SAP Business One, Version for SAP HANA, on the AWS Cloud

Quick Start Reference Deployment

Sabareesan Radhakrishnan

Mike Pfeiffer

April 2015
Updated: May 2015 ([revisions](#))

Contents

About This Guide

This Quick Start reference deployment guide discusses architectural considerations and configuration steps for deploying SAP Business One, version for SAP HANA, on the Amazon Web Services (AWS) cloud. It also provides links for viewing and launching AWS CloudFormation templates that automate the deployment.

This Quick Start fast-tracks deployment tasks for SAP Business One partners who are planning to host **SAP Business One, version for SAP HANA,** workloads on the AWS cloud.

Quick Starts are automated reference deployments for key enterprise workloads on the AWS cloud. Each Quick Start launches, configures, and runs the AWS compute, network, storage, and other services required to deploy a specific workload on AWS, using AWS best practices for security and availability.

Overview

SAP Business One, Version for SAP HANA, on AWS

SAP Business One, version for SAP HANA, is an integrated enterprise resource planning (ERP) solution designed for dynamically growing small and midsize businesses. This solution is powered by SAP HANA, which is SAP's in-memory database management system, and provides fast and predictable performance.

This Quick Start builds on the SAP HANA on AWS Quick Start, which has already been used successfully by many AWS customers and partners worldwide.

The AWS cloud provides a suite of infrastructure services that enable you to deploy SAP Business One, version for SAP HANA, in an easy and affordable way. By deploying SAP Business One, version for SAP HANA, on the AWS cloud, you can take advantage of the functionality of SAP Business One along with the flexibility, agility, and security of the AWS cloud platform.

This guide provides information for planning, configuring, and deploying a SAP Business One, version for SAP HANA, infrastructure on the AWS cloud. It doesn't cover general installation and software configuration tasks for SAP Business One. For general guidance and best practices, refer to the documentation provided by SAP at https://partneredge.sap.com.

> **Note**   This Quick Start reference deployment supports SAP Business One, version for SAP HANA, version 9.0 PL13-PL15, and version 9.1 PL05 with HANA revisions 74 and 85.

Quick Links

The links in this section are for your convenience. Before you launch the Quick Start, please review the architecture, configuration, network security, and other considerations discussed in this guide.

View template

> **Note**   The Launch link deploys SAP Business One, version for SAP HANA, into an existing Amazon Virtual Private Cloud (Amazon VPC). To create a new Amazon VPC for the deployment, see the [Deployment section](#) of this guide.

Launch
(for existing VPC)

Time to deploy: Approximately 1.5 hours (not including the time required to download and stage the SAP media)

Cost and Licenses

You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using the Quick Start. As of the date of publication, the approximate cost for all the resources created by this Quick Start with default settings is approximately $4.42 an hour. Prices are subject to change and depend on the region and the billing option you choose. See the pricing pages for each AWS service you will be using in this Quick Start or the [AWS Simple Monthly Calculator](#) for full details.

This deployment uses a Bring Your Own License (BYOL) model for SAP Business One, version for SAP HANA. You must already own a license for SAP Business One, version for SAP HANA, and you must have access to the [SAP Software Download Center](#) to download the software.

AWS Services

The core AWS components used by this Quick Start include the following AWS services. (If you are new to AWS, see the [Getting Started section](#) of the AWS documentation.)

- [Amazon VPC](#) – The Amazon Virtual Private Cloud (Amazon VPC) service lets you provision a private, isolated section of the AWS cloud where you can launch AWS services and other resources in a virtual network that you define. You have complete control over your virtual networking environment, including selection of your own IP

address range, creation of subnets, and configuration of route tables and network gateways.

- Amazon EC2 – The Amazon Elastic Compute Cloud (Amazon EC2) service enables you to launch virtual machine instances with a variety of operating systems. You can choose from existing Amazon Machine Images (AMIs) or import your own virtual machine images.

- Amazon EBS – Amazon Elastic Block Store (Amazon EBS) provides persistent block level storage volumes for use with Amazon EC2 instances in the AWS cloud. Each Amazon EBS volume is automatically replicated within its Availability Zone to protect you from component failure, offering high availability and durability. Amazon EBS volumes provide the consistent and low-latency performance needed to run your workloads.

- AWS CloudFormation – AWS CloudFormation gives you an easy way to create and manage a collection of related AWS resources, and provision and update them in an orderly and predictable way. You use a template to describe all the AWS resources (e.g., Amazon EC2 instances) that you want. You don't have to individually create and configure the resources or figure out dependencies—AWS CloudFormation handles all of that.

- IAM – AWS Identity and Access Management (IAM) enables you to securely control access to AWS services and resources for your users. With IAM, you can manage users, security credentials such as access keys, and permissions that control which AWS resources users can access, from a central location.

Architecture Overview

AWS CloudFormation provides an easy way to create and manage a collection of AWS resources in an orderly and predictable way. Deploying this Quick Start builds the following components in the AWS cloud:

- An Amazon Virtual Private Cloud (Amazon VPC) configured with two subnets, one public and the other private.

- A network address translation (NAT) instance deployed into the public subnet and configured with an Elastic IP address (EIP) for outbound Internet connectivity and inbound Secure Shell (SSH) access.

- A Microsoft Windows Server instance deployed in the public subnet for downloading SAP HANA media and for providing a remote desktop connection to the SAP Business One client instance.

- A SUSE Linux Enterprise Server (SLES) instance deployed in the private subnet for SAP Business One, version for SAP HANA.

- A Microsoft Windows Server instance deployed in the private subnet for the SAP Business One client.

- An IAM instance role created with fine-grained permissions for access to AWS services necessary for the deployment process.

- A SAP HANA system installed with Amazon EBS based on General Purpose (SSD) volumes configured to meet performance requirements for SAP HANA.

- SAP Business One, version for SAP HANA, server components installed on the SAP HANA database instance.

- SAP Business One, version for SAP HANA, client components installed on the Microsoft Windows Server instance.

