
AWS CodeCommit

User Guide

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AWS CodeCommit: User Guide

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What Is AWS CodeCommit?

AWS CodeCommit is a version control service hosted by Amazon Web Services that you can use to privately store and manage assets (such as documents, source code, and binary files) in the cloud. For information about pricing for AWS CodeCommit, see [Pricing](#).

Topics

- [Introducing AWS CodeCommit \(p. 1\)](#)
- [How Does AWS CodeCommit Work? \(p. 2\)](#)
- [How Is AWS CodeCommit Different from File Versioning in Amazon S3? \(p. 3\)](#)
- [How Do I Get Started with AWS CodeCommit? \(p. 3\)](#)
- [Where Can I Learn More About Git? \(p. 3\)](#)

Introducing AWS CodeCommit

AWS CodeCommit is a secure, highly scalable, managed source control service that hosts private Git repositories. AWS CodeCommit eliminates the need for you to manage your own source control system or worry about scaling its infrastructure. You can use AWS CodeCommit to store anything from code to binaries. It supports the standard functionality of Git, so it works seamlessly with your existing Git-based tools.

With AWS CodeCommit, you can:

- **Benefit from a fully managed service hosted by AWS.** AWS CodeCommit provides high service availability and durability and eliminates the administrative overhead of managing your own hardware and software. There is no hardware to provision and scale and no server software to install, configure, and update.
- **Store your code securely.** AWS CodeCommit repositories are encrypted at rest as well as in transit.
- **Easily scale your version control projects.** AWS CodeCommit repositories can scale up to meet your development needs. The service can handle repositories with large numbers of files or branches, large file sizes, and lengthy revision histories.
- **Store anything, anytime.** AWS CodeCommit has no limit on the size of your repositories or on the file types you can store.
- **Integrate with other AWS and third-party services.** AWS CodeCommit keeps your repositories close to your other production resources in the AWS cloud, which helps increase the speed and

frequency of your development lifecycle. It is integrated with IAM and can be used with other AWS services and in parallel with other repositories.

- **Easily migrate files from other remote repositories.** You can migrate to AWS CodeCommit from any Git-based repository.
- **Use the Git tools you already know.** AWS CodeCommit supports Git commands as well as its own AWS CLI commands and APIs.

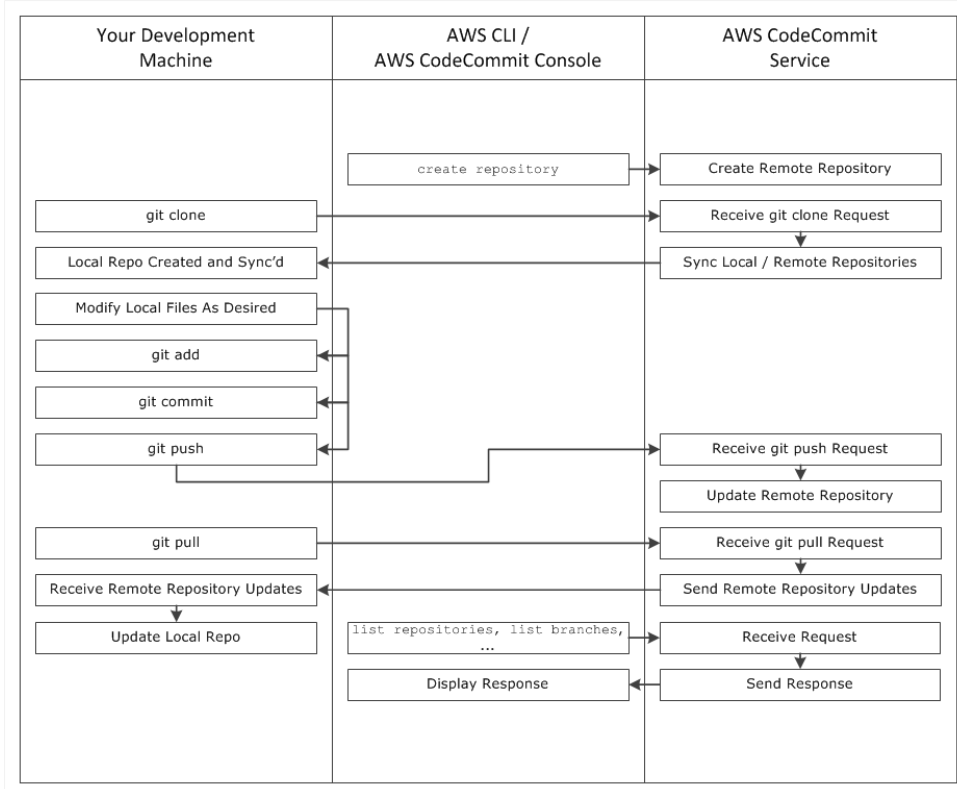
Self-hosted version control systems have many potential drawbacks, including:

- Expensive per-developer licensing fees.
- High hardware maintenance costs.
- High support staffing costs.
- Limits on the amount and types of files that can be stored and managed.
- Limits on the number of branches, the amount of version history, and other related metadata that can be stored.

How Does AWS CodeCommit Work?

AWS CodeCommit will seem familiar to users of Git-based repositories, but even those unfamiliar will find the transition to AWS CodeCommit relatively simple. AWS CodeCommit provides a console for the easy creation of repositories and the listing of existing repositories and branches. In a few simple steps, users can find information about a repository and clone it to their computer, creating a local repo where they can make changes and then push them to the AWS CodeCommit repository. Users can work from the command line on their local machines or use a GUI-based editor.

The following figure shows how you use your development machine, the AWS CLI or AWS CodeCommit console, and the AWS CodeCommit service to create and manage repositories:



1. Use the AWS CLI or the AWS CodeCommit console to create an AWS CodeCommit repository.
2. From your development machine, use Git to run **git clone**, specifying the name of the AWS CodeCommit repository. This will create a local repo that connects to the AWS CodeCommit repository.
3. Use the local repo on your development machine to modify (add, edit, and delete) files, and then run **git add** to stage the modified files locally. Run **git commit** to commit the files locally, and then run **git push** to send the files to the AWS CodeCommit repository.
4. Download changes from other users. Run **git pull** to synchronize the files in the AWS CodeCommit repository with your local repo. This ensures you're working with the latest version of the files.

You can use the AWS CLI or the AWS CodeCommit console to track and manage your repositories.

How Is AWS CodeCommit Different from File Versioning in Amazon S3?

AWS CodeCommit is designed for team software development. It manages batches of changes across multiple files, which can occur in parallel with changes made by other developers. Amazon S3 versioning supports the recovery of past versions of files, but it's not focused on collaborative file tracking features that software development teams need.

How Do I Get Started with AWS CodeCommit?

To get started with AWS CodeCommit:

1. Follow the steps in [Setting Up](#) (p. 4) to prepare your development machines.
2. Follow the steps in one or more of the tutorials in [Getting Started](#) (p. 27).
3. [Create](#) (p. 49) version control projects in AWS CodeCommit or [migrate](#) (p. 56) version control projects to AWS CodeCommit.

Where Can I Learn More About Git?

If you don't know it already, you should [learn how to use Git](#) (p. 152). Here are some helpful resources:

- [Pro Git](#), an online version of the *Pro Git* book. Written by Scott Chacon. Published by Apress.
- [Git cheat sheet](#), the absolute minimum number of commands you need to know to work with Git. Created by Nina Jaeschke.
- [Git Immersion](#), a try-it-yourself guided tour that walks you through the fundamentals of using Git. Published by Neo Innovation, Inc.
- [Git Reference](#), an online quick reference that can also be used as a more in-depth Git tutorial. Published by the GitHub team.
- [Git Cheat Sheet](#) with basic Git command syntax. Published by the GitHub team.
- [Git Pocket Guide](#). Written by Richard E. Silverman. Published by O'Reilly Media, Inc.

Setting Up for AWS CodeCommit

AWS CodeCommit setup will vary depending on the operating system and connection protocol you will use to connect to an AWS CodeCommit repository. The information in this topic can help you choose which steps to follow.

My computer is running	My repository connection protocol	Setup instructions
Shell or shell emulator with an existing public/private key pair	SSH	For SSH Users Not Using the AWS CLI (p. 5)
Linux, OS X, or Unix	HTTPS	For HTTPS Connections on Linux, OS X, or Unix (p. 7)
Linux, OS X, or Unix	SSH	For SSH Connections on Linux, OS X, or Unix (p. 16)
Windows	HTTPS	For HTTPS Connections on Windows (p. 11)
Windows	SSH	For SSH Connections on Windows (p. 21)

More Information About Connection Protocols and AWS CodeCommit

You can use either HTTPS or SSH to connect to an AWS CodeCommit repository. When you use Git to interact with an AWS CodeCommit repository (for example, whenever you call **git clone**, **git push**, or **git pull**), Git provides credentials to AWS CodeCommit. If you plan to connect to a repository that someone else has already created, that person might have provided instructions or an URL that indicates which protocol to use. If the URL starts with `https://`, follow the setup instructions for HTTPS connections. If the URL starts with `ssh://`, follow the setup instructions for SSH connections.

If you have not yet created any AWS CodeCommit repositories, or if you plan to connect to an existing repository but the repository owner has not indicated a preferred protocol, the following list can help you decide which connection type to use.

- **HTTPS:** With HTTPS connections, you allow Git to use a cryptographically signed version of your IAM user credentials or Amazon EC2 instance role whenever Git needs to authenticate with AWS to interact with AWS CodeCommit repositories. To do this, you configure a *credential helper* for Git on your local machine. A credential helper is included in the AWS CLI on Linux, OS X, or Unix, and included as part of the AWS SDK for .NET for Windows operating systems. Without this credential helper, you would need to manually sign and resubmit a cryptographic version of your IAM user credentials whenever Git must authenticate with AWS. The credential helper manages this process for you automatically.
- **SSH:** With SSH connections, you create public and private key files on your local machine that Git and AWS CodeCommit use for SSH authentication. You associate the public key with your IAM user. You store the private key on your local machine. Because SSH requires manual creation and management of public and private key files, you might find HTTPS simpler and easier to use with AWS CodeCommit.

Compatibility for AWS CodeCommit, Git, and Other Components

When working with AWS CodeCommit, you will use Git, and might use other programs as well. The following table provides the latest guidance for version compatibility.

Version Compatibility Information for AWS CodeCommit

Component	Version
Git	AWS CodeCommit supports Git versions 1.7.9 and later.
Curl	AWS CodeCommit requires curl 7.33 and later. However, there is a known issue with HTTPS and curl update 7.41.0. For specific issues with curl, see Troubleshooting (p. 139) .

Setup for SSH Users Not Using the AWS CLI

If you want to use SSH connections for your repository, you can connect to AWS CodeCommit without installing the AWS CLI. The AWS CLI includes commands that will be useful later when using and managing AWS CodeCommit repositories, but it is not required for initial setup.

This topic assumes:

- You have set up an IAM user with the policies or permissions required for AWS CodeCommit as well as the **IAMUserSSHKeys** managed policy or equivalent permissions required for uploading keys. For more information, see [Access Permissions Reference \(p. 159\)](#).
- You already have, or know how to create, a public/private key pair. We strongly recommend you use a secure passphrase for your SSH key.
- You are familiar with SSH, your Git client, and its configuration files.
- If you are using Windows, you have installed a command-line utility, such as Git Bash, that emulates the bash shell.

If you need more guidance, follow the detailed instructions in [For SSH Connections on Linux, OS X, or Unix \(p. 16\)](#) or [For SSH Connections on Windows \(p. 21\)](#).

Topics

- [Step 1: Associate Your Public Key with Your IAM User \(p. 6\)](#)
- [Step 2: Add AWS CodeCommit to Your SSH Configuration \(p. 6\)](#)
- [Next Steps \(p. 7\)](#)

Step 1: Associate Your Public Key with Your IAM User

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the IAM console, in the navigation pane, choose **Users**, and from the list of users, choose your IAM user.
3. On the **Security Credentials** tab, choose **Upload SSH public key**.
4. Paste the contents of your SSH public key into the field, and then choose **Upload SSH Key**.

