nginx 1.8.0

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Web Server
<b>Ruby 2.0 with Passenger version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Ruby 2.0 (Passenger Standalone)</i>	2015.09	Ruby 2.0.0-p647	RubyGems 2.0.14.1	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 1.9 with Passenger version 2.0.6</b>  <i>64bit Amazon Linux 2015.09 v2.0.6 running Ruby 1.9.3</i>	2015.09	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.59	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Ruby environments created between November 4, 2015 and January 11, 2016:

Configuration and Solution Stack Name	AMI	Language	Package Manager	Application Server	Web Server
<b>Ruby 2.2 with Puma version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Ruby 2.2 (Puma)</i>	2015.09	Ruby 2.2.3	RubyGems 2.4.5.1	Puma 2.10.2	nginx 1.8.0
<b>Ruby 2.2 with Passenger version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Ruby 2.2 (Passenger Standalone)</i>	2015.09	Ruby 2.2.3	RubyGems 2.4.5.1	Passenger 4.0.59	nginx 1.8.0

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Package Manager</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.1 with Puma version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Ruby 2.1 (Puma)</i>	2015.09	Ruby 2.1.7	RubyGems 2.2.5	Puma 2.10.2	nginx 1.8.0
<b>Ruby 2.1 with Passenger version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Ruby 2.1 (Passenger Standalone)</i>	2015.09	Ruby 2.1.7	RubyGems 2.2.5	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 2.0 with Puma version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Ruby 2.0 (Puma)</i>	2015.09	Ruby 2.0.0-p647	RubyGems 2.0.14.1	Puma 2.10.2	nginx 1.8.0
<b>Ruby 2.0 with Passenger version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Ruby 2.0 (Passenger Standalone)</i>	2015.09	Ruby 2.0.0-p647	RubyGems 2.0.14.1	Passenger 4.0.59	nginx 1.8.0
<b>Ruby 1.9 with Passenger version 2.0.4</b>  <i>64bit Amazon Linux 2015.09 v2.0.4 running Ruby 1.9.3</i>	2015.09	Ruby 1.9.3-p551	RubyGems 1.8.23.2	Passenger 4.0.59	nginx 1.8.0

Elastic Beanstalk supports the following platform configurations for Ruby environments created between September 18, 2015 and November 4, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.2 with Puma version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Ruby 2.2 (Puma)</i>	2015.03	Ruby 2.2.2	Puma 2.10.2	Nginx 1.6.2
<b>Ruby 2.2 with Passenger version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Ruby 2.2 (Passenger Standalone)</i>	2015.03	Ruby 2.2.2	Passenger 4.0.59	Nginx 1.6.2
<b>Ruby 2.1 with Puma version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Ruby 2.1 (Puma)</i>	2015.03	Ruby 2.1.5-p273	Puma 2.10.2	Nginx 1.6.2
<b>Ruby 2.1 with Passenger version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Ruby 2.1 (Passenger Standalone)</i>	2015.03	Ruby 2.1.5-p273	Passenger 4.0.59	Nginx 1.6.2
<b>Ruby 2.0 with Puma version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Ruby 2.0 (Puma)</i>	2015.03	Ruby 2.0.0-p598	Puma 2.10.2	Nginx 1.6.2
<b>Ruby 2.0 with Passenger version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Ruby 2.0 (Passenger Standalone)</i>	2015.03	Ruby 2.0.0-p598	Passenger 4.0.59	Nginx 1.6.2

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 1.9 with Passenger version 2.0.1</b>  <i>64bit Amazon Linux 2015.03 v2.0.1 running Ruby 1.9.3</i>	2015.03	Ruby 1.9.3-p551	Passenger 4.0.59	Nginx 1.6.2

Elastic Beanstalk supports the following platform configurations for Ruby environments created between August 11, 2015 and September 18, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.2 with Puma version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.2 (Puma)</i>	2015.03	Ruby 2.2.2	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.2 with Passenger version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.2 (Passenger Standalone)</i>	2015.03	Ruby 2.2.2	Passenger 4.0.59	nginx 1.6.2
<b>Ruby 2.1 with Puma version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.1 (Puma)</i>	2015.03	Ruby 2.1.5-p273	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.1 with Passenger version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.1 (Passenger Standalone)</i>	2015.03	Ruby 2.1.5-p273	Passenger 4.0.59	nginx 1.6.2