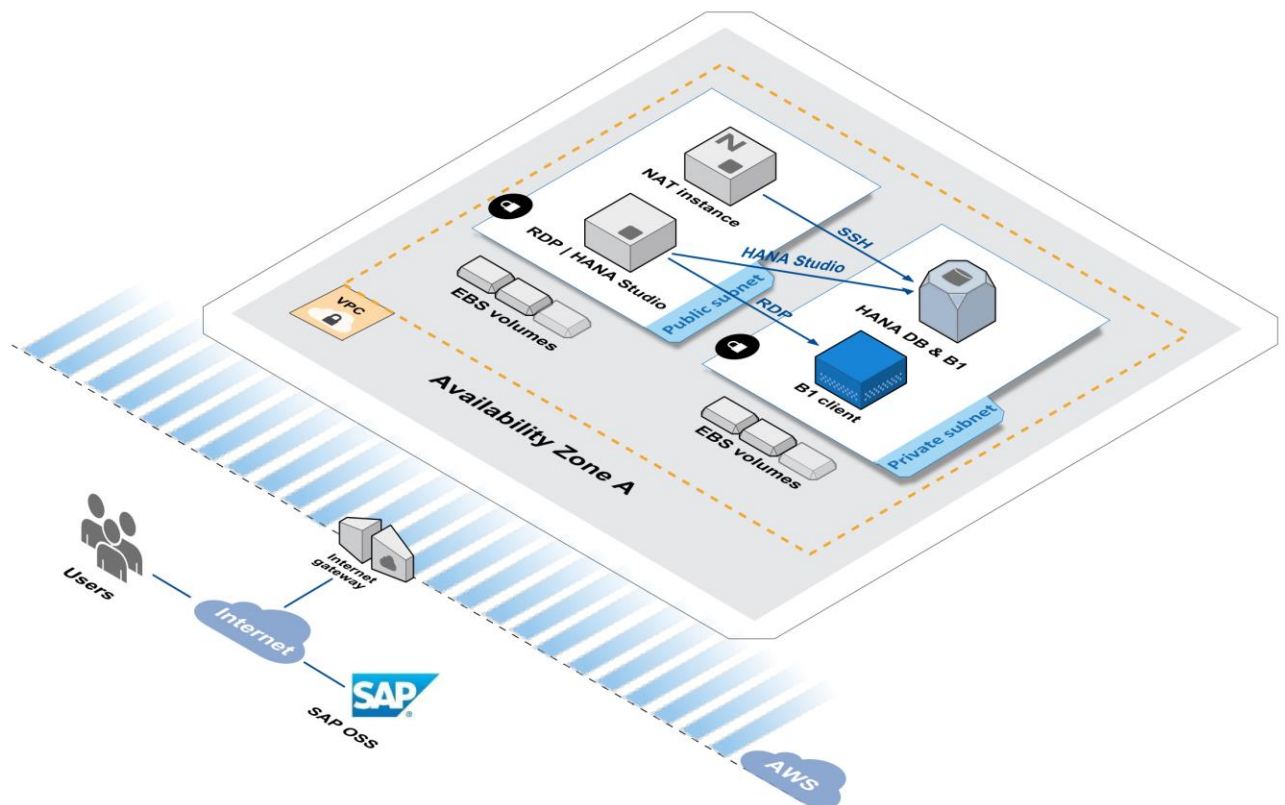- Security groups for each instance or function, to restrict access to only necessary protocols and ports.

Figure 1: SAP Business One, Version for SAP HANA, Architecture on AWS

AWS Instance Types for SAP Business One, Version for SAP HANA

This Quick Start supports four Amazon EC2 instance types (c3.8xlarge, r3.2xlarge, r3.4xlarge, and r3.8xlarge), which are customizable during the deployment. The R3 instance types are optimized to provide high-memory performance and an excellent price point per GiB of memory.

The following Amazon EC2 instances are certified by SAP to run SAP Business One, version for SAP HANA, on the AWS cloud platform for production use. For details, see SAP Note 2058870 (SAP Support Portal access required).

Instance Type	vCPU	Memory (GiB)	Maximum Number of Concurrent Users	Maximum Number of Log-on Users
c3.8xlarge	32	60	25	60
r3.8xlarge	32	244	30	75

For non-production usage scenarios, you may choose any of the following Amazon EC2 instance types for your deployment.

Instance Type	vCPU	Memory (GiB)
c3.8xlarge	32	60
r3.2xlarge	8	61
r3.4xlarge	16	122
r3.8xlarge	32	244

Overview of Installed SAP Components

The installation of the SAP HANA database software and SAP Business One software by this Quick Start follows best practices established by SAP for implementing SAP Business One, version for SAP HANA. The following table shows the components installed by this Quick Start in different layers.

SAP HANA Database (Linux)	SAP Business One Application (Linux)	SAP Business One Client (Windows)
SAP HANA database server SAP HANA database client (64-bit and 32-bit) SAP HANA Application Function Library (AFL)	SAP Business One Server Tools SAP Business One Server - Analytical features - Service layer components - Tomcat web server - Demo database - Help	SAP HANA Database client (64-bit) SAP Business One client, version for SAP HANA

Automated Deployment

The AWS CloudFormation template provided with this Quick Start bootstraps the AWS infrastructure and automates the deployment of SAP Business One, version for SAP HANA, on the AWS cloud from scratch. Follow the step-by-step instructions in this section to set up your AWS account, customize the template, and deploy the software into your account.

What We'll Cover

The procedure for deploying SAP Business One, version for SAP HANA, on AWS consists of the following steps. For detailed instructions, follow the links for each step.

> **Note**   You can skip steps 1, 2, and 3 if you've already set up an AWS account with the required network infrastructure, and you have an AWS snapshot of the SAP media.

Step 1. Prepare an AWS account

- Sign up for an AWS account, if you don't already have one.
- Choose the region where you want to deploy the stack on AWS.
- Create a key pair in the region.
- Request a limit increase for Amazon EC2 instances, if needed.

Step 2. Set up the network infrastructure

- Launch the AWS CloudFormation template to create an Amazon VPC, subnets, and NAT and RDP instances.

Step 3. Download and stage the SAP Business One media

- Connect to the RDP instance.

- Download the SAP Business One media from the RDP instance.
- Extract the media files and place them in the required folder structure.
- Create a snapshot of the media volume.

Step 4. Install SAP Business One, version for SAP HANA

- Launch the AWS CloudFormation template to install and configure SAP Business One, version for SAP HANA, server and client components.

Step 5. Post-installation tasks

- Connect to the SAP Business One client instance.
- Connect to the SAP HANA database instance.
- Back up the HANA database.
- Install additional SAP Business One client components.

Step 1. Prepare an AWS Account

> **Note**   If you already have an AWS account, skip to step 2.

1. Create an AWS account at http://aws.amazon.com by following the on-screen instructions. Part of the sign-up process involves receiving a phone call and entering a PIN using the phone keypad.

2. Use the region selector in the navigation bar to choose the Amazon EC2 region where you want to deploy SAP Business One on AWS.

   Amazon EC2 locations are composed of *regions* and *Availability Zones*. Regions are dispersed and located in separate geographic areas. This Quick Start uses the R3 or C3 instance type for the SAP Business One, version for SAP HANA, part of the deployment. R3 instances are currently available in all AWS regions except China (Beijing) and South America (São Paulo).
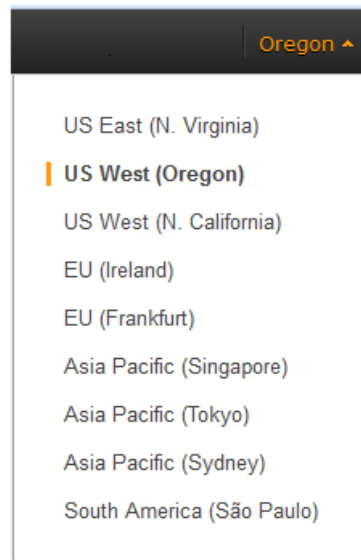
Figure 2: Choosing an Amazon EC2 Region

Tip   Consider choosing a region closest to your data center or corporate network to reduce network latency between systems running on AWS and the systems and users on your corporate network.