Tip

The public/private key pair must be SSH-2 RSA, in OpenSSH format, and contain 2048 bits. The key will look similar to this:

```
ssh-rsa EXAMPLE-  
AfICcQD6m7oRw0uXOjANBqkqhkiG9w0BAQUFADCBiDELMAkGA1UEBhMCVVMxCzAJB  
gNVBAgTAldBMRAdG9YDVQqHEwdTZWF0dGx1MQ8wDQYDVQqKEwZBbWF6b24xFDASBgNVBA  
5zb2x1MRIwEAYDVQqDEwLUZXR0Q21sYWMMxHzAdBgkqhkiG9w0BCQEWEG5vb251QGftYXp  
vbi5jb20wHhcNMTEwNDI1MjA0NTIxWhcNMTEwNDI1MjA0NTIxWjCBiDELMAkGA1UEBhMCVVMxCzAJB  
gNVBAgTAldBMRAdG9YDVQqHEwdTZWF0dGx1MQ8wDQYDVQqKEwZBbWF6b24xFDAS=EXAMPLE user-  
name@ip-192-0-2-137
```

IAM accepts public keys in the OpenSSH format only. If you provide your public key in another format, you will see an error message stating the key format is not valid.

5. Copy the SSH key ID (for example, *APKAEIBAERJR2EXAMPLE*) and close the console.

SSH keys for AWS CodeCommit

Use SSH public keys to authenticate to AWS CodeCommit repositories. [Learn more about SSH keys.](#)

[Upload SSH public key](#)

SSH Key ID	Uploaded	Status	Actions
<i>APKAEIBAERJR2EXAMPLE</i>	2015-07-21 16:32 PDT	Active	Make Inactive

Step 2: Add AWS CodeCommit to Your SSH Configuration

1. At the terminal (Linux, OS X, or Unix) or bash emulator (Windows), edit your SSH configuration file by typing `cat>> ~/.ssh/config`:

```
Host git-codecommit.*.amazonaws.com  
User Your-SSH-Key-ID, such as APKAEIBAERJR2EXAMPLE
```

```
IdentityFile Your-Private-Key-File, such as ~/.ssh/codecommit_rsa or  
~/.ssh/id_rsa
```

Tip

If you have more than one SSH configuration, make sure you include the blank lines before and after the content. Save the file by pressing the `Ctrl` and `d` keys simultaneously.

2. Run the following command to test your SSH configuration:

```
ssh git-codecommit.us-east-2.amazonaws.com
```

Type the passphrase for your SSH key file when prompted. If everything is configured correctly, you should see the following success message:

```
You have successfully authenticated over SSH. You can use Git to interact  
with AWS CodeCommit.  
Interactive shells are not supported. Connection to git-codecommit.us-  
east-2.amazonaws.com closed by remote host.
```

Next Steps

You have completed the prerequisites. Follow the steps in [AWS CodeCommit Tutorial \(p. 27\)](#) to start using AWS CodeCommit.

To connect to an existing repository, follow the steps in [Connect to a Repository \(p. 80\)](#). To create a repository, follow the steps in [Create a Repository \(p. 49\)](#).

Setup Steps for HTTPS Connections to AWS CodeCommit Repositories on Linux, OS X, or Unix

Before you can connect to AWS CodeCommit for the first time, you must complete the initial configuration steps. This topic walks you through the steps to set up your computer and AWS profile, connect to an AWS CodeCommit repository, and clone that repository to your computer, also known as creating a local repo. If you're new to Git, you might also want to review the information in [Where Can I Learn More About Git? \(p. 3\)](#).

Topics

- [Step 1: Initial Configuration for AWS CodeCommit \(p. 8\)](#)
- [Step 2: Install Git \(p. 9\)](#)
- [Step 3: Set Up the Credential Helper \(p. 9\)](#)
- [Step 4: Connect to the AWS CodeCommit Console and Clone the Repository \(p. 11\)](#)
- [Next Steps \(p. 11\)](#)

Step 1: Initial Configuration for AWS CodeCommit

Follow these steps to set up an AWS account, create and configure an IAM user, and install the AWS CLI.

To create and configure an IAM user for accessing AWS CodeCommit

1. Create an AWS account by going to <http://aws.amazon.com> and choosing **Sign Up**.
2. Create an IAM user, or use an existing one, in your AWS account. Make sure you have an access key ID and a secret access key associated with that IAM user. For more information, see [Creating an IAM User in Your AWS Account](#).

Tip

AWS CodeCommit requires AWS Key Management Service. If you are using an existing IAM user, make sure there are no policies attached to the user that expressly deny the AWS KMS actions required by AWS CodeCommit. For more information, see [Encryption \(p. 173\)](#).

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
4. In the IAM console, in the navigation pane, choose **Users**, and then choose the IAM user you want to configure for AWS CodeCommit access.
5. On the **Permissions** tab, in **Grant permissions**, choose **Attach existing policies directly to user**.
6. Select **AWSCodeCommitFullAccess** from the list of policies, or another managed policy for AWS CodeCommit access. For more information about managed policies for AWS CodeCommit, see [Managed Policies for AWS CodeCommit \(p. 160\)](#).

If you want to use SSH to connect to AWS CodeCommit, also select the **IAMUserSSHKeys** and **IAMReadOnlyAccess** managed policies.

After you have selected the policies you want to attach, choose **Next: Review** to review the list of policies that will be attached to the IAM user. If the list is correct, choose **Add permissions**.

Tip

To learn more about AWS CodeCommit managed policies and sharing access to repositories with other groups and users, see [Share a Repository \(p. 52\)](#) and [Access Permissions Reference \(p. 159\)](#).

To install and configure the AWS CLI

1. On your local machine, download and install the AWS CLI. This is a prerequisite for interacting with AWS CodeCommit from the command line. For more information, see [Getting Set Up with the AWS Command Line Interface](#).

Note

AWS CodeCommit works only with AWS CLI versions 1.7.38 and later. To determine which version of the AWS CLI you have installed, run the `aws --version` command. To upgrade an older version of the AWS CLI to the latest version, follow the instructions in [Uninstalling the AWS CLI](#), and then follow the instructions in [Installing the AWS Command Line Interface](#).

2. Run this command to verify the AWS CodeCommit commands for the AWS CLI are installed:

```
aws codecommit help
```

This command should return a list of AWS CodeCommit commands.

3. Configure the AWS CLI with the **configure** command, as follows:

```
aws configure
```

When prompted, specify the AWS access key and AWS secret access key of the IAM user you will use with AWS CodeCommit. Also, be sure to specify the region where the repository exists, such as `us-east-2`. When prompted for the default output format, specify `json`. For example:

```
AWS Access Key ID [None]: Type your target AWS access key ID here, and  
then press Enter  
AWS Secret Access Key [None]: Type your target AWS secret access key here,  
and then press Enter  
Default region name [None]: Type a supported region for AWS CodeCommit  
here, and then press Enter  
Default output format [None]: Type json here, and then press Enter
```

To connect to a repository or a resource in another region, you must re-configure the AWS CLI with the default region name for that region. Supported default region names for AWS CodeCommit include:

- `us-east-1`
- `us-east-2`
- `eu-west-1`
- `us-west-2`

For more information about AWS CodeCommit and regions, see [Regions and Git Connection Endpoints \(p. 157\)](#). For more information about IAM, access keys, and secret keys, see [How Do I Get Credentials?](#) and [Managing Access Keys for IAM Users](#).

Step 2: Install Git

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git Downloads](#).

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting \(p. 139\)](#).

Step 3: Set Up the Credential Helper

1. From the terminal, use Git to run **git config**, specifying the use of the Git credential helper with the AWS credential profile, and enabling the Git credential helper to send the path to repositories:

```
git config --global credential.helper '!aws codecommit credential-helper  
$@'  
git config --global credential.UseHttpPath true
```

Tip

The credential helper will use the default AWS credential profile or the Amazon EC2 instance role. You can specify a profile to use, such as `CodeCommitProfile`, if you have created a specific AWS credential profile to use with AWS CodeCommit:


```
git config --global credential.helper '!aws --  
profile CodeCommitProfile codecommit credential-helper $@'
```

If your profile name contains spaces, make sure you enclose the name in quotation marks ("").

You can configure profiles per repository instead of globally by using `--local` instead of `--global`.

The Git credential helper writes the following value to `~/.gitconfig`:

```
[credential]  
  helper = !aws --profile CodeCommitProfile codecommit credential-helper  
  $@  
  UseHttpPath = true
```

Important

If you want to use a different IAM user on the same local machine for AWS CodeCommit, you must run the **git config** command again and specify a different AWS credential profile.

2. Run **git config --global --edit** to verify the preceding value has been written to `~/.gitconfig`. If successful, you should see the preceding value (in addition to values that may already exist in the Git global configuration file). To exit, typically you would type `:q`, and then press Enter.

If you experience problems after you configure your credential helper, see [Troubleshooting AWS CodeCommit \(p. 139\)](#).

Important

If you are using macOS, use the following steps to ensure the credential helper is configured correctly.

3. If you are using macOS, use HTTPS to [connect to an AWS CodeCommit repository \(p. 80\)](#). After you connect to an AWS CodeCommit repository with HTTPS for the first time, subsequent access will fail after about fifteen minutes. The default Git version on macOS uses the Keychain Access utility to store credentials. For security measures, the password generated for access to your AWS CodeCommit repository is temporary, so the credentials stored in the keychain will stop working after about 15 minutes. To prevent these expired credentials from being used, you must either:

- Install a version of Git that does not use the keychain by default.
- Configure the Keychain Access utility to not provide credentials for AWS CodeCommit repositories.

1. Open the Keychain Access utility. (You can use Finder to locate it.)
2. Search for `git-codecommit.us-east-2.amazonaws.com`. Highlight the row, open the context menu or right-click it, and then choose **Get Info**.
3. Choose the **Access Control** tab.
4. In **Confirm before allowing access**, choose `git-credential-osxkeychain`, and then choose the minus sign to remove it from the list.

Note

After removing `git-credential-osxkeychain` from the list, you will see a pop-up dialog whenever you run a Git command. Choose **Deny** to continue. If you find the pop-ups too disruptive, here are some alternate options:

- Connect to AWS CodeCommit using SSH instead of HTTPS. For more information, see [For SSH Connections on Linux, OS X, or Unix \(p. 16\)](#).
- In the Keychain Access utility, on the **Access Control** tab for `git-codecommit.us-east-2.amazonaws.com`, choose the **Allow all applications to access this item (access to this item is not restricted)** option. This will prevent the pop-ups, but the credentials will eventually expire (on average, this takes about 15 minutes) and you will see a 403 error message. When this happens, you must delete the keychain item in order to restore functionality.
- Install a version of Git that does not use the keychain by default.

Step 4: Connect to the AWS CodeCommit Console and Clone the Repository

If an administrator has already sent you the name and connection details for the AWS CodeCommit repository, you can skip this step and clone the repository directly.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. Choose the repository you want to connect to from the list. This opens the **Code** page for that repository.

Note

If you see a Welcome page instead of a list of repositories, there are no repositories associated with your AWS account. To create a repository, see [Create an AWS CodeCommit Repository \(p. 49\)](#) or follow the steps in the [Git with AWS CodeCommit Tutorial \(p. 35\)](#) tutorial.