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.0 with Puma version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.0 (Puma)</i>	2015.03	Ruby 2.0.0-p598	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.0 with Passenger version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Ruby 2.0 (Passenger Standalone)</i>	2015.03	Ruby 2.0.0-p598	Passenger 4.0.59	nginx 1.6.2
<b>Ruby 1.9 with Passenger version 2.0.0</b>  <i>64bit Amazon Linux 2015.03 v2.0.0 running Ruby 1.9.3</i>	2015.03	Ruby 1.9.3-p551	Passenger 4.0.59	nginx 1.6.2

Elastic Beanstalk supports the following platform configurations for Ruby environments created between August 3, 2015 and August 11, 2015:

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.2 with Puma version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Ruby 2.2 (Puma)</i>	2015.03	Ruby 2.2.2	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.2 with Passenger version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Ruby 2.2 (Passenger Standalone)</i>	2015.03	Ruby 2.2.2	Passenger 4.0.59	nginx 1.6.2

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.1 with Puma version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Ruby 2.1 (Puma)</i>	2015.03	Ruby 2.1.5-p273	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.1 with Passenger version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Ruby 2.1 (Passenger Standalone)</i>	2015.03	Ruby 2.1.5-p273	Passenger 4.0.59	nginx 1.6.2
<b>Ruby 2.0 with Puma version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Ruby 2.0 (Puma)</i>	2015.03	Ruby 2.0.0-p598	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.0 with Passenger version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Ruby 2.0 (Passenger Standalone)</i>	2015.03	Ruby 2.0.0-p598	Passenger 4.0.59	nginx 1.6.2
<b>Ruby 1.9 with Passenger version 1.4.6</b>  <i>64bit Amazon Linux 2015.03 v1.4.6 running Ruby 1.9.3</i>	2015.03	Ruby 1.9.3-p551	Passenger 4.0.59	nginx 1.6.2

Elastic Beanstalk supports the following platform configurations for Ruby environments created between June 15, 2015 and August 3, 2015:



<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 2.2 with Puma version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Ruby 2.2 (Puma)</i>	2015.03	Ruby 2.2.2	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.2 with Passenger version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Ruby 2.2 (Passenger Standalone)</i>	2015.03	Ruby 2.2.2	Passenger 4.0.59	nginx 1.6.2
<b>Ruby 2.1 with Puma version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Ruby 2.1 (Puma)</i>	2015.03	Ruby 2.1.5-p273	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.1 with Passenger version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Ruby 2.1 (Passenger Standalone)</i>	2015.03	Ruby 2.1.5-p273	Passenger 4.0.59	nginx 1.6.2
<b>Ruby 2.0 with Puma version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Ruby 2.0 (Puma)</i>	2015.03	Ruby 2.0.0-p598	Puma 2.10.2	nginx 1.6.2
<b>Ruby 2.0 with Passenger version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Ruby 2.0 (Passenger Standalone)</i>	2015.03	Ruby 2.0.0-p598	Passenger 4.0.59	nginx 1.6.2

<b>Configuration and Solution Stack Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application Server</b>	<b>Web Server</b>
<b>Ruby 1.9 with Passenger version 1.4.3</b>  <i>64bit Amazon Linux 2015.03 v1.4.3 running Ruby 1.9.3</i>	2015.03	Ruby 1.9.3-p551	Passenger 4.0.59	nginx 1.6.2

Elastic Beanstalk supports the following platform configurations for Ruby environments created between May 27, 2015 and June 15, 2015:

<b>Ruby Configurations</b>				
<b>Name</b>	<b>AMI</b>	<b>Language</b>	<b>Application/Web Server</b>	
64bit Amazon Linux 2015.03 v1.4.1 running Ruby 2.2 (Puma)	2015.03	Ruby 2.2.2	Puma 2.10.2 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.4.1 running Ruby 2.2 (Passenger Standalone)	2015.03	Ruby 2.2.2	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.4.1 running Ruby 2.1 (Puma)	2015.03	Ruby 2.1.5-p273	Puma 2.10.2 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.4.1 running Ruby 2.1 (Passenger Standalone)	2015.03	Ruby 2.1.5-p273	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.4.1 running Ruby 2.0 (Puma)	2015.03	Ruby 2.0.0-p598	Puma 2.10.2 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.4.1 running Ruby 2.0 (Passenger Standalone)	2015.03	Ruby 2.0.0-p598	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.4.1 running Ruby 1.9.3	2015.03	Ruby 1.9.3-p551	Passenger 4.0.59 and nginx 1.6.2	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between April 22, 2015 and May 26, 2015:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.2 (Puma)	2015.03	Ruby 2.2.2	Puma 2.10.2 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.2 (Passenger Standalone)	2015.03	Ruby 2.2.2	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.1 (Puma)	2015.03	Ruby 2.1.5-p273	Puma 2.10.2 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.1 (Passenger Standalone)	2015.03	Ruby 2.1.5-p273	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.0 (Puma)	2015.03	Ruby 2.0.0-p598	Puma 2.10.2 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.0 (Passenger Standalone)	2015.03	Ruby 2.0.0-p598	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 1.9.3	2015.03	Ruby 1.9.3-p551	Passenger 4.0.59 and nginx 1.6.2	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between April 8, 2015 and April 21, 2015:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.2 (Puma)	2015.03	Ruby 2.2.2	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.2 (Passenger Standalone)	2015.03	Ruby 2.2.2	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.1 (Puma)	2015.03	Ruby 2.1.5-p273	Puma 2.9.1 and nginx 1.6.2	

Ruby Container Types				
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.1 (Passenger Standalone)	2015.03	Ruby 2.1.5-p273	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.0 (Puma)	2015.03	Ruby 2.0.0-p598	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 2.0 (Passenger Standalone)	2015.03	Ruby 2.0.0-p598	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2015.03 v1.3.1 running Ruby 1.9.3	2015.03	Ruby 1.9.3-p551	Passenger 4.0.59 and nginx 1.6.2	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between March 24, 2015 and April 7, 2015:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.09 v1.2.1 running Ruby 2.2 (Puma)	2014.09	Ruby 2.2.0	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.1 running Ruby 2.2 (Passenger Standalone)	2014.09	Ruby 2.2.0	Passenger 4.0.59 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.1 (Puma)	2014.09	Ruby 2.1.5-p273	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.1 (Passenger Standalone)	2014.09	Ruby 2.1.5-p273	Passenger 4.0.53 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.0 (Puma)	2014.09	Ruby 2.0.0-p598	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.0 (Passenger Standalone)	2014.09	Ruby 2.0.0-p598	Passenger 4.0.53 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 1.9.3	2014.09	Ruby 1.9.3-p551	Passenger 4.0.53 and nginx 1.6.2	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between February 17, 2015 and March 23, 2015:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.1 (Puma)	2014.09	Ruby 2.1.5-p273	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.1 (Passenger Standalone)	2014.09	Ruby 2.1.5-p273	Passenger 4.0.53 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.0 (Puma)	2014.09	Ruby 2.0.0-p598	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 2.0 (Passenger Standalone)	2014.09	Ruby 2.0.0-p598	Passenger 4.0.53 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.2.0 running Ruby 1.9.3	2014.09	Ruby 1.9.3-p551	Passenger 4.0.53 and nginx 1.6.2	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between January 28, 2015 and February 16, 2015:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Ruby 2.1 (Puma)	2014.09	Ruby 2.1.4	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Ruby 2.1 (Passenger Standalone)	2014.09	Ruby 2.1.4	Passenger 4.0.53	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Ruby 2.0 (Puma)	2014.09	Ruby 2.0.0-p594	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Ruby 2.0 (Passenger Standalone)	2014.09	Ruby 2.0.0-p594	Passenger 4.0.53	
64bit Amazon Linux 2014.09 v1.1.0 <sup>1</sup> running Ruby 1.9.3	2014.09	Ruby 1.9.3-p550	Passenger 4.0.53	

Ruby Container Types				
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Ruby 2.1 (Puma)	2014.03	Ruby 2.1.2-p95	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Ruby 2.1 (Passenger Standalone)	2014.03	Ruby 2.1.2	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0-p481	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	
32bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.1.0 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between October 31, 2014 and January 27, 2015:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.09 v1.0.9 running Ruby 2.1 (Puma)	2014.09	Ruby 2.1.4	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.0.9 running Ruby 2.1 (Passenger Standalone)	2014.09	Ruby 2.1.4	Passenger 4.0.53	
64bit Amazon Linux 2014.09 v1.0.9 running Ruby 2.0 (Puma)	2014.09	Ruby 2.0.0-p594	Puma 2.9.1 and nginx 1.6.2	
64bit Amazon Linux 2014.09 v1.0.9 running Ruby 2.0 (Passenger Standalone)	2014.09	Ruby 2.0.0-p594	Passenger 4.0.53	
64bit Amazon Linux 2014.09 v1.0.9 running Ruby 1.9.3	2014.09	Ruby 1.9.3-p550	Passenger 4.0.53	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between October 16, 2014 and October 30, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Ruby 2.1 (Puma)	2014.03	Ruby 2.1.2	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Ruby 2.1 (Passenger Standalone)	2014.03	Ruby 2.1.2	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	
32bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.9 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between September 24, 2014 and October 15, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Ruby 2.1 (Puma)	2014.03	Ruby 2.1.2	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Ruby 2.1 (Passenger Standalone)	2014.03	Ruby 2.1.2	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	