3. Create a key pair in your preferred region. To do this, in the navigation pane of the Amazon EC2 console, choose **Key Pairs**, **Create Key Pair**, type a name, and then choose **Create**.
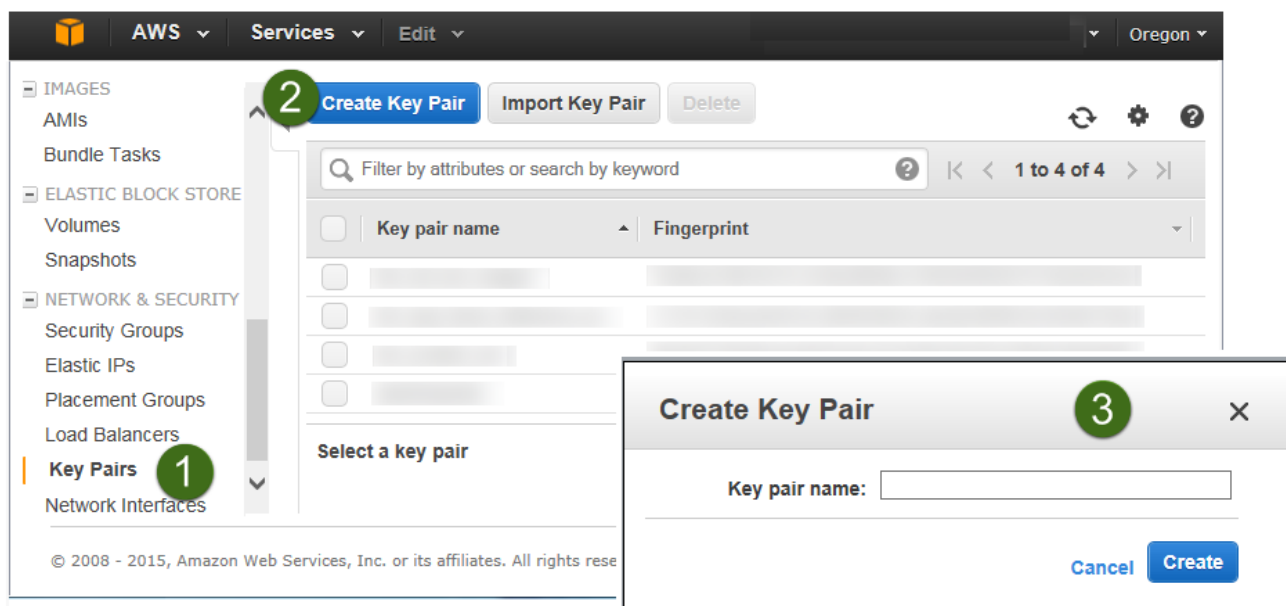

Figure 3: Creating a Key Pair

Amazon EC2 uses public-key cryptography to encrypt and decrypt login information. To be able to log in to your instances, you must create a key pair. With Windows instances, we use the key pair to obtain the administrator password via the Amazon EC2 console, and then log in using RDP, as explained in the step-by-step instructions in the *Amazon Elastic Compute Cloud User Guide*. On Linux, we use the key pair to authenticate SSH login.

4. If necessary, request a service limit increase for the Amazon EC2 r3.8xlarge or c3.8xlarge instance type. The current default limit is 5 instances for these instance types. It might take a few days for the new service limit to become effective. This step is necessary only if you intend to run more instances than your current limit. For more information, see Amazon EC2 Service Limits in the AWS documentation.

Figure 4: Requesting a Service Limit Increase

Step 2. Set up the Network Infrastructure

> **Note**   If you already have an Amazon VPC, a NAT instance, and an RDP instance set up in the target region where you want to deploy SAP Business One, version for SAP HANA, skip to step 3.

In this step, you will launch an AWS CloudFormation template to automatically create the following components in your target region:

- An Amazon VPC to set up your own virtual network with the IP address range that you define.

- A public subnet with Internet access, and a private subnet without direct Internet access, with the CIDR block range that you define.

- Security groups and an IAM role.

- A NAT instance and RDP instance inside the public subnet.

Follow these steps:

1. Launch the AWS CloudFormation template.

   This stack takes approximately 15 minutes to complete.

   **Launch
   (for new VPC)**

> **Note**   You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using this Quick Start. See the Cost section for cost estimates for different instance types and storage configurations. Prices are subject to change. For full details, see the pricing pages for each AWS service you will be using in this Quick Start.

2. Check the region that's displayed in the top-right corner of the navigation bar, and change it if necessary. This is where the network infrastructure for SAP Business One, version for SAP HANA, will be built. The template is launched in the US East (N. Virginia) region by default.

3. On the **Select Template** page, keep the default settings for the stack name and template source, and then choose **Next**.

4. On the **Specify Parameters** page, review the parameters for the template. Provide a value for the *KeyName* parameter. For all other parameters listed in the following

tables, you can keep or customize the default settings. Choose **Next** when you have finished defining the parameters.

Network Settings

Parameter	Default	Description
VPCCIDR	10.0.0.0/16	CIDR block for the Amazon VPC you are creating.
DMZCIDR	10.0.2.0/24	CIDR block for the public DMZ subnet located in the new Amazon VPC.
PrivSubCIDR	10.0.1.0/24	CIDR block for the private subnet where SAP Business One, version for SAP HANA, will be deployed.
RemoteAccessCIDR	0.0.0.0/0	IP CIDR from which you are likely to connect to the NAT instance by using SSH.
KeyName	*Requires input*	An existing public/private key pair, which allows you to connect securely to your instance after it launches. This is the key pair you created in step 1, when you prepared your AWS account.

Compute Settings

Parameter	Default	Description
NATInstanceType	t2.small	Amazon EC2 instance type for the NAT instance.
RDPInstanceType	m3.xlarge	Amazon EC2 instance type for the RDP instance.

> **Note**   You can also download the template and edit it to create your own parameters based on your specific deployment scenario.

5. On the **Options** page, you can specify tags (key-value pairs) for resources in your stack. For example, you can create a key called "Name" and specify "SAP Business One" as its value. Choose **Next** when you finish creating the tags. For more information, see Tagging Your Amazon EC2 Resources in the AWS documentation.

6. On the **Review** page, review and acknowledge the settings, and then choose **Create** to deploy the stack.

    When **CREATE_COMPLETE** is displayed in the status field and the RDP instance has been launched successfully, as shown in Figure 5, you can continue to step 3 to download the required media for SAP Business One, version for SAP HANA.