4. Copy the HTTPS URL to use when connecting to the repository.
5. Open a terminal and from the `/tmp` directory, use the URL to clone the repository with the **git clone** command. For example, to clone a repository named *MyDemoRepo* to a local repo named *my-demo-repo* in the US East (Ohio) region:

```
git clone https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

For more information about how to connect to repositories, see [Connect to the AWS CodeCommit Repository by Cloning the Repository \(p. 81\)](#).

Next Steps

You have completed the prerequisites. Follow the steps in [AWS CodeCommit Tutorial \(p. 27\)](#) to start using AWS CodeCommit.

Setup Steps for HTTPS Connections to AWS CodeCommit Repositories on Windows

Before you can connect to AWS CodeCommit for the first time, you must complete the initial configuration steps. This topic walks you through the steps to set up your computer and AWS profile,

connect to an AWS CodeCommit repository, and clone that repository to your computer, also known as creating a local repo. If you're new to Git, you might also want to review the information in [Where Can I Learn More About Git? \(p. 3\)](#).

Topics

- [Step 1: Initial Configuration for AWS CodeCommit \(p. 12\)](#)
- [Step 2: Install Git \(p. 13\)](#)
- [Step 3: Set Up the Credential Helper \(p. 14\)](#)
- [Step 4: Connect to the AWS CodeCommit Console and Clone the Repository \(p. 15\)](#)
- [Next Steps \(p. 16\)](#)

Step 1: Initial Configuration for AWS CodeCommit

Follow these steps to set up an AWS account, create and configure an IAM user, and install the AWS CLI. The AWS CLI includes a credential helper that you will configure for HTTPS connections to your AWS CodeCommit repositories.

To create and configure an IAM user for accessing AWS CodeCommit

1. Create an AWS account by going to <http://aws.amazon.com> and choosing **Sign Up**.
2. Create an IAM user, or use an existing one, in your AWS account. Make sure you have an access key ID and a secret access key associated with that IAM user. For more information, see [Creating an IAM User in Your AWS Account](#).

Tip

AWS CodeCommit requires AWS Key Management Service. If you are using an existing IAM user, make sure there are no policies attached to the user that expressly deny the AWS KMS actions required by AWS CodeCommit. For more information, see [Encryption \(p. 173\)](#).

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
4. In the IAM console, in the navigation pane, choose **Users**, and then choose the IAM user you want to configure for AWS CodeCommit access.
5. On the **Permissions** tab, in **Grant permissions**, choose **Attach existing policies directly to user**.
6. Select **AWSCodeCommitFullAccess** from the list of policies, or another managed policy for AWS CodeCommit access. For more information about managed policies for AWS CodeCommit, see [Managed Policies for AWS CodeCommit \(p. 160\)](#).

If you want to use SSH to connect to AWS CodeCommit, also select the **IAMUserSSHKeys** and **IAMReadOnlyAccess** managed policies.

After you have selected the policies you want to attach, choose **Next: Review** to review the list of policies that will be attached to the IAM user. If the list is correct, choose **Add permissions**.

Tip

To learn more about AWS CodeCommit managed policies and sharing access to repositories with other groups and users, see [Share a Repository \(p. 52\)](#) and [Access Permissions Reference \(p. 159\)](#).

To install and configure the AWS CLI

1. On your local machine, download and install the AWS CLI. This is a prerequisite for interacting with AWS CodeCommit from the command line. For more information, see [Getting Set Up with the AWS Command Line Interface](#).

Note

AWS CodeCommit works only with AWS CLI versions 1.7.38 and later. To determine which version of the AWS CLI you have installed, run the `aws --version` command. To upgrade an older version of the AWS CLI to the latest version, follow the instructions in [Uninstalling the AWS CLI](#), and then follow the instructions in [Installing the AWS Command Line Interface](#).

2. Run this command to verify the AWS CodeCommit commands for the AWS CLI are installed:

```
aws codecommit help
```

This command should return a list of AWS CodeCommit commands.

3. Configure the AWS CLI with the **configure** command, as follows:

```
aws configure
```

When prompted, specify the AWS access key and AWS secret access key of the IAM user you will use with AWS CodeCommit. Also, be sure to specify the region where the repository exists, such as `us-east-2`. When prompted for the default output format, specify `json`. For example:

```
AWS Access Key ID [None]: Type your target AWS access key ID here, and  
then press Enter  
AWS Secret Access Key [None]: Type your target AWS secret access key here,  
and then press Enter  
Default region name [None]: Type a supported region for AWS CodeCommit  
here, and then press Enter  
Default output format [None]: Type json here, and then press Enter
```

To connect to a repository or a resource in another region, you must re-configure the AWS CLI with the default region name for that region. Supported default region names for AWS CodeCommit include:

- `us-east-1`
- `us-east-2`
- `eu-west-1`
- `us-west-2`

For more information about AWS CodeCommit and regions, see [Regions and Git Connection Endpoints \(p. 157\)](#). For more information about IAM, access keys, and secret keys, see [How Do I Get Credentials?](#) and [Managing Access Keys for IAM Users](#).

Step 2: Install Git

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git for Windows](#). If you use this link to install Git, you can accept all of the installation default settings except for the following:

- When prompted during the **Adjusting your PATH environment** step, select the **Use Git from the Windows Command Prompt** option.
- On the **Configuring extra options** page, make sure the **Enable Git Credential Manager** option is cleared. Although you can choose to install the Git Credential Manager, it is not compatible with

AWS CodeCommit. If you install it, you must manually modify your `.gitconfig` file to use the credential helper for AWS CodeCommit. Otherwise, you will not be able to connect to your AWS CodeCommit repository.

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting \(p. 139\)](#).

Step 3: Set Up the Credential Helper

The AWS CLI includes a Git credential helper you can use with AWS CodeCommit. The Git credential helper requires an AWS *credential profile*, which stores a copy of an IAM user's AWS access key ID and AWS secret access key (along with a default region name and default output format). The Git credential helper uses this information to automatically authenticate with AWS CodeCommit so you don't need to type this information every time you use Git to interact with AWS CodeCommit.

1. Open a command prompt and use Git to run **git config**, specifying the use of the Git credential helper with the AWS credential profile, which enables the Git credential helper to send the path to repositories:

```
git config --global credential.helper "!aws codecommit credential-helper
  $@"
git config --global credential.UseHttpPath true
```

The Git credential helper writes the following to the `.gitconfig` file:

```
[credential]
  helper = !aws codecommit credential-helper $@
  UseHttpPath = true
```

Important

- If you are using a Bash emulator instead of the Windows command line, you must use single quotes instead of double quotes.
- The credential helper will use the default AWS profile or the Amazon EC2 instance role. If you have created an AWS credential profile to use, such as *CodeCommitProfile*, you can modify the command as follows to use it instead:

```
git config --global credential.helper "!aws codecommit credential-
helper --profile CodeCommitProfile $@"
```

This will write the following to the `.gitconfig` file:

```
[credential]
  helper = !aws codecommit credential-helper --
profile=CodeCommitProfile $@
  UseHttpPath = true
```

- If your profile name contains spaces, you must edit your `.gitconfig` file after you run this command to enclose it in single quotes (`'`); otherwise, the credential helper will not work.
- If your installation of Git for Windows included the Git Credential Manager utility, you will see 403 errors or prompts to provide credentials into the Credential Manager utility

after the first few connection attempts. The most reliable way to solve this problem is to uninstall and then reinstall Git for Windows without the option for the Git Credential Manager utility, as it is not compatible with AWS CodeCommit. If you want to keep the Git Credential Manager utility, you must perform additional configuration steps to also use AWS CodeCommit, including manually modifying the `.gitconfig` file to specify the use of the credential helper for AWS CodeCommit when connecting to AWS CodeCommit. Remove any stored credentials from the Credential Manager utility (you can find this utility in Control Panel). Once you have removed any stored credentials, add the following to your `.gitconfig` file, save it, and then try connecting again from a new command prompt window:

```
[credential "https://git-codecommit.us-east-2.amazonaws.com" ]
  helper = !aws codecommit credential-helper $@
  UseHttpPath = true

[credential "https://git-codecommit.us-east-1.amazonaws.com" ]
  helper = !aws codecommit credential-helper $@
  UseHttpPath = true
```

Additionally, you might have to re-configure your **git config** settings by specifying **--system** instead of **--global** or **--local** before all connections work as expected.

- If you want to use different IAM users on the same local machine for AWS CodeCommit, you should specify **git config --local** instead of **git config --global**, and run the configuration for each AWS credential profile.
2. Run **git config --global --edit** to verify the preceding values have been written to the `.gitconfig` file for your user profile (by default, `%HOME%\.gitconfig` or `drive:\Users\UserName\.gitconfig`). If successful, you should see the preceding values (in addition to values that may already exist in the Git global configuration file). To exit, typically you would type `:q` and then press Enter.

Step 4: Connect to the AWS CodeCommit Console and Clone the Repository

If an administrator has already sent you the name and connection details for the AWS CodeCommit repository, you can skip this step and clone the repository directly.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. Choose the repository you want to connect to from the list. This opens the **Code** page for that repository.

Note

If you see a Welcome page instead of a list of repositories, there are no repositories associated with your AWS account. To create a repository, see [Create an AWS CodeCommit Repository \(p. 49\)](#) or follow the steps in the [Git with AWS CodeCommit Tutorial \(p. 35\)](#) tutorial.

4. Copy the HTTPS URL to use when connecting to the repository.
5. Open a command prompt and use the URL to clone the repository with the **git clone** command. The local repo will be created in a subdirectory of the directory where you run the command. For example, to clone a repository named *MyDemoRepo* to a local repo named *my-demo-repo* in the US East (Ohio) region:

```
git clone https://git-codecommit.us-east-2.amazonaws.com/v1/repos/  
MyDemoRepo my-demo-repo
```

On some versions of Windows, you might see a pop-up dialog box asking for your user name and password. This is the built-in credential management system for Windows, but it is not compatible with the credential helper for AWS CodeCommit. Choose **Cancel**.

For more information about how to connect to repositories, see [Connect to the AWS CodeCommit Repository by Cloning the Repository \(p. 81\)](#).

Next Steps

You have completed the prerequisites. Follow the steps in [AWS CodeCommit Tutorial \(p. 27\)](#) to start using AWS CodeCommit.

Setup Steps for SSH Connections to AWS CodeCommit Repositories on Linux, OS X, or Unix

Before you can connect to AWS CodeCommit for the first time, you must complete the initial configuration steps. This topic walks you through the steps for setting up your computer and AWS profile, connecting to an AWS CodeCommit repository, and cloning that repository to your computer (also known as creating a local repo). If you're new to Git, you might also want to review the information in [Where Can I Learn More About Git? \(p. 3\)](#).

Topics

- [Step 1: Initial Configuration for AWS CodeCommit \(p. 16\)](#)
- [Step 2: Install Git \(p. 17\)](#)
- [Step 3: Configure Credentials on Linux, OS X, or Unix \(p. 17\)](#)
- [Step 4: Connect to the AWS CodeCommit Console and Clone the Repository \(p. 20\)](#)
- [Next Steps \(p. 21\)](#)

Step 1: Initial Configuration for AWS CodeCommit

Follow these steps to set up an AWS account, create an IAM user, and configure access to AWS CodeCommit.

To create and configure an IAM user for accessing AWS CodeCommit

1. Create an AWS account by going to <http://aws.amazon.com> and choosing **Sign Up**.
2. Create an IAM user, or use an existing one, in your AWS account. Make sure you have an access key ID and a secret access key associated with that IAM user. For more information, see [Creating an IAM User in Your AWS Account](#).

Tip

AWS CodeCommit requires AWS Key Management Service. If you are using an existing IAM user, make sure there are no policies attached to the user that expressly deny

the AWS KMS actions required by AWS CodeCommit. For more information, see [Encryption \(p. 173\)](#).

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
4. In the IAM console, in the navigation pane, choose **Users**, and then choose the IAM user you want to configure for AWS CodeCommit access.
5. On the **Permissions** tab, in **Grant permissions**, choose **Attach existing policies directly to user**.
6. Select **AWSCodeCommitFullAccess** from the list of policies, or another managed policy for AWS CodeCommit access. For more information about managed policies for AWS CodeCommit, see [Managed Policies for AWS CodeCommit \(p. 160\)](#).

If you want to use SSH to connect to AWS CodeCommit, also select the **IAMUserSSHKeys** and **IAMReadOnlyAccess** managed policies.

After you have selected the policies you want to attach, choose **Next: Review** to review the list of policies that will be attached to the IAM user. If the list is correct, choose **Add permissions**.

Tip

To learn more about AWS CodeCommit managed policies and sharing access to repositories with other groups and users, see [Share a Repository \(p. 52\)](#) and [Access Permissions Reference \(p. 159\)](#).

Note

If you want to use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference \(p. 150\)](#).

Step 2: Install Git

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git Downloads](#).

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting \(p. 139\)](#).

Step 3: Configure Credentials on Linux, OS X, or Unix

SSH and Linux, OS X, or Unix: Set Up the Public and Private Keys for Git and AWS CodeCommit

1. From the terminal on your local machine, run the **ssh-keygen** command, and follow the directions to save the file to the `.ssh` directory for your profile.

Note

Be sure to check with your system administrator about where key files should be stored and which file naming pattern should be used.

For example:

```
$ ssh-keygen
```



```
Generating public/private rsa key pair.
Enter file in which to save the key (/home/user-name/.ssh/id_rsa): Type /
home/your-user-name/.ssh/ and a file name here, for example /home/your-
user-name/.ssh/codecommit_rsa

Enter passphrase (empty for no passphrase): <Type a passphrase, and then
press Enter>
Enter same passphrase again: <Type the passphrase again, and then press
Enter>

Your identification has been saved in /home/user-name/.ssh/codecommit_rsa.
Your public key has been saved in /home/user-name/.ssh/codecommit_rsa.pub.
The key fingerprint is:
45:63:d5:99:0e:99:73:50:5e:d4:b3:2d:86:4a:2c:14 user-name@client-name
The key's randomart image is:
+--[ RSA 2048]-----+
|           E.+.*.++ |
|          .o .=.o. |
|         . . . * . + |
|        ..o . +.. |
|       So . . . |
|           . |
|-----+-----+
+-----+-----+
```

This generates:

- The `codecommit_rsa` file, which is the private key file.
 - The `codecommit_rsa.pub` file, which is the public key file.
2. Run the following command to display the value of the public key file (`codecommit_rsa.pub`):

```
cat ~/.ssh/codecommit_rsa.pub
```

Copy this value. It will look similar to the following:

```
ssh-rsa EXAMPLE-
AfICCD6m7oRw0uXOjANBgkqhkiG9w0BAQUFADCBiDELMAkGA1UEBhMCVVMxCzAJB
gNVBAGTAldBMRAdG9YDVQQHEwdTZWF0dGx1MQ8wDQYDVQQKEwZBbWF6b24x
FDASBgNVBAStC01BTSDBb2
5zb2x1MRIwEAYDVQQDEw1UZXR0Q21sYW9wYXN0aW50YXN0aW50YXN0aW50
NMTEwNDI1MjA0NTIxWhcnMTIwNDI1MjA0NTIxWjCBiDELMAkGA1UEBhMCVVMxCzAJB
gNVBAGTAldBMRAdG9YDVQQHEwdTZWF0dGx1MQ8wDQYDVQQKEwZBbWF6b24x
FDAS=EXAMPLE user-
name@ip-192-0-2-137
```

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
4. In the IAM console, in the navigation pane, choose **Users**, and from the list of users, choose your IAM user.
5. On the user details page, choose the **Security Credentials** tab, and then choose **Upload SSH public key**.
6. Paste the contents of your SSH public key into the field, and then choose **Upload SSH public key**.
7. Copy or save the information in **SSH Key ID** (for example, `APKAEIBAERJR2EXAMPLE`).

SSH keys for AWS CodeCommit

Use SSH public keys to authenticate to AWS CodeCommit repositories. [Learn more about SSH keys.](#)

[Upload SSH public key](#)

SSH Key ID	Uploaded	Status	Actions
APKAEIBAERJR2EXAMPLE	2015-07-21 16:32 PDT	Active	Make Inactive

- On your local machine, use a text editor to create a config file in the `~/.ssh` directory, and then add the following lines to the file, where the value for `User` is the SSH key ID you copied earlier:

```
Host git-codecommit.*.amazonaws.com
  User APKAEIBAERJR2EXAMPLE
  IdentityFile ~/.ssh/codecommit_rsa
```

Note

If you gave your private key file a name other than `codecommit_rsa`, be sure to use it here.

Save and name this file `config`.

- From the terminal, run the following command to change the permissions for the config file:

```
chmod 600 config
```

- Run the following command to test your SSH configuration:

```
ssh git-codecommit.us-east-2.amazonaws.com
```

You will be asked to confirm the connection because `git-codecommit.us-east-2.amazonaws.com` is not yet included in your known hosts file. The AWS CodeCommit server fingerprint is displayed as part of the verification:

Public fingerprints for AWS CodeCommit

Server	Cryptographic hash type	Fingerprint
git-codecommit.us-east-2.amazonaws.com	MD5	a9:6d:03:ed:08:42:21:be:06:e1:e0:2a:d1
git-codecommit.us-east-2.amazonaws.com	SHA256	31B1W2g5xn/ NA2Ck6dyeJIrQOWvn7n8UEs56fG6ZiZQ
git-codecommit.us-east-1.amazonaws.com	MD5	a6:9c:7d:bc:35:f5:d4:5f:8b:ba:6f:c8:bc
git-codecommit.us-east-1.amazonaws.com	SHA256	eLMY1j0DKA4uvDZc1/ KgtIayZANwX6t8+8isPtotBoY
git-codecommit.us-west-2.amazonaws.com	MD5	a8:68:53:e3:99:ac:6e:d7:04:7e:f7:92:95
git-codecommit.us-west-2.amazonaws.com	SHA256	0pJx9SQpkbPUAHwy58UVIq0IHcyo1fwCp0OuVg

Server	Cryptographic hash type	Fingerprint
git-codecommit.eu-west-1.amazonaws.com	MD5	93:42:36:ea:22:1f:f1:0f:20:02:4a:79:ff
git-codecommit.eu-west-1.amazonaws.com	SHA256	tKjRkOL8dmJyTmSbeSdN1S8F/ f0iq13R1vqgTOP1UyQ

After you have confirmed the connection, you should see confirmation that you have added the server to your known hosts file and a successful connection message. If you do not see a success message, double-check that you saved the `config` file in the `~/.ssh` directory of the IAM user you configured for access to AWS CodeCommit, and that you specified the correct private key file.

For information to help you troubleshoot problems, run the `ssh` command with the `-v` parameter:

```
ssh -v git-codecommit.us-east-2.amazonaws.com
```

You can find more information to help you troubleshoot connection problems in [Troubleshooting \(p. 139\)](#).

Step 4: Connect to the AWS CodeCommit Console and Clone the Repository

If an administrator has already sent you the name and connection details for the AWS CodeCommit repository, you can skip this step and clone the repository directly.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. Choose the repository you want to connect to from the list. This opens the **Code** page for that repository.

Note

If you see a Welcome page instead of a list of repositories, there are no repositories associated with your AWS account. To create a repository, see [Create an AWS CodeCommit Repository \(p. 49\)](#) or follow the steps in the [Git with AWS CodeCommit Tutorial \(p. 35\)](#) tutorial.

4. Copy the SSH URL to use when connecting to the repository.
5. Open a terminal. From the `/tmp` directory, using the SSH URL you copied, run the **git clone** command to clone the repository. For example, to clone a repository named *MyDemoRepo* to a local repo named *my-demo-repo* in the US East (Ohio) region:

```
git clone ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo  
my-demo-repo
```

For more information about how to connect to repositories, see [Connect to the AWS CodeCommit Repository by Cloning the Repository \(p. 81\)](#).

Next Steps

You have completed the prerequisites. Follow the steps in [AWS CodeCommit Tutorial \(p. 27\)](#) to start using AWS CodeCommit.

Setup Steps for SSH Connections to AWS CodeCommit Repositories on Windows

Before you can connect to AWS CodeCommit for the first time, you must complete the initial configuration steps. This topic walks you through the steps for setting up your computer and AWS profile, connecting to an AWS CodeCommit repository, and cloning that repository to your computer (also known as creating a local repo). If you're new to Git, you might also want to review the information in [Where Can I Learn More About Git? \(p. 3\)](#).

Topics

- [Step 1: Initial Configuration for AWS CodeCommit \(p. 21\)](#)
- [Step 2: Install Git \(p. 22\)](#)
- [SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit \(p. 22\)](#)
- [Step 4: Connect to the AWS CodeCommit Console and Clone the Repository \(p. 25\)](#)
- [Next Steps \(p. 26\)](#)

Step 1: Initial Configuration for AWS CodeCommit

Follow these steps to set up an AWS account, create an IAM user, and configure access to AWS CodeCommit.

To create and configure an IAM user for accessing AWS CodeCommit

1. Create an AWS account by going to <http://aws.amazon.com> and choosing **Sign Up**.
2. Create an IAM user, or use an existing one, in your AWS account. Make sure you have an access key ID and a secret access key associated with that IAM user. For more information, see [Creating an IAM User in Your AWS Account](#).

Tip

AWS CodeCommit requires AWS Key Management Service. If you are using an existing IAM user, make sure there are no policies attached to the user that expressly deny the AWS KMS actions required by AWS CodeCommit. For more information, see [Encryption \(p. 173\)](#).

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
4. In the IAM console, in the navigation pane, choose **Users**, and then choose the IAM user you want to configure for AWS CodeCommit access.
5. On the **Permissions** tab, in **Grant permissions**, choose **Attach existing policies directly to user**.
6. Select **AWSCodeCommitFullAccess** from the list of policies, or another managed policy for AWS CodeCommit access. For more information about managed policies for AWS CodeCommit, see [Managed Policies for AWS CodeCommit \(p. 160\)](#).

If you want to use SSH to connect to AWS CodeCommit, also select the **IAMUserSSHKeys** and **IAMReadOnlyAccess** managed policies.

After you have selected the policies you want to attach, choose **Next: Review** to review the list of policies that will be attached to the IAM user. If the list is correct, choose **Add permissions**.

Tip

To learn more about AWS CodeCommit managed policies and sharing access to repositories with other groups and users, see [Share a Repository \(p. 52\)](#) and [Access Permissions Reference \(p. 159\)](#).

Note

If you want to use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference \(p. 150\)](#).

Step 2: Install Git

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git Downloads](#).

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting \(p. 139\)](#).

If the version of Git you installed does not include a Bash emulator, such as Git Bash, install one. You will use this emulator instead of the Windows command line when you configure SSH connections.

SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit

1. Open the Bash emulator.

Tip

You might need to run the emulator with administrative permissions.

From the emulator, run the **ssh-keygen** command, and follow the directions to save the file to the `.ssh` directory for your profile.

For example:

```
$ ssh-keygen

Generating public/private rsa key pair.
Enter file in which to save the key (/drive/Users/user-name/.ssh/
id_rsa): Type a file name here, for example /c/Users/user-name/.ssh/
codecommit_rsa

Enter passphrase (empty for no passphrase): <Type a passphrase, and then
press Enter>
Enter same passphrase again: <Type the passphrase again, and then press
Enter>

Your identification has been saved in drive/Users/user-
name/.ssh/codecommit_rsa.
Your public key has been saved in drive/Users/user-
name/.ssh/codecommit_rsa.pub.
The key fingerprint is:
```

```
45:63:d5:99:0e:99:73:50:5e:d4:b3:2d:86:4a:2c:14 user-name@client-name
The key's randomart image is:
+--[ RSA 2048 ]-----+
|           E.+..o*..++|
|          .o .=.o.    |
|         . . . * . +  |
|        ..o . +..    |
|       So . . .      |
|                   .  |
+-----+

```

This generates:

- The `codecommit_rsa` file, which is the private key file.
 - The `codecommit_rsa.pub` file, which is the public key file.
2. Run the following commands to display the value of the public key file (`codecommit_rsa.pub`):

```
cd .ssh
notepad codecommit_rsa.pub
```

Copy the contents of the file, and then close Notepad without saving. The contents of the file will look similar to the following:

```
ssh-rsa EXAMPLE-
AfICCD6m7oRw0uXOjANBqkqhkiG9w0BAQUFADCBiDELMAkGA1UEBhMCVVMxCzAJB
gNVBAGTAldBMRawDgYDVQQHEwdTZWF0dGx1MQ8wDQYDVQQKEwZBbWF6b24x
FDASBgNVBAstC0lBTsBDb2
5zb2x1MRIwEAYDVQQDEw1UZXR0Q21sYW9wYXN0dGx1MQ8wDQYDVQ
NMTEwNDI1MjA0NTIxWhcNMTIwNDI1MjA0NTIxWjCBiDELMAkGA1UEBhMCVVMxCzAJB
gNVBAGTAldBMRaw
DgYDVQQHEwdTZWF0dGx1MQ8wDQYDVQQKEwZBbWF6b24x
FDAS=EXAMPLE user-
name@computer-name
```

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
4. In the IAM console, in the navigation pane, choose **Users**, and from the list of users, choose your IAM user.
5. On the user details page, choose the **Security Credentials** tab, and then choose **Upload SSH public key**.
6. Paste the contents of your SSH public key into the field, and then choose **Upload SSH public key**.
7. Copy or save the information in **SSH Key ID** (for example, `APKAEI BAERJR2EXAMPLE`).

SSH Key ID	Uploaded	Status	Actions
APKAEI BAERJR2EXAMPLE	2015-07-21 16:32 PDT	Active	Make Inactive

8. In the Bash emulator, type the following commands to create a config file in the `~/.ssh` directory, or edit it if one already exists:

```
notepad ~/.ssh/config
```

9. Add the following lines to the file, where the value for *User* is the SSH key ID you copied earlier, and the value for *IdentityFile* is the path to and name of the private key file:

```
Host git-codecommit.*.amazonaws.com  
  User APKAEI BAERJR2EXAMPLE  
  IdentityFile ~/.ssh/codecommit_rsa
```

Note

If you gave your private key file a name other than *codecommit_rsa*, be sure to use it here.

Save the file as config (not config.txt), and then close Notepad.

Important

The name of the file must be *config* with no file extension, or the SSH connections will fail.

10. Run the following command to test your SSH configuration:

```
ssh git-codecommit.us-east-2.amazonaws.com
```

You will be asked to confirm the connection because *git-codecommit.us-east-2.amazonaws.com* is not yet included in your known hosts file. The AWS CodeCommit server fingerprint is displayed as part of the verification:

Public fingerprints for AWS CodeCommit

Server	Cryptographic hash type	Fingerprint
git-codecommit.us-east-2.amazonaws.com	MD5	a9:6d:03:ed:08:42:21:be:06:e1:e0:2a:d1
git-codecommit.us-east-2.amazonaws.com	SHA256	31B1W2g5xn/ NA2Ck6dyeJIrQOWvn7n8UEs56fG6ZIzQ
git-codecommit.us-east-1.amazonaws.com	MD5	a6:9c:7d:bc:35:f5:d4:5f:8b:ba:6f:c8:bc
git-codecommit.us-east-1.amazonaws.com	SHA256	eLMY1j0DKA4uvDZc1/ KgtIayZANwX6t8+8isPtotBoY
git-codecommit.us-west-2.amazonaws.com	MD5	a8:68:53:e3:99:ac:6e:d7:04:7e:f7:92:95
git-codecommit.us-west-2.amazonaws.com	SHA256	0pJx9SQpkbPUAHwy58UVIq0IHcyo1fwCp0OuVg
git-codecommit.eu-west-1.amazonaws.com	MD5	93:42:36:ea:22:1f:f1:0f:20:02:4a:79:ff
git-codecommit.eu-west-1.amazonaws.com	SHA256	tKjRkOL8dmJyTmSbeSdN1S8F/ f0iq13RlvqgTOP1UyQ

After you have confirmed the connection, you should see confirmation that you have added the server to your known hosts file and a successful connection message. If you do not see a

success message, double-check that you saved the `config` file in the `~/.ssh` directory of the IAM user you configured for access to AWS CodeCommit, that the `config` file has no file extension (for example, it must not be named `config.txt`), and that you specified the correct private key file (`codecommit_rsa`, not `codecommit_rsa.pub`).

For information to help you troubleshoot problems, run the `ssh` command with the `-v` parameter:

```
ssh -v git-codecommit.us-east-2.amazonaws.com
```

You can find more information to help you troubleshoot connection problems in [Troubleshooting \(p. 139\)](#).

Step 4: Connect to the AWS CodeCommit Console and Clone the Repository

If an administrator has already sent you the name and connection details for the AWS CodeCommit repository, you can skip this step and clone the repository directly.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. Choose the repository you want to connect to from the list. This opens the **Code** page for that repository.

Note

If you see a Welcome page instead of a list of repositories, there are no repositories associated with your AWS account. To create a repository, see [Create an AWS CodeCommit Repository \(p. 49\)](#) or follow the steps in the [Git with AWS CodeCommit Tutorial \(p. 35\)](#) tutorial.

4. Choose **Clone URL**, and then copy the SSH URL.
5. In the Bash emulator, using the SSH URL you just copied, run the **git clone** command to clone the repository. This command will create the local repo in a subdirectory of the directory where you run the command. For example, to clone a repository named *MyDemoRepo* to a local repo named *my-demo-repo* in the US East (Ohio) region:

```
git clone ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo  
my-demo-repo
```

Alternatively, open a command prompt, and using the URL and the SSH key ID for the public key you uploaded to IAM, run the **git clone** command. The local repo will be created in a subdirectory of the directory where you run the command. For example, to clone a repository named *MyDemoRepo* to a local repo named *my-demo-repo*:

```
git clone ssh://Your-SSH-Key-ID@git-codecommit.us-east-2.amazonaws.com/v1/  
repos/MyDemoRepo my-demo-repo
```

For more information about how to connect to repositories, see [Connect to the AWS CodeCommit Repository by Cloning the Repository \(p. 81\)](#).

Next Steps

You have completed the prerequisites. Follow the steps in [AWS CodeCommit Tutorial \(p. 27\)](#) to start using AWS CodeCommit.

Getting Started with AWS CodeCommit

The easiest way to get started with AWS CodeCommit is to follow the steps in [AWS CodeCommit Tutorial \(p. 27\)](#). If you are new to Git as well as AWS CodeCommit, you should also consider following the steps in [Git with AWS CodeCommit Tutorial \(p. 35\)](#). This will help you familiarize yourself with AWS CodeCommit as well as the basics of using Git when interacting with your AWS CodeCommit repositories.

You can also follow the tutorial in [Simple Pipeline Walkthrough with AWS CodePipeline and AWS CodeCommit](#) to learn how to use your AWS CodeCommit repository as part of a continuous delivery pipeline.

The tutorials in this section assume you have completed the [prerequisites and setup \(p. 4\)](#), including:

- Assigning permissions to the IAM user.
- Setting up credential management for HTTPS or SSH connections on the local machine you will use for this tutorial.
- Configuring the AWS CLI if you want to use the command line or terminal for all operations, including creating the repository.

Topics

- [Getting Started with AWS CodeCommit Tutorial \(p. 27\)](#)
- [Git with AWS CodeCommit Tutorial \(p. 35\)](#)

Getting Started with AWS CodeCommit Tutorial

If you're new to AWS CodeCommit, this tutorial will help you learn how to use its features. In this tutorial, you will create a repository in AWS CodeCommit. After you create a local copy of that repo (a local repo) and push some changes to the AWS CodeCommit repository, you will browse the files

you pushed. You can also create a trigger for your repository, one that responds to events in your repository by sending a notification from an Amazon Simple Notification Service (Amazon SNS) topic.

If you are not familiar with Git, you might want to complete the [Git with AWS CodeCommit Tutorial \(p. 35\)](#) in addition to this tutorial. After you finish this tutorial, you should have enough practice to start using AWS CodeCommit for your own projects and in team environments.

Important

Before you begin this tutorial, you must complete the [prerequisites and setup \(p. 4\)](#), including:

- Assigning permissions to the IAM user.
- Setting up credential management for HTTPS or SSH connections on the local machine you will use for this tutorial.
- Configuring the AWS CLI if you want to use the command line or terminal for all operations, including creating the repository.

Topics

- [Step 1: Create an AWS CodeCommit Repository \(p. 28\)](#)
- [Step 2: Browse the Contents of Your Repository \(p. 29\)](#)
- [Step 3: Create a Trigger for Your Repository \(p. 33\)](#)
- [Step 4: Next Steps \(p. 34\)](#)
- [Step 5: Clean Up \(p. 35\)](#)

Step 1: Create an AWS CodeCommit Repository

In this step, you will use the AWS CodeCommit console to create the AWS CodeCommit repository you will use for this tutorial. If you already have a repository you want to use for this tutorial, you can skip this step.

Note

Depending on your usage, you might be charged for creating or accessing a repository. For more information, see [Pricing](#) on the AWS CodeCommit product information page.

To create the AWS CodeCommit repository (console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where you will create the repository. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. On the welcome page, choose **Get Started Now**. (If a **Dashboard** page appears instead of the welcome page, choose **Create new repository**.)
4. On the **Create new repository** page, in the **Repository name** box, type **MyDemoRepo**.
5. In the **Description** box, type **My demonstration repository**.
6. Choose **Create repository** to create an empty AWS CodeCommit repository named **MyDemoRepo**.

The screenshot shows the AWS CodeCommit console interface for creating a new repository. At the top, there are navigation tabs for 'AWS', 'Services', and 'Edit'. The main heading is 'Create new repository'. Below the heading is a brief instruction: 'Create a secure repository to store and share your code. Begin by typing a repository name and a description for your repository. Repository names are included in the URLs for that repository.' A light blue information box contains the text: 'Access to the repository: Users connecting to an AWS CodeCommit repository for the first time must complete setup steps before they can use it. Learn more'. Below this, there are two input fields: 'Repository name*' with the value 'MyDemoRepo' and 'Description' with the value 'My demonstration repository'. At the bottom left, there is a '*Required' label. At the bottom right, there are two buttons: 'Cancel' and 'Create repository'.

Note

If you use a name other than `MyDemoRepo` for your repository, be sure to substitute it for ours in the remaining steps of this tutorial.

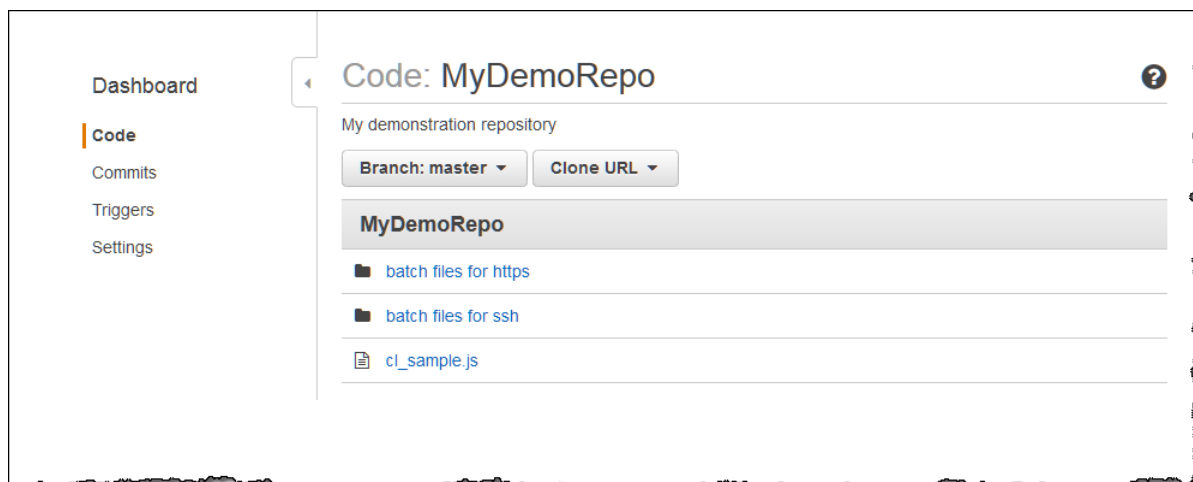
Now that you have an AWS CodeCommit repository, from your local computer, create a local repo by cloning the empty AWS CodeCommit repository. Add some files to the local repo and push them to the AWS CodeCommit repository. If you are not sure how to do this, follow the steps in [Step 2: Create a Local Repo \(p. 36\)](#) or [Connect to a Repository \(p. 80\)](#).

After you have added some files to the AWS CodeCommit repository, you can view them from the console.

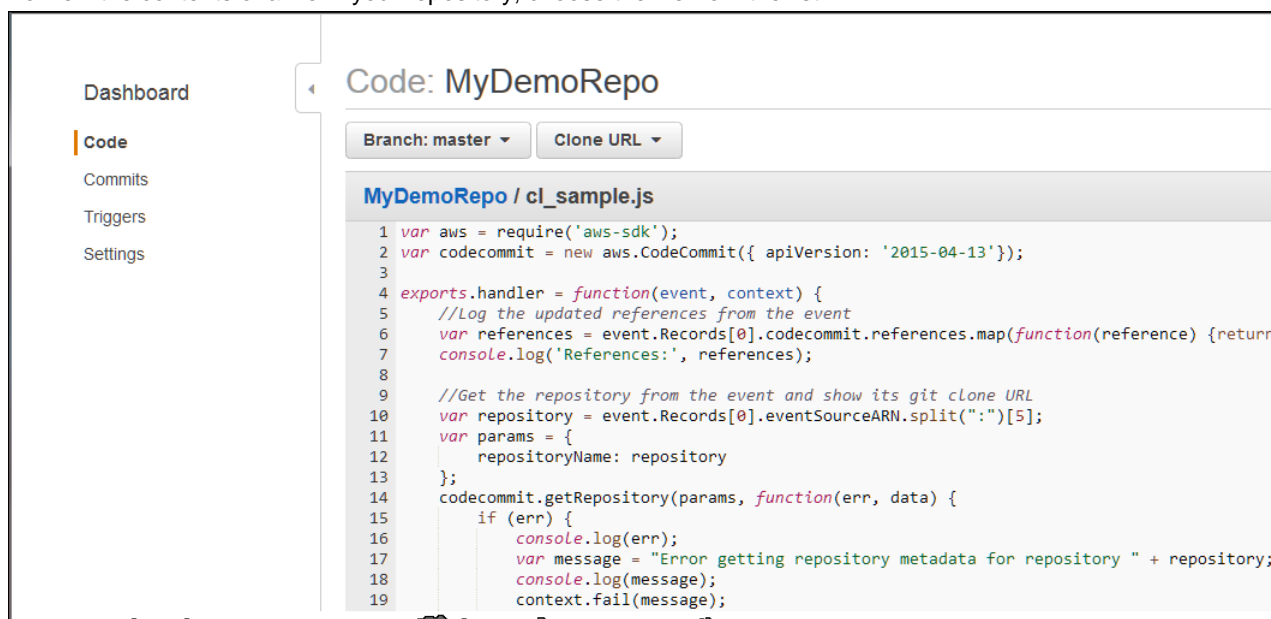
Step 2: Browse the Contents of Your Repository

In this step, you will browse the contents of your repository. You can use the AWS CodeCommit console to review the files in a repository or to quickly read the contents of a file. This can help you determine which branch to check out or whether to create a local copy of a repository.

1. From the AWS CodeCommit console, choose `MyDemoRepo` from the list of repositories.
2. The contents of the repository are displayed in the default branch for your repository. To change the view to another branch, choose the view selector button, and then choose the branch you want to view from the list.



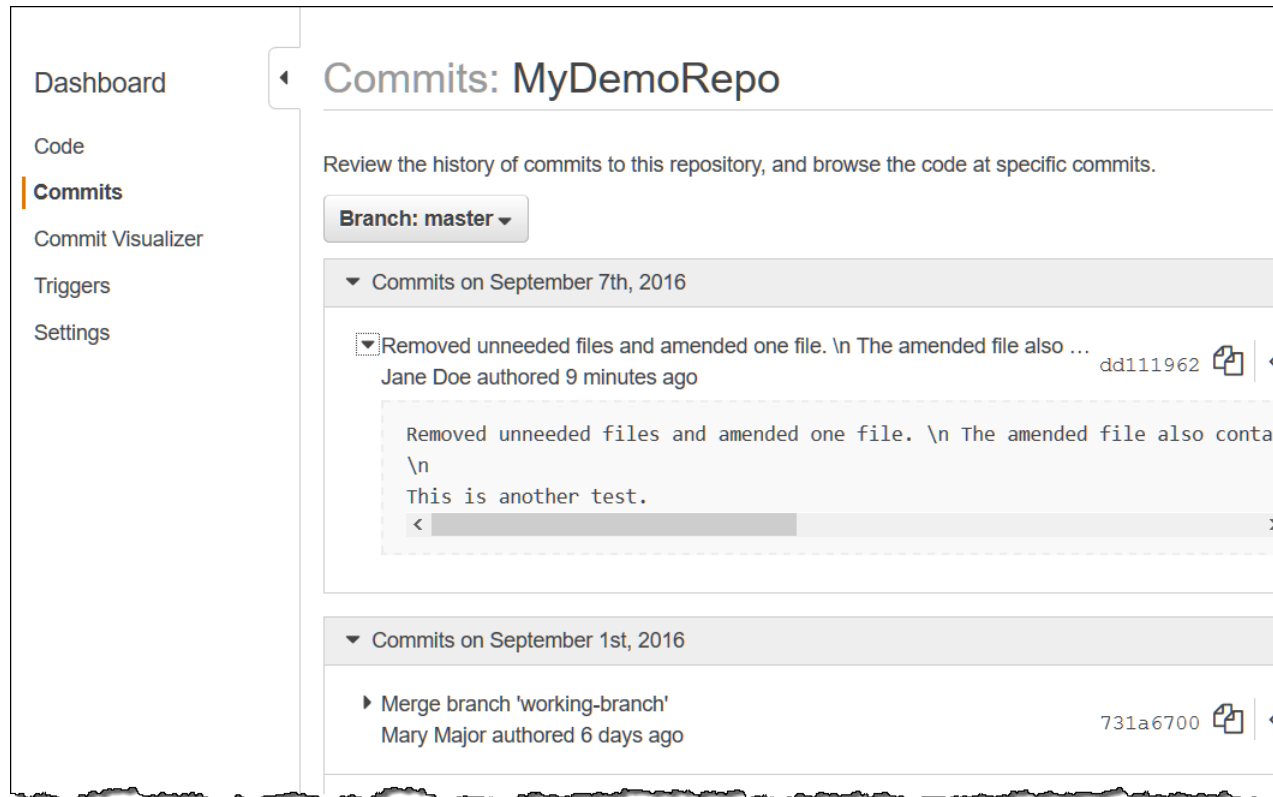
3. To view the contents of a file in your repository, choose the file from the list.



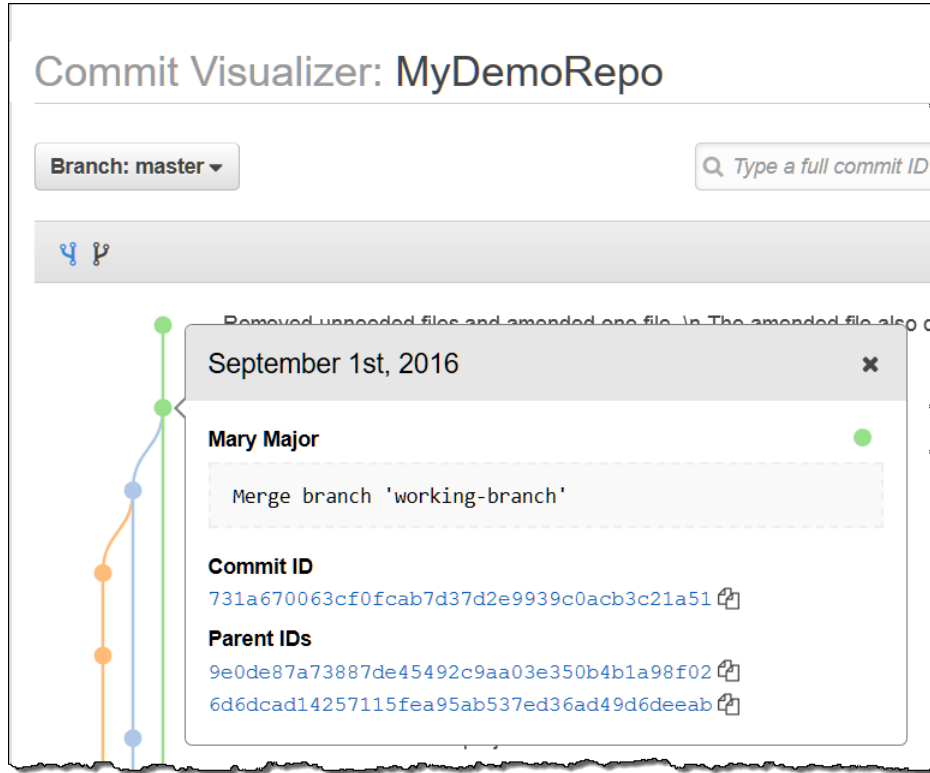
For more information, see [Browse the Contents of a Repository \(p. 84\)](#).

You can also browse the commit history of a repository. This can help you identify changes made in a repository, including when and by whom those changes were made.

1. In the navigation pane for a repository, choose **Commits**. In the commit history view, a history of commits for the repository in the default branch will be displayed, in reverse chronological order.

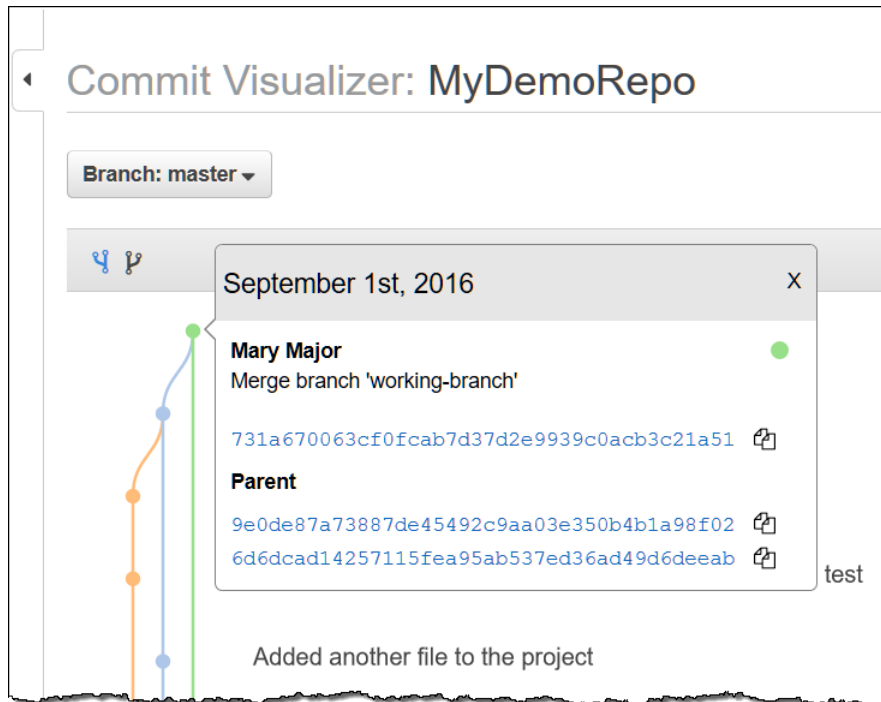


2. Review the commit history by branch or by tag, and get details about commits by author, date, and more. For more information, see [Browse the Commit History of a Repository \(p. 108\)](#).
3. In the navigation pane, choose **Commit Visualizer**.



The commit graph is displayed, with the subject line for each commit shown next to its point in the graph. The subject line display is limited to 80 characters.

- To see more details about a commit point, choose the point in the graph.



You can review the information in the detail pane, copy commit and parent commit IDs, render a new graph, and more. For more information, see [View a Graph of the Commit History of a Repository](#) (p. 109).

Now that you have reviewed the content of your repository, consider whether you want to create a trigger, an action that is taken in response to events in that repository, such as code pushes.

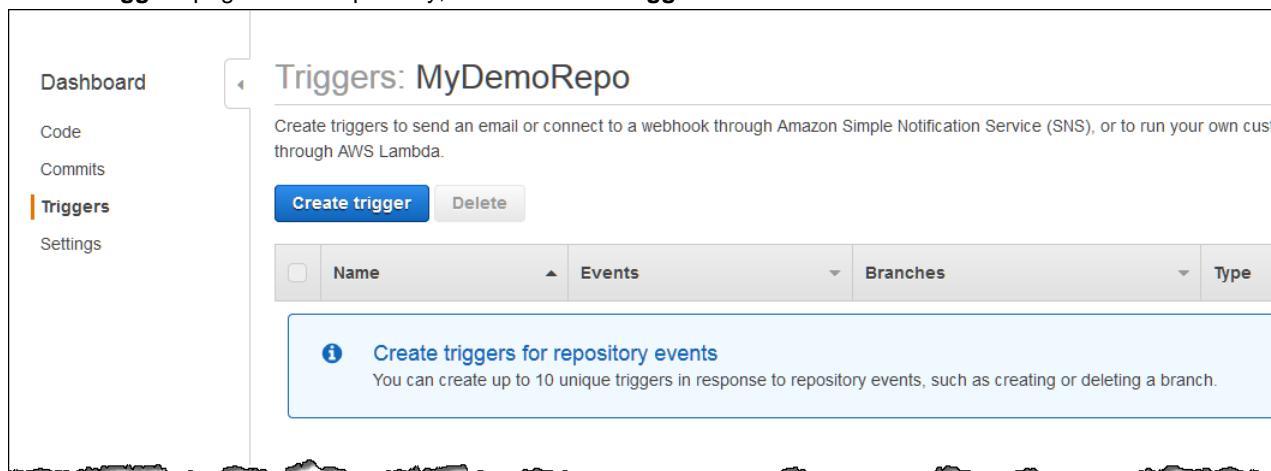
Step 3: Create a Trigger for Your Repository

In this step, you will review the basics of configuring your repository so that code pushes or other events trigger another action (for example, sending a notification from Amazon SNS or invoking a function in AWS Lambda). For steps and code samples, see [Create a Trigger for an Amazon SNS Topic](#) (p. 87) and [Create a Trigger for a Lambda Function](#) (p. 93).

Important

Before you can configure a trigger, you must first create the Amazon SNS topic or AWS Lambda function.

1. In the **Dashboard** navigation pane for your repository MyDemoRepo, choose **Triggers**.
2. On the **Triggers** page for the repository, choose **Create trigger**.



3. Complete the configuration of the trigger according to your business needs. For more information, see [Create a Trigger for an Amazon SNS Topic](#) (p. 87) and [Create a Trigger for a Lambda Function](#) (p. 93).

Create trigger

Triggers are actions taken in response to repository events. Triggers can be configured to send notifications to Amazon Simple Notification Service (SNS) or to an AWS Lambda function. Choose a trigger below to get started. [Learn more](#)

Trigger name*

Events*

Branch names*

Service

You can configure your trigger to use an existing SNS topic or Lambda function.

Send to* Amazon SNS AWS Lambda

SNS topic*

Custom data

AWS CodeCommit must have permission to publish to Amazon SNS topics from this trigger. [Learn more](#)

Choose this option to test your trigger and confirm it functions as expected.

***Required**

For more information about creating and managing triggers for a repository, see [Manage Triggers for a Repository](#) (p. 86).

Step 4: Next Steps

Now that you have familiarized yourself with AWS CodeCommit and some of its features, consider doing the following:

- If you are new to Git and AWS CodeCommit or want to review examples of using Git with AWS CodeCommit, continue to the [Git with AWS CodeCommit Tutorial](#) (p. 35) tutorial.
- If you want to work with others in an AWS CodeCommit repository, see [Share a Repository](#) (p. 52).
- If you want to migrate a repository to AWS CodeCommit, follow the steps in [Migrate to AWS CodeCommit](#) (p. 56).
- If you want to add your repository to a continuous delivery pipeline, follow the steps in [Simple Pipeline Walkthrough](#).
- If you want to learn more about products and services that integrate with AWS CodeCommit, including examples from the community, see [Product and Service Integrations](#) (p. 45).

Step 5: Clean Up

In this step, you will delete the AWS CodeCommit repository you used in this tutorial, so you won't continue to be charged for the storage space.

Important

After you delete this repository, you will no longer be able to clone it to any local repo or shared repo. You will also no longer be able to pull data from it, push data to it, or perform any Git operations, from any local repo or shared repo. This action cannot be undone.

If you configured one or more triggers for your repository, deleting the repository does not delete the Amazon SNS topics or Lambda functions you configured as the targets of those triggers. Be sure to delete those resources if they are no longer needed.

To delete the AWS CodeCommit repository

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. On the **Dashboard** page, in the list of repositories, choose **MyDemoRepo**.
3. In the navigation pane, choose **Settings**.
4. On the **Settings** page, in **Delete repository**, choose **Delete repository**.
5. In the box next to **Type the name of the repository to confirm deletion**, type **MyDemoRepo**, and then choose **Delete**.

Git with AWS CodeCommit Tutorial

If you are new to Git and AWS CodeCommit, this tutorial will help you learn some simple commands to get you started. If you are already familiar with Git, you can skip this tutorial and go to [AWS CodeCommit Tutorial \(p. 27\)](#).

In this tutorial, you will create a repository that represents a local copy of the AWS CodeCommit repository, which we will refer to here and in the rest of the documentation as a *local repo*.

After you create the local repo, you will make some changes to it. Then you will send (push) your changes to the AWS CodeCommit repository.

You will also simulate a team environment where two users will independently commit changes to their local repo and push those changes to the AWS CodeCommit repository. The users will then pull the changes from the AWS CodeCommit repository to their own local repo to see the changes the other user made.

You will also create branches and tags and manage some access permissions in the AWS CodeCommit repository.

After you finish this tutorial, you should have enough practice with the core Git and AWS CodeCommit concepts to use them for your own projects and in team environments.

This tutorial assumes you have completed the [prerequisites and setup \(p. 4\)](#), including:

- Assigning permissions to the IAM user.
- Setting up credential management for HTTPS or SSH connections on the local machine you will use for this tutorial.
- Configuring the AWS CLI if you want to use the command line or terminal for all operations, including creating the repository.

Topics

- [Step 1: Create an AWS CodeCommit Repository \(p. 36\)](#)
- [Step 2: Create a Local Repo \(p. 36\)](#)
- [Step 3: Create Your First Commit \(p. 37\)](#)
- [Step 4: Push Your First Commit \(p. 37\)](#)
- [Step 5: Share the AWS CodeCommit Repository and Push and Pull Another Commit \(p. 38\)](#)
- [Step 6: Create and Share a Branch \(p. 39\)](#)
- [Step 7: Create and Share a Tag \(p. 40\)](#)
- [Step 8: Set Up Access Permissions \(p. 41\)](#)
- [Step 9: Clean Up \(p. 43\)](#)

Step 1: Create an AWS CodeCommit Repository

In this step, you will use the AWS CodeCommit console to create the repository you will use for this tutorial.

You can skip this step if you already have an AWS CodeCommit repository you want to use.

Note

Depending on your usage, you might be charged for creating or accessing a repository. For more information, see [Pricing](#) on the AWS CodeCommit product information page.

To create the AWS CodeCommit repository (console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where you will create the repository. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. On the welcome page, choose **Get Started Now**. (If a **Dashboard** page appears instead of the welcome page, choose **Create new repository**.)
4. On the **Create new repository** page, in the **Repository name** box, type `MyDemoRepo`.
5. In the **Description** box, type `My demonstration repository`.
6. Choose **Create repository** to create an empty AWS CodeCommit repository named `MyDemoRepo`.

Note

The remaining steps in this tutorial assume you have named your AWS CodeCommit repository `MyDemoRepo`. If you use a name other than `MyDemoRepo`, be sure to substitute it for ours throughout this tutorial.

For more information about creating repositories, including how to create a repository from the terminal or command line, see [Create a Repository \(p. 49\)](#).

Step 2: Create a Local Repo

In this step, you will set up a local repo on your local machine to connect to your repository. To do this, you will select a directory on your local machine that will represent the local repo. You will use Git to clone and initialize a copy of your empty AWS CodeCommit repository inside of that directory. Then you will specify the user name and email address that will be used to annotate your commits.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.

2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. On the **Dashboard** page, choose the name of the repository you want to share.
4. On the **Code** page, choose **Clone URL**, and then choose the protocol you want your users to use.
5. Copy the displayed URL for the connection protocol your users will use when connecting to your AWS CodeCommit repository.
6. Send your users the connection information along with any other instructions, such as installing the AWS CLI, configuring a profile, or installing Git. Make sure to include the configuration information for the connection protocol (for example, for HTTPS, configuring the credential helper for Git).

Step 3: Create Your First Commit

In this step, you will create your first commit in your local repo. To do this, you will create two example files in your local repo. You will use Git to stage the change to, and then commit the change to, your local repo.

1. Use a text editor to create the following two example text files in your directory. Name these files `cat.txt` and `dog.txt`:

```
cat.txt
-----
The domestic cat (Felis catus or Felis silvestris catus) is a small,
usually furry, domesticated, and carnivorous mammal.
```

```
dog.txt
-----
The domestic dog (Canis lupus familiaris) is a canid that is known as
man's best friend.
```

2. Run **git add** to stage the change:

```
git add cat.txt dog.txt
```

3. Run **git commit** to commit the change:

```
git commit -m "Added cat.txt and dog.txt"
```

Tip

To see details about the commit you just made, run **git log**.

Step 4: Push Your First Commit

In this step, you will push the commit from your local repo to your AWS CodeCommit repository.

Run **git push** to push your commit through the default remote name Git uses for your AWS CodeCommit repository (`origin`), from the default branch in your local repo (`master`):

```
git push -u origin master
```

Tip

After you have pushed files to your AWS CodeCommit repository, you can use the AWS CodeCommit console to view the contents. For more information, see [Browse the Contents of a Repository \(p. 84\)](#).

Step 5: Share the AWS CodeCommit Repository and Push and Pull Another Commit

In this step, you will share information about the AWS CodeCommit repository with a fellow team member, who will use this information to get a local copy, make some changes to it, and then push the modified local copy to your AWS CodeCommit repository. You will then pull the changes from the AWS CodeCommit repository to your local repo.

In this tutorial, you will simulate the fellow user by having Git create a directory separate from the one you created in [step 2 \(p. 36\)](#). (Typically, this directory would be on a different machine.) This new directory will be a copy of your AWS CodeCommit repository. Any changes you make to the existing directory or this new directory will be made independently. The only way to identify changes to these directories is to pull from the AWS CodeCommit repository.

Even though they're on the same local machine, we will call the existing directory your *local repo* and the new directory the *shared repo*.

From the new directory, you will get a separate copy of the AWS CodeCommit repository. You will then add a new example file, commit the changes to the shared repo, and then push the commit from the shared repo to your AWS CodeCommit repository.

Lastly, you will pull the changes from your repository to your local repo and then browse it to see the changes committed by the other user.

1. Switch to the `/tmp` directory or the `c:\temp` directory.
2. Run **git clone** to pull down a copy of the repository into the shared repo:

For HTTPS:

```
git clone https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo shared-demo-repo
```

For SSH:

```
git clone ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo shared-demo-repo
```

Note

When you clone a repository using SSH on Windows operating systems, you must add the SSH key ID to the connection string as follows:

```
git clone ssh://Your-SSH-Key-ID@git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

For more information, see [For SSH Connections on Windows \(p. 21\)](#).

In this command, `MyDemoRepo` represents the name of your AWS CodeCommit repository. `shared-demo-repo` represents the name of the directory Git will create in the `/tmp` directory or the `c:\temp` directory. After Git creates the directory, Git will pull down a copy of your repository into the `shared-demo-repo` directory.