Ruby Container Types				
32bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.7 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between August 14, 2014 and September 23, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.0 running Ruby 2.1 (Puma)	2014.03	Ruby 2.1.2	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.0 running Ruby 2.1 (Passenger Standalone)	2014.03	Ruby 2.1.2	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.5 running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.4 running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.4 running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between June 30, 2014 and August 13, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.5 running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.4 running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	



Ruby Container Types				
64bit Amazon Linux 2014.03 v1.0.4 running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between June 5, 2014 and June 29, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.4 <sup>1</sup> running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	
32bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.3 <sup>1</sup> running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between May 14, 2014 and June 4, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.3 running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between May 5, 2014 and May 13, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.2 running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.2 running	2014.03	Ruby 2.0.0	Passenger 4.0.37	

Ruby Container Types				
Ruby 2.0 (Passenger Standalone)				
32bit Amazon Linux 2014.03 v1.0.2 running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.03 v1.0.2 running Ruby 1.9.3	2014.03	Ruby 1.9.3	Passenger 4.0.37	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between April 7, 2014 and May 4, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 v1.0.1 <sup>2</sup> running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 v1.0.1 <sup>2</sup> running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	
32bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.37	
32bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.37	
64bit Amazon Linux 2014.02 v1.0.1 <sup>1</sup> running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.37	
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
32bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	

Ruby Container Types				
64bit Amazon Linux 2013.09 v1.0.1 <sup>1</sup> running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between April 2, 2014 and April 6, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
64bit Amazon Linux 2014.03 running Ruby 2.0 (Puma)	2014.03	Ruby 2.0.0	Puma 2.8.1 and nginx 1.4.7	
64bit Amazon Linux 2014.03 running Ruby 2.0 (Passenger Standalone)	2014.03	Ruby 2.0.0	Passenger 4.0.37	
32bit Amazon Linux 2014.02 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.02 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.37	
32bit Amazon Linux 2014.02 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.37	
64bit Amazon Linux 2014.02 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.37	
32bit Amazon Linux 2013.09 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
64bit Amazon Linux 2013.09 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
32bit Amazon Linux 2013.09 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	
64bit Amazon Linux 2013.09 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between March 18, 2014 and April 1, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
32bit Amazon Linux 2014.02 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.37	
64bit Amazon Linux 2014.02 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.37	
32bit Amazon Linux 2014.02 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.37	
64bit Amazon Linux 2014.02 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.37	
32bit Amazon Linux 2013.09 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
64bit Amazon Linux 2013.09 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
32bit Amazon Linux 2013.09 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	
64bit Amazon Linux 2013.09 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	

Elastic Beanstalk supports the following platform configurations for Ruby environments created between November 9, 2013 and March 17, 2014:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
32bit Amazon Linux 2013.09 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
64bit Amazon Linux 2013.09 running Ruby 1.9.3	2013.09	Ruby 1.9.3	Passenger 4.0.20	
32bit Amazon Linux 2013.09 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	

Ruby Container Types				
64bit Amazon Linux 2013.09 running Ruby 1.8.7	2013.09	Ruby 1.8.7	Passenger 4.0.20	

Elastic Beanstalk supports the following container types for environments created with Ruby containers prior to November 9, 2013:

Ruby Container Types				
Name	AMI	Language	Application/Web Server	
32bit Amazon Linux running Ruby 1.9.3	2012.09	Ruby 1.9.3	Passenger 3.0.17	
64bit Amazon Linux running Ruby 1.9.3	2012.09	Ruby 1.9.3	Passenger 3.0.17	
32bit Amazon Linux running Ruby 1.8.7	2012.09	Ruby 1.8.7	Passenger 3.0.17	
64bit Amazon Linux running Ruby 1.8.7	2012.09	Ruby 1.8.7	Passenger 3.0.17	