Create Stack	Update Stack	Delete Stack		

Filter: Active ▾   By Name: [ ]

	Stack Name	Created Time	Status	Description
☑	AWS-SAP-HANA-Infrastructure	2015-04-11 19:50:40 UTC-0700	CREATE_COMPLETE	(0007) AWS Infrastructure Deployment for SAP HANA

Overview   Outputs   Resources   Events   Template   Parameters   Tags   Stack Policy

NATInterface	eni-c4b8a5a1	AWS::EC2::NetworkInterface	CREATE_COMPLETE
NATSecurityGroup	sg-eb9a1f8e	AWS::EC2::SecurityGroup	CREATE_COMPLETE
OutBoundPublicNetworkAclEntry	AWS-S-OutBo-1J537B2WXEI8G	AWS::EC2::NetworkAclEntry	CREATE_COMPLETE
PublicNetworkAcl	acl-eb7fac8e	AWS::EC2::NetworkAcl	CREATE_COMPLETE
PublicRoute	AWS-S-Publi-TQAGEJD9EJQL	AWS::EC2::Route	CREATE_COMPLETE
PublicSubnetRouteTableAssociation	rtbassoc-b7944fd2	AWS::EC2::SubnetRouteTableAssociation	CREATE_COMPLETE
RDPEIP	52.64.14.50	AWS::EC2::EIP	CREATE_COMPLETE
RDPInstance	i-425bf49e	AWS::EC2::Instance	CREATE_COMPLETE
RDPInstanceRootRole	AWS-SAP-HANA-Infrastructure-RDPInstanceRootRole-18E8GJFQADGJH	AWS::IAM::Role	CREATE_COMPLETE
RDPInterface	eni-fab8a59f	AWS::EC2::NetworkInterface	CREATE_COMPLETE
RDPProfile	AWS-SAP-HANA-Infrastructure-RDPProfile-15XUANNBWAAXA	AWS::IAM::InstanceProfile	CREATE_COMPLETE

Figure 5: Successful Creation of the Stack

Step 3. Download and Stage the SAP Media

> **Note**   If you already have the AWS snapshot of the SAP media required for the deployment of SAP Business One, version for SAP HANA, skip to step 4.

In this step, you will log in to the RDP instance that was created in step 2 to download the SAP media required for SAP Business One, version for SAP HANA, from the SAP Software Download Center (SAP Support Portal access required). When you've downloaded the SAP media, you will need to extract the media into the required folder structure and take a snapshot of the media volume.

1. Sign in to the AWS Management Console and open the Amazon EC2 console at https://console.aws.amazon.com/ec2/.

2. In the Amazon EC2 console, select the RDP instance, and then choose **Connect**.
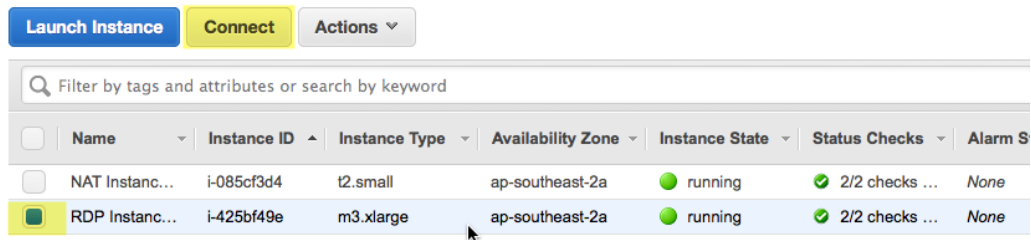
Figure 6: Connecting to the RDP Instance

3. In the **Connect To Your Instance** dialog box, choose **Get Password**, and then provide the private key of the key pair that you created in step 1, when you set up your AWS account.
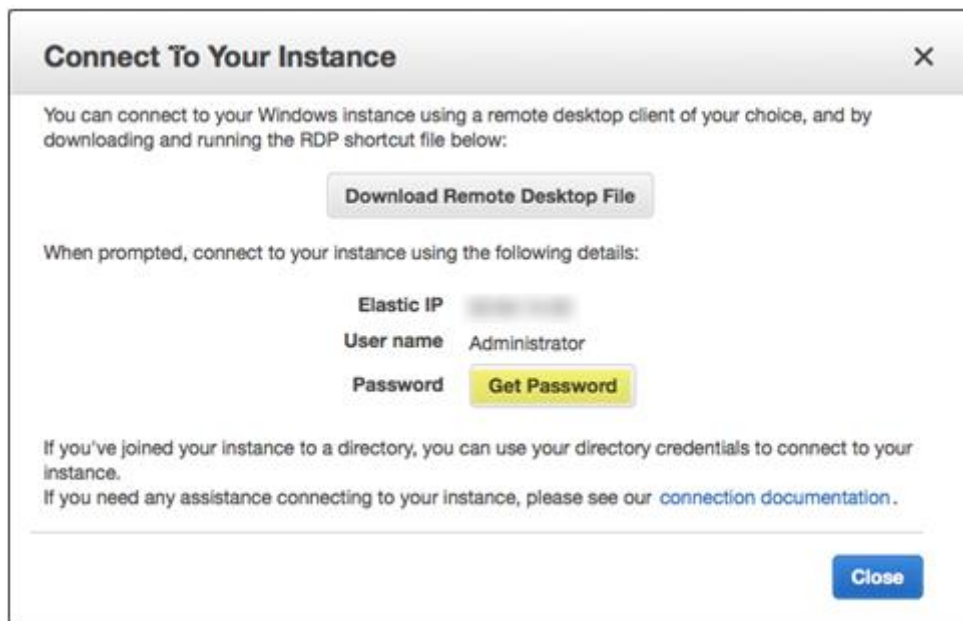

Figure 7: Getting the Administrator Password

4. Connect to the RDP instance by using any remote desktop client with the public IP address, Administrator user, and password.

5. After you connect to the RDP instance, open Windows File Explorer and create the folder structure for the D: drive shown in Figure 8.

Important   This folder structure is critical. The SAP Business One media has to be placed in the appropriate folder in order for the AWS CloudFormation template to complete the deployment successfully.

		Comments
D: B1HANA_MEDIA B1HANA_910	Common	Place B1 Installation files here. Execute .EXE file to unpack multispanning RAR files
	Linux	Extract HANA DB Server file IMDB_SERVER<xxxxxx>.SAR using SAPCAR into Linux Folder
		Extract HANA DB **32-bit LINUX** Client file IMDB_CLIENT<xxxxx>.SAR using SAPCAR into Linux Folder and MOST IMPORTANTLY rename the extracted folder to **SAP_HANA_CLIENT32**
		Extract HANA DB **64-bit LINUX** Client file IMDB_CLIENT<xxxxx>.SAR using SAPCAR into Linux Folder and MOST IMPORTANTLY rename the extracted folder to **SAP_HANA_CLIENT64**
		Extract HANA DB AFL file IMDB_HANAAFL<xxxxxx>.SAR using SAPCAR into Linux Folder
	Windows	Extract HANA DB **32-bit WINDOWS** Client file IMDB_CLIENT<xxxxx>.SAR using SAPCAR into Windows Folder and MOST IMPORTANTLY rename the extracted folder to **SAP_HANA_CLIENT32**
		Extract HANA DB **64-bit WINDOWS** Client file IMDB_CLIENT<xxxxx>.SAR using SAPCAR into Windows Folder and MOST IMPORTANTLY rename the extracted folder to **SAP_HANA_CLIENT64**
		Extract Windows HANA DB Studio file IMC_STUDIO<xxxxxx>.SAR using SAPCAR into Windows Folder.