3. Switch to the `shared-demo-repo` directory:

```
(For Linux, OS X, or Unix) cd /tmp/shared-demo-repo  
(For Windows) cd c:\temp\shared-demo-repo
```

4. Run **git config** to add another user name and email address represented by placeholders `other-user-name` and `other-email-address` (for example, John Doe and johndoe@example.com). This will make it easier to determine which commits the other user made:

```
git config --local user.name "other-user-name"  
git config --local user.email other-email-address
```

5. Use a text editor to create the following example text file in the `shared-demo-repo` directory. Name the file `horse.txt`:

```
horse.txt  
-----  
The horse (Equus ferus caballus) is one of two extant subspecies of Equus ferus.
```

6. Run **git add** to stage the change to the shared repo:

```
git add horse.txt
```

7. Run **git commit** to commit the change to the shared repo:

```
git commit -m "Added horse.txt"
```

8. Run **git push** to push your initial commit through the default remote name Git uses for your AWS CodeCommit repository (`origin`), from the default branch in your local repo (`master`):

```
git push -u origin master
```

9. Switch back to your local repo and run **git pull** to pull into your local repo the commit the shared repo made to the AWS CodeCommit repository. Then run **git log** to see the commit that was initiated from the shared repo.

Step 6: Create and Share a Branch

In this step, you will create a branch in your local repo, make a few changes, and then push the branch to your AWS CodeCommit repository. You will then pull the branch to the shared repo from your AWS CodeCommit repository.

A *branch* allows you to independently develop a different version of the repository's contents (for example, to work on a new software feature without affecting the work of your team members). When that feature is stable, you merge the branch into a more stable branch of the software.

You will use Git to create the branch and then point it to the very first commit you made. You will use Git to push the branch to the AWS CodeCommit repository. You will then switch to your shared repo and use Git to pull the new branch into your shared local repo and explore the branch.

1. From your local repo, run **git checkout**, specifying the name of the branch (for example, `MyNewBranch`) and the ID of the first commit you made in the local repo.

If you don't know the commit ID, run **git log** to get it. Make sure the commit has your user name and email address, not the user name and email address of the other user. This is to simulate, for example, that `master` is a stable version of the AWS CodeCommit repository and the `MyNewBranch` branch is for some new, relatively unstable feature:

```
git checkout -b MyNewBranch commit-ID
```

2. Run **git push** to send the new branch from the local repo to the AWS CodeCommit repository:

```
git push origin MyNewBranch
```

3. Now, pull the branch into the shared repo and check your results:
 1. Switch to the shared repo directory (shared-demo-repo).
 2. Pull in the new branch (**git fetch origin**).
 3. Confirm the branch has been pulled in (**git branch --all** displays a list of all branches for the repository).
 4. Switch to the new branch (**git checkout MyNewBranch**).
 5. Confirm you have switched to the `MyNewBranch` branch. To do this, you can run **git status** or **git branch**. The output will show which branch you are on. In this case, it should be `MyNewBranch`.
 6. View the list of commits in the branch (**git log**).

Here's the list of Git commands to call:

```
git fetch origin  
git branch --all  
git checkout MyNewBranch  
git branch or git status  
git log
```

4. Switch back to the `master` branch and view its list of commits. The Git commands should look like this:

```
git checkout master  
git log
```

5. Switch back to the `master` branch in your local repo. You can run **git status** or **git branch**. The output will indicate which branch you are on. In this case, it should be `master`. The Git commands should look like this:

```
git checkout master  
git branch or git status
```

Step 7: Create and Share a Tag

In this step, you will create two tags in your local repo, associate the tags with commits, and then push the tags to your AWS CodeCommit repository. You will then pull the changes from the AWS CodeCommit repository to the shared repo.

A *tag* is used to give a human-readable name to a commit (or branch or even another tag). You would do this, for example, if you want to tag a commit as "v2.1." A commit, branch, or tag can have any

number of tags associated with it, but an individual tag can be associated with only one commit, branch, or tag. In this tutorial, you'll tag one commit as "release" and one as "beta."

You will use Git to create the new tags, pointing the release tag to the first commit you made and the beta tag to the commit made by the other user. You will then use Git to push the tags to the AWS CodeCommit repository. Then you will switch to your shared repo and use Git to pull the tags into your shared local repo and explore the tags.

1. From your local repo, run **git tag**, specifying the new tag's name (`release`) and the ID of the first commit you made in the local repo.

If you don't know the commit ID, run **git log** to get it. Make sure the commit has your user name and email address, not the user name and email address of the other user. This is to simulate, for example, that your commit is a stable version of the AWS CodeCommit repository:

```
git tag release commit-ID
```

Run **git tag** again to tag the commit from the other user with the `beta` tag. This is to simulate that the commit is for some new, relatively unstable feature:

```
git tag beta commit-ID
```

2. Run **git push --tags** to send the tags to the AWS CodeCommit repository.
3. Now pull the tags into the shared repo and check your results:
 1. Switch to the shared repo directory (`shared-demo-repo`).
 2. Pull in the new tags (**git fetch origin**).
 3. Confirm the tags have been pulled in (**git tag** displays a list of tags for the repository).
 4. View information about each tag (**git log release** and **git log beta**).

Here's the list of Git commands to call:

```
git fetch origin  
git tag  
git log release  
git log beta
```

4. Try this out in the local repo, too:

```
git log release  
git log beta
```

Step 8: Set Up Access Permissions

In this step, you will learn how to give a user permission to synchronize the shared repo with the AWS CodeCommit repository. This is an optional step recommended for users interested in learning about controlling access to AWS CodeCommit repositories.

To do this, you will use the IAM console to create an IAM user, who, by default, does not have permissions to synchronize the shared repo with the AWS CodeCommit repository. You can run **git pull** to verify this. If the new user doesn't have permission to synchronize, the command will not work. Then you will go back to the IAM console and apply a policy that allows the user to use **git pull**. Again, you can run **git pull** to verify this.

This step assumes you have permissions to create IAM users in your AWS account. If you do not have these permissions, then you cannot perform the procedures in this step. Skip ahead to [Step 9: Clean Up \(p. 43\)](#) to clean up the resources you used for your tutorial.

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.

Be sure to sign in with the same user name and password you used in [Setting Up \(p. 4\)](#).

2. In the navigation pane, choose **Users**, and then choose **Create New Users**.
3. In the first **Enter User Names** box, type an example user name (for example, `JaneDoe-CodeCommit`). Select the **Generate an access key for each user** box, and choose **Create**.
4. Choose **Show User Security Credentials**. Make note of the access key ID and secret access key or choose **Download Credentials**.
5. Supply the credentials of the IAM user by following the instructions in [Step 3: Set Up the Credential Helper \(p. 9\)](#) or [Step 3: Set Up the Credential Helper \(p. 14\)](#).

If you want to use SSH, set up the user with public and private keys by following the instructions in [SSH and Linux, OS X, or Unix: Set Up the Public and Private Keys for Git and AWS CodeCommit \(p. 17\)](#) or [SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit \(p. 22\)](#).

6. Run **git pull**. The following error should appear:

For HTTPS:

```
fatal: unable to access 'https://git-codecommit.us-east-2.amazonaws.com/v1/repos/repository-name': The requested URL returned error: 403.
```

For SSH:

```
fatal: unable to access 'ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/repository-name': The requested URL returned error: 403.
```

The error appears because the new user doesn't have permission to synchronize the shared repo with the AWS CodeCommit repository.

7. Return to the IAM console. In the navigation pane, choose **Policies**, and then choose **Create Policy**. (If a **Get Started** button appears, choose it, and then choose **Create Policy**.)
8. Next to **Create Your Own Policy**, choose **Select**.
9. In the **Policy Name** box, type a name (for example, `CodeCommitAccess-GettingStarted`).
10. In the **Policy Document** box, type the following, which allows an IAM user to pull from any repository associated with the IAM user:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "codecommit:GitPull"
      ],
      "Resource": "*"
    }
  ]
}
```

Tip

If you want the IAM user to be able to push commits to any repository associated with the IAM user, type this instead:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "codecommit:GitPull",
        "codecommit:GitPush"
      ],
      "Resource": "*"
    }
  ]
}
```

For information about other AWS CodeCommit action and resource permissions you can give to users, see [Access Permissions Reference \(p. 159\)](#).

11. In the navigation pane, choose **Users**.
12. Choose the example user name (for example, `JaneDoe-CodeCommit`) to which you want to attach the policy.
13. Choose the **Permissions** tab.
14. In **Managed Policies**, choose **Attach Policy**.
15. Select the `CodeCommitAccess-GettingStarted` policy you just created, and then choose **Attach Policy**.
16. Run **git pull**. This time the command should work and an `Already up-to-date` message should appear.
17. If you are using HTTPS, switch to your original credentials. For more information, see the instructions in [Step 3: Set Up the Credential Helper \(p. 9\)](#) or [Step 3: Set Up the Credential Helper \(p. 14\)](#).

If you are using SSH, switch to your original keys. For more information, see [SSH and Linux, OS X, or Unix: Set Up the Public and Private Keys for Git and AWS CodeCommit \(p. 17\)](#) or [SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit \(p. 22\)](#).

You've now reached the end of this tutorial.

Step 9: Clean Up

In this step, you will delete the AWS CodeCommit repository you used in this tutorial, so you won't continue to be charged for the storage space.

You will also remove the local repo and shared repo on your local machine because they won't be needed after you delete the AWS CodeCommit repository.

Important

After you delete this repository, you will no longer be able to clone it to any local repo or shared repo. You will also no longer be able to pull data from it, or push data to it, from any local repo or shared repo. This action cannot be undone.

To delete the AWS CodeCommit repository (console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. On the **Dashboard** page, in the list of repositories, choose **MyDemoRepo**.
3. In the navigation pane, choose **Settings**.
4. On the **Settings** page, in **Delete repository**, choose **Delete repository**.
5. In the box next to **Type the name of the repository to confirm deletion**, type **MyDemoRepo**, and then choose **Delete**.

To delete the AWS CodeCommit repository (AWS CLI)

Run the [delete-repository](#) (p. 135) command:

```
aws codecommit delete-repository --repository-name MyDemoRepo
```

To delete the local repo and shared repo

For Linux, OS X, or Unix:

```
cd /tmp
rm -rf /tmp/my-demo-repo
rm -rf /tmp/shared-demo-repo
```

For Windows:

```
cd c:\temp
rd /s /q c:\temp\my-demo-repo
rd /s /q c:\temp\shared-demo-repo
```

Product and Service Integrations with AWS CodeCommit

By default, AWS CodeCommit is integrated with a number of AWS services. You can also use AWS CodeCommit with products and services outside of AWS. The following information can help you configure AWS CodeCommit to integrate with the products and services you use.

Note

You can automatically build and deploy commits to an AWS CodeCommit repository by integrating with AWS CodePipeline. To learn more, follow the steps in the [AWS for DevOps Getting Started Guide](#).

Topics

- [Integration with Other AWS Services \(p. 45\)](#)
- [Integration Examples from the Community \(p. 46\)](#)

Integration with Other AWS Services

AWS CodeCommit is integrated with the following AWS services:

AWS Elastic Beanstalk

[Elastic Beanstalk](#) is a managed service that makes it easy to deploy and manage applications in the AWS cloud without worrying about the infrastructure that runs those applications. You can use the Elastic Beanstalk command line interface (EB CLI) to deploy your application directly from a new or existing AWS CodeCommit repository.

Learn more:

- [Using the EB CLI with AWS CodeCommit](#)
- [Using an Existing AWS CodeCommit Repository](#)
- [eb codesource \(EB CLI command\)](#)

AWS CloudFormation

[AWS CloudFormation](#) is a service that helps you model and set up your AWS resources so that you can spend less time managing those resources and more time focusing on your applications. You create a template that describes resources, including an AWS CodeCommit repository, and AWS

CodeCommit takes care of provisioning and configuring those resources for you.

Learn more:

- [AWS CodeCommit Repository resource page](#)

AWS CodePipeline [AWS CodePipeline](#) is a continuous delivery service you can use to model, visualize, and automate the steps required to release your software. You can configure AWS CodePipeline to use an AWS CodeCommit repository as a source action in a pipeline, and automate building, testing, and deploying your changes.

Learn more:

- [Simple Pipeline Walkthrough with AWS CodePipeline and AWS CodeCommit](#)

AWS Key Management Service [AWS KMS](#) is a managed service that makes it easy for you to create and control the encryption keys used to encrypt your data. By default, AWS CodeCommit uses AWS KMS to encrypt repositories.

Learn more:

- [Encryption \