Figure 8: Required Folder Structure for the D: Drive

> **Note** If you want to stage more than one version of the SAP Business One media, create another sub-folder under B1HANA_MEDIA called B1HANA_900 (for SAP Business One version 9.0) and follow the same folder structure shown in Figure 8.

6. Use any browser of your choice to log in to the SAP Service Marketplace (SAP Service Marketplace access required).

   a. From the SAP Service Marketplace, navigate to the **Software Downloads** page.

   b. From the left navigation pane, choose **SAP Business One for Partners**.

   c. From the **SAP Business One Software Download Center** page, choose **Installation**.

   d. *Download the SAP Business One installation files*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> Installation -> Downloads -> Download all the files (EXE and RAR files).

   e. *Download HANA DB AFL for SAP Business One*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> SAP HANA PLATFORM EDITION 1.0 FOR B1 -> SAP HANA AFL 1.0 FOR B1 -> Linux SUSE on x86_64 64bit -> Downloads -> Download the required version of the SAR file.

f. *Download HANA DB Server for SAP Business One*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> SAP HANA PLATFORM EDITION 1.0 FOR B1 -> SAP HANA DATABASE 1.0 FOR B1 -> Linux SUSE on x86_64 64bit -> Downloads -> Download the required version of TAR / SAR file.

> **Note**   HANA DB server media for revision 85 is delivered in multiple TAR file format. Make sure that you've downloaded the entire set of TAR files.

g. *Download the 64-bit HANA DB client for Linux*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> SAP HANA PLATFORM EDITION 1.0 FOR B1 -> SAP HANA CLIENT 1.0 FOR B1 -> Linux SUSE on x86_64 64bit -> Downloads -> Download the required version of SAR file.

h. *Download the 32-bit HANA DB client for Linux*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> SAP HANA PLATFORM EDITION 1.0 FOR B1 -> SAP HANA CLIENT 1.0 FOR B1 -> Linux SUSE on IA32 32bit -> Downloads -> Download the required version of SAR file.

i. *Download the 64-bit HANA DB client for Windows*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> SAP HANA PLATFORM EDITION 1.0 FOR B1 -> SAP HANA CLIENT 1.0 FOR B1 -> Windows on x64 64bit -> Downloads -> Download the required version of SAR file.

j. *Download the 32-bit HANA DB client for Windows*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> SAP HANA PLATFORM EDITION 1.0 FOR B1 -> SAP HANA CLIENT 1.0 FOR B1 -> Windows Server on IA32 32bit -> Downloads -> Download the required version of SAR file.

k. *Download the 64-bit HANA Studio for Windows*: Choose SAP B1 VERSION FOR SAP HANA -> SAP B1 <version> FOR SAP HANA (choose the version you would like to install) -> SAP HANA PLATFORM EDITION 1.0 FOR B1 -> SAP HANA STUDIO 1.0 FOR B1 -> Windows on x64 64bit -> Downloads -> Download the required version of SAR file.

You need the Windows version of the SAPCAR executable to extract the downloaded SAR files. From the SAP Service Marketplace software download page, choose **Search for Software**. In the search window, type **SAPCAR**, and then choose **Search**. From the result set, download the latest version of the SAPCAR executable for the **Windows**

on x64 64bit operating system. Save the downloaded SAPCAR executable in the D:\B1HANA_MEDIA folder.

> **Tip** To extract the multi-part TAR files in Windows, you can download and install the [open source TAR program for Windows](), and then use this syntax:
>
> ```
> TAR.EXE -xvM --file=< TAR file name for Part 1> --file=<TAR file
> name for Part 2>
> ```
>
> When the multi-part TAR file is extracted, it creates a SAR file that you will need to extract again with the SAPCAR tool.

> **Tip** To extract SAR files by using SAPCAR, use this syntax:
>
> ```
> SAPCAR -xvf <SAR file name>
> ```

Figure 9 shows the final folder structure when all the required SAP Business One media has been downloaded and extracted into the appropriate folders.

				Comments
		Common	<99999999>	B1 Installation Media
D:	B1HANA_MEDIA	B1HANA_910	Linux	SAP_HANA_DATABASE	HANA DB Server
				SAP_HANA_CLIENT32	HANA DB **32-bit LINUX** Client
				SAP_HANA_CLIENT64	HANA DB **64-bit LINUX** Client
				SAP_HANA_AFL	HANA DB AFL
			Windows	SAP_HANA_CLIENT32	HANA DB **32-bit WINDOWS** Client
				SAP_HANA_CLIENT64	HANA DB **64-bit WINDOWS** Client
				SAP_HANA_STUDIO	HANA DB Studio for Windows

Figure 9: Final Folder Structure

7. Create a snapshot of the D: drive. You will use this snapshot in the next step when you launch a template to deploy SAP Business One, version for SAP HANA.

   a. Take the D: drive offline. From Windows Server Manager, choose **File and Storage Services**, **Volumes**, **Disks**, and then right-click the storage volume and choose **Take Offline**.

   b. Open the Amazon EC2 console, and choose **Volumes** in the navigation pane.

c. Select the volume named **HANA Software Download Volume**, and then choose **Actions**, **Create Snapshot** to create the snapshot of the volume (Figure 10).
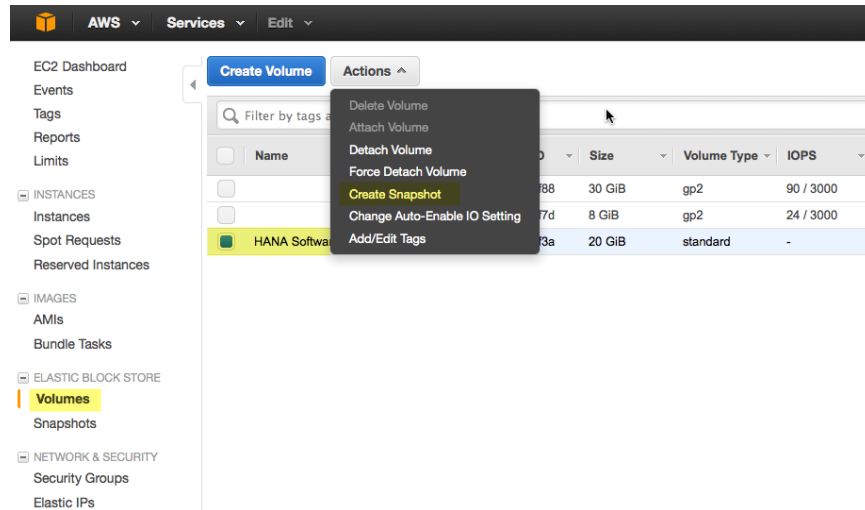
Figure 10: Creating a Snapshot

> **Note**   You can view the progress of your snapshot by choosing **Snapshots** from the navigation pane. Note the snapshot ID. This snapshot will be used in the next step. Optionally, when the snapshot is complete, you may attach the volume to the RDP instance if needed (choose **Actions**, **Attach Volume**, and then select the RDP instance to attach the media volume back to the RDP instance).

d. When the snapshot is complete, you can bring the D: drive back online. From Windows Server Manager, choose **File and Storage Services**, **Volumes**, **Disks**, and then right-click the storage volume and choose **Take Online**.

Step 4. Install SAP Business One, Version for SAP HANA

> **Note**   Complete this step only if you've already set up an Amazon VPC, and public and private subnets. You should also have a NAT instance running in the public subnet of your target Amazon VPC. If you don't have these infrastructure components in place, follow the instructions in step 2.

In this step, you will launch an AWS CloudFormation template to automate the following tasks.

- Create an Amazon EC2 instance based on SUSE Linux Enterprise Server (SLES) in the private subnet of your Amazon VPC for SAP Business One, version for SAP HANA.

- Create security groups to secure access to the SAP Business One instance.

- Create Amazon EBS storage volumes for the SAP HANA database and SAP Business One software.

- Install OS packages for SAP Business One, version for SAP HANA.

- Create physical volumes, volume groups, logical volumes, and the file systems for SAP HANA and SAP Business One.

- Install and configure SAP HANA and SAP Business One software on the Linux instance.

- Create a Microsoft Windows-based EC2 instance in the private subnet of your Amazon VPC for SAP Business One client software.

- Install and configure SAP Business One client software on the Windows instance.

Make sure that you've identified the following information before launching the stack.

- SLES AMI ID—This ID will be used to launch the EC2 instance for SAP Business One, version for SAP HANA. See Appendix A if you need help identifying the correct SLES AMI.

- SAP Business One media snapshot ID—This snapshot will be used to create media volumes for SAP Business One, version for SAP HANA, installation. If you don't have a snapshot, follow the instruction in step 3 of this guide.

Follow these steps:

1. Launch the AWS CloudFormation template.

   This stack takes approximately 1.5 hours to complete.

   Launch
   (for existing VPC)

   > **Note** You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using this Quick Start. See the Cost section for cost estimates for different instance types and storage configurations. Prices are subject to change. For full details, see the pricing pages for each AWS service you will be using in this Quick Start.

2. Check the region that's displayed in the top-right corner of the navigation bar, and change it if necessary. This is where SAP Business One, version for SAP HANA, will be deployed on AWS. The template is launched in the US East (N. Virginia) region by default.

3. On the **Select Template** page, keep the default settings for **Stack** and **Template Source**.

4. On the **Specify Parameters** page, review the parameters for the template. Some of the parameters have default values; you may change these if necessary.

Parameter	Default	Description
B1Country	US	Country associated with the SAP Business One demo database to be installed. See Appendix C for localization details.
B1Language	EN	Language of the SAP Business One help files to be installed. See Appendix C for localization details.
B1Pass	*Requires input*	Business One Administrator password. This must be a minimum of 8 characters and must include uppercase, lowercase, and numeric values.
B1Version	910	Version of the SAP Business One software to be installed.
DMZCIDR	10.0.2.0/24	CIDR block for the public DMZ subnet located in the new Amazon VPC.
DomainName	local	Domain name to be used for fully qualified domain names.
HANADBHostname	hanab1	Hostname to be used for the SAP HANA node (DNS shortname).

Parameter	Default	Description
HANADBPass	*Requires input*	HANA DB Administrator password. This must be a minimum of 8 characters and must include uppercase, lowercase, and numeric values.
HANASubnet	*subnet-xxxxxxxx*	Subnet ID of the existing private subnet in your Amazon VPC where you want to deploy SAP Business One, version for SAP HANA. Read the important note after this table, and see Appendix D for information about how to choose the right subnet.
KeyName	*Requires input*	An existing public/private key pair, which allows you to connect securely to your instance after it launches. This is the key pair you created in step 1, when you prepared your AWS account.
MyInstanceType	c3.8xlarge	Instance type of the SAP Business One, version for SAP HANA, host. Supported instance types are r3.8xlarge, r3.4xlarge, r3.2xlarge, and c3.8xlarge.
MyRegionAMI	*ami-xxxxxxxx*	Region-specific AMI that contains the OS image for SAP Business One, version for SAP HANA, nodes (currently SUSE 11.3). See Appendix A to find the right AMI if needed.
PrivSubCIDR	10.0.1.0/24	CIDR block for private subnet where SAP HANA should be deployed.
SnapShotID	*snap-xxxxxxxx*	Snapshot ID of the SAP Business One, version for SAP HANA, media volume.
VPCID	*vpc-xxxxxxxx*	ID of the existing Amazon VPC where you want to deploy SAP Business One, version for SAP HANA.
WinInstanceType	m3.large	Amazon EC2 instance type for the SAP Business One client software.

> **Important**   Make sure that the subnet that you choose for the *HANASubnet* parameter has access to the Internet via a NAT instance. Otherwise, the deployment will fail. See Appendix D for more information how to choose the right subnet for this Quick Start deployment.

You can also download the template and edit it to create your own parameters based on your specific deployment scenario.

5. On the **Options** page, you can specify tags (key-value pairs) for resources in your stack. For example, you can create a key called "Name" and specify "SAP Business One" as its value. Choose **Next** when you have finished creating the tags.

6. On the **Review** page, review and acknowledge the settings, and then choose **Create** to deploy the stack.

   When **CREATE_COMPLETE** is displayed in the status field, the deployment of SAP Business One, version for SAP HANA, is complete. You can now connect to the SAP HANA database via HANA Studio, or log in to the Windows instance and launch SAP Business One client software to connect and verify the installation.

Step 5. Post-Installation Tasks

Connecting to the SAP Business One Client Instance

1. In the Amazon EC2 console, choose **Instances** from the left pane, select the SAP Business One client instance (named WINClient), and note its IP address.

2. Connect to the RDP instance by using any remote desktop client of your choice. (See the instructions in step 3.)

3. Use the remote desktop connection from the RDP instance to connect to the SAP Business One client. Enter the IP address of the SAP Business One client instance, and log in as Administrator. The Administrator password for the SAP Business One client instance is the same as the password you entered for the SAP HANA database and SAP Business One during the template launch. You may want to change the password later for security.

4. In the desktop of the SAP Business One client instance, double-click the shortcut to the SAP Business One client software to launch the client.

5. When prompted, enter the name of the landscape server that you specified for SAP HANA and SAP Business One while launching the template. Leave the port unchanged. The AWS CloudFormation template automatically adds a *hosts* file entry in the SAP Business One client machine to resolve the SAP Business One server name.

6. Choose the default company database (refresh your screen if necessary) and enter the default user ID and password (manager/*******) to log in to the SAP Business One client.

Connecting to the SAP Business One, Version for SAP HANA, Linux Instance

When the AWS CloudFormation template has successfully created the stack, the SAP Business One, version for SAP HANA, Linux node will be running with the software installed in your AWS account. To connect to the SAP Business One, version for SAP HANA, Linux node, use SSH to connect to the NAT instance. In the Amazon EC2 console, choose the NAT instance, and then choose **Connect**.

Figure 11: Connecting to the NAT Instance

You can then connect to the SAP Business One, version for SAP HANA, Linux instance in a similar way: Choose the SAP HANA instance from the Amazon EC2 console, and then choose **Connect** to find the SSH command.

> **Important**   You need the private key (.pem) file to connect to the SAP Business One Linux node. Copy the private key (.pem) file into the NAT instance; for example:
>
> ```
> scp –i mykey.pem mykey.pem ec2-user@NAT-public-ip:/home/ec2-user/mykey.pem
> ```

Backing up the SAP HANA Database

It is important to schedule a backup of your newly created SAP HANA database to ensure that your data stored in the SAP HANA database is safe. The Quick Start deployment creates a backup file system (/backup) in your SAP HANA database instance. You can schedule your SAP HANA database backup and have it store the backup data at /backup. We recommend that you copy the backed up data from /backup to your own Amazon Simple Storage Service (Amazon S3) bucket to ensure that your database is protected in the case of Availability Zone failures. When you copy your data to an Amazon S3 bucket, it is automatically replicated across multiple Availability Zones within a region for maximum availability. Follow the instructions outlined in the SAP HANA Administration Guide to schedule and maintain your HANA database backup.

> **Note**   There is an additional cost for Amazon S3 storage. See Amazon S3 Pricing.

Installing and Configuring Additional SAP Business One Components

- This Quick Start installs the 64-bit version of the SAP Business One, version for SAP HANA, client on the Microsoft Windows client instance. If you need additional client applications (for example, SAP Business One Studio, Software Development Kit, Data Transfer Workbench), you can install them manually.

> **Note**   The D: drive on the Windows client instance includes the SAP Business One and HANA media.

- If you plan to use interactive analysis using Microsoft Excel for reporting, you must manually install Microsoft Excel on the Windows client instance.

- If you have any 32-bit add-on components for SAP Business One, you must manually install the 32-bit version of the SAP Business One, version for SAP HANA, client on the Windows client instance.

- If you want to use the Data Interface Server (DI Server) or Workflow functions, you must manually install DI Server and Workflow server tools on the Windows client instance or on a separate Windows instance. You can use the media drive mounted on the Windows client instance for your installation.

- If you want to use integration components, you can install them manually on the Windows client instance or on a separate Windows instance.

- If needed, you can install SAP Crystal Reports, version for SAP Business One, on the Windows client.

Updating the SAP HANA Database and SAP Business One

Follow the instructions in the SAP Business One, version for SAP HANA, administrator's guide to get the latest patches for the SAP HANA database and SAP Business One.

Security

The AWS cloud provides a scalable, highly reliable platform that helps customers deploy applications and data quickly and securely.

When you build systems on the AWS infrastructure, security responsibilities are shared between you and AWS. This shared model can reduce your operational burden as AWS operates, manages, and controls the components from the host operating system and virtualization layer down to the physical security of the facilities in which the services operate. In turn, you assume responsibility and management of the guest operating system (including updates and security patches), other associated applications, as well as the configuration of the AWS-provided security group firewall. For more information about security on AWS, visit the [AWS Security Center](#).

AWS Identity and Access Management (IAM)

This Quick Start leverages an IAM role with least privileged access. It is not necessary or recommended to store SSH keys, secret keys, or access keys on the provisioned instances.

OS Security

The root user on the SAP Business One, version for SAP HANA, node can be accessed only by using the SSH key specified during the deployment process. AWS doesn't store these SSH keys, so if you lose your SSH key you can lose access to these instances.

Operating system patches are your responsibility and should be performed on a periodic basis.

Security Groups

A *security group* acts as a firewall that controls the traffic for one or more instances. When you launch an instance, you associate one or more security groups with the instance. You add rules to each security group that allow traffic to or from its associated instances. You can modify the rules for a security group at any time. The new rules are automatically applied to all instances that are associated with the security group.

The security groups created and assigned to the individual instances as part of this solution are restricted as much as possible while allowing access to the various functions needed by the SAP HANA database as well as the server and client components of SAP Business One.

We recommend reviewing security groups to further restrict access as needed once the instance is up and running. See Appendix B for a complete list of ports and protocols configured as part of this solution.

Additional Resources

AWS services

- AWS CloudFormation
  http://aws.amazon.com/documentation/cloudformation/

- Amazon EBS
  - User guide:
    http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AmazonEBS.html

  - Optimized instances:
    http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSOptimized.html

- Amazon EC2
  - User guide for Microsoft Windows:
    http://docs.aws.amazon.com/AWSEC2/latest/WindowsGuide/

  - AWS request to remove email sending limitations:
    https://portal.aws.amazon.com/gp/aws/html-forms-controller/contactus/ec2-email-limit-rdns-request

- Amazon VPC
  http://aws.amazon.com/documentation/vpc/

SAP Business One, version for SAP HANA, documentation

- SAPPartnerEdge
  https://partneredge.sap.com

- SAP Notes and Knowledge Base articles
  https://support.sap.com/notes

Quick Start reference deployments

- SAP HANA Quick Start
  https://s3.amazonaws.com/quickstart-reference/sap/hana/latest/doc/SAP+HANA+Quick+Start.pdf

- Additional Quick Starts
  http://aws.amazon.com/quickstart/

Appendix A: Finding the SLES AMI

1. In the Amazon EC2 console, choose **AMIs** from the left navigation pane.

2. Choose **Public Images**, and then type **SUSE-SLES-11-SP3** in the search field to filter the list of AMI IDs.

3. To scope the list by virtualization type, click the search field, choose **Virtualization type**, and then choose **HVM**.

4. To filter the list by creation date, click the search field, choose **Creation Date**, and search for AMIs that were created in the last few months.
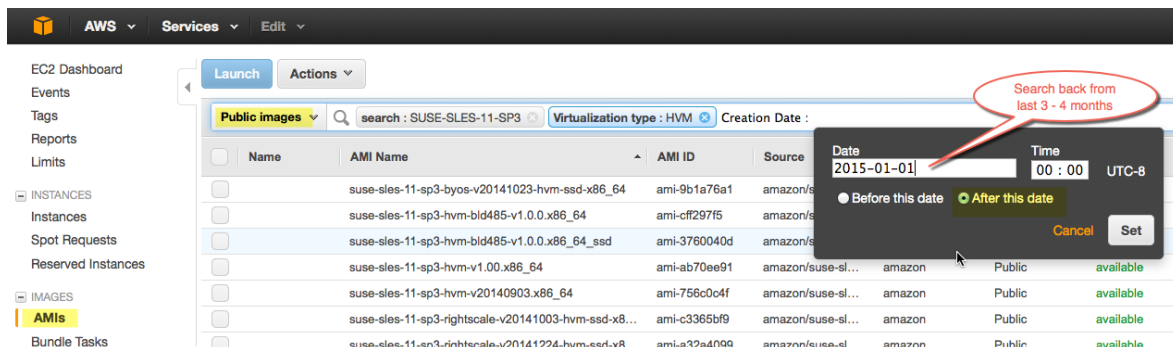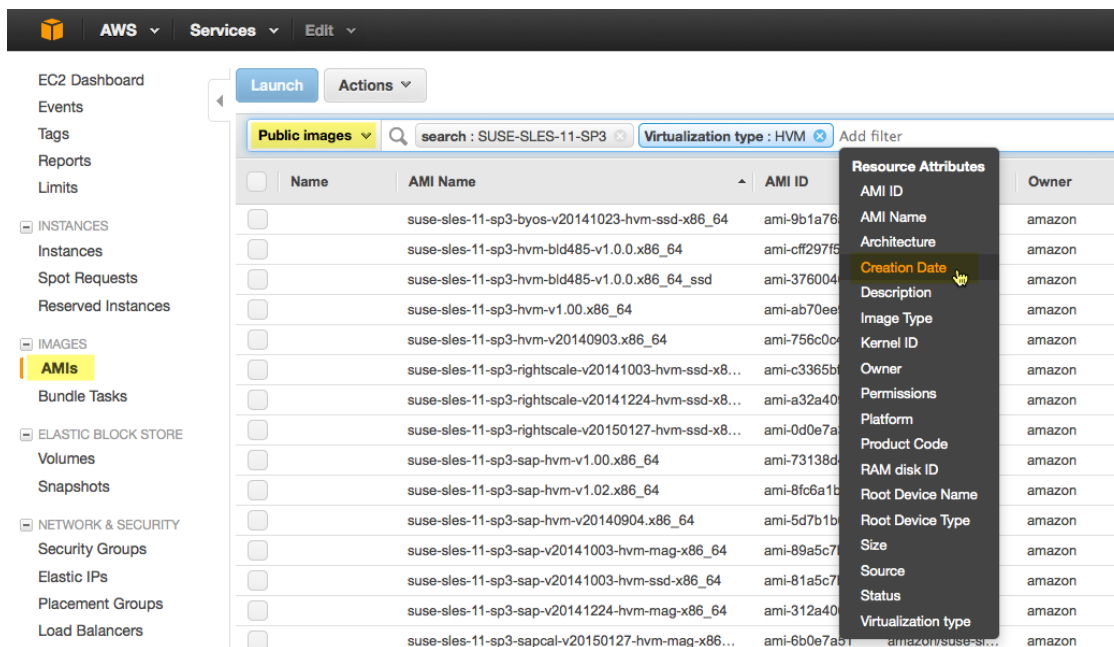
5. You should now have a small result set of AMIs. Choose the AMI with the name **suse-sles-sp3-vYYYYMMDD-hvm-ssd-x86_64**, and note its ID.

Appendix B: Security Groups

The following tables show the configured inbound and outbound protocols and ports allowed for the various instances deployed by this Quick Start.

RDP Security Group			
Inbound			
Source	Protocol	Port Range (Service)	Comments
Restricted to CIDR block specified during the deployment process	TCP	3389 (RDP)	Allow inbound RDP access to Windows instances from your network (over the Internet gateway).
Outbound			
Destination	Protocol	Port Range	Comments
0.0.0.0/0	TCP	1 - 65535	Allow outbound access from RDP server to anywhere.

NAT Security Group			
Inbound			
Source	Protocol	Port Range (Service)	Comments
Restricted to CIDR block specified during the deployment process	TCP	22 (SSH)	Allow inbound SSH access to Linux instances from your network (over the Internet gateway).
10.0.0.0/16	TCP	80 (HTTP)	Allow inbound HTTP access only from instances deployed in the Amazon VPC.
10.0.0.0/16	TCP	443 (HTTPS)	Allow inbound HTTPS access only from instances deployed in the Amazon VPC.
Outbound			
Destination	Protocol	Port Range	Comments
10.0.1.0/24	TCP	22 (SSH)	Allow SSH access from NAT instances to the 10.0.1.0 subnet.

NAT Security Group

Inbound

0.0.0.0/0	TCP	80 (HTTP)	Allow outbound HTTP access from instances deployed in the Amazon VPC to anywhere.
0.0.0.0/0	TCP	443 (HTTPS)	Allow outbound HTTPS access from instances deployed in the Amazon VPC to anywhere.

SAP HANA Master and SAP Business One Security Groups

Inbound *(## corresponds to the SAP instance number)*

Source	Protocol	Port Range (Service)	Comments
10.0.1.0/24	TCP	1 - 65535	Communication between instances within the private subnet.
10.0.1.0/24	TCP/UDP	111,2049, 4000-4002	Ports used for NFS communication.
10.0.1.0/24	TCP	3##00 − 3##10	Database internal communication and SAP support access.
**10.0.1.0/24	TCP	22 (SSH)	Allow SSH access from other SAP HANA nodes.
10.0.2.0/24	TCP	22 (SSH)	Allow SSH access from NAT instances.
10.0.2.0/24	TCP	1128 - 1129	Host agent access.
10.0.2.0/24	TCP	43##	Access to XSEngine (HTTPS) from the 10.0.2.0 subnet.
10.0.2.0/24	TCP	80##	Access to XSEngine (HTTP) from the 10.0.2.0 subnet.
10.0.2.0/24	TCP	8080 (HTTP*)	Software Update Manager (SUM) access (HTTP).
10.0.2.0/24	TCP	8443 (HTTPS*)	Software Update Manager (SUM) access (HTTPS).
10.0.2.0/24	TCP	3##15	Database client access.
10.0.2.0/24	TCP	3##17	Database client access.
10.0.2.0/24	TCP	5##13 − 5##14	Allow access for HANA Studio from RDP instance.

Outbound

0.0.0.0/0	TCP	1 - 65535	Outbound access from SAP HANA master allowed to anywhere.

Appendix C: Country/Language Settings

The following tables show the list of countries and languages that this Quick Start supports and their abbreviations. You can use these values in the *B1Country* and *B1Language* parameters in the template that installs SAP Business One, version for SAP HANA (see step 4).

Country	Abbreviation
United States	US
Canada	CN
Australia	AU
Ireland	IE
Great Britain	GB
New Zealand	NZ
Japan	JP
Germany	DE
India	IN

Language	Abbreviation
English	EN
Japanese	JA
German	DE

Appendix D: How to Choose the Correct Subnet

1. Open the Amazon VPC console at https://console.aws.amazon.com/vpc/.

2. In the navigation pane, choose **Subnets**.

3. Choose the subnet where you want to deploy your SAP HANA instance. Look in the Route Table and ensure that its Internet traffic is routed via a NAT instance.

Send Us Feedback

We welcome your questions and comments. Please post your feedback on the AWS Quick Start Discussion Forum.

You can visit our GitHub repository to download the templates and scripts for this Quick Start, and to share your customizations with others.

Document Revisions

Date	Change	In section
May 2015	Updated SAP download and staging information to reflect support for version 9.1 PL05 with HANA revision 85.	Step 3: Download and Stage the SAP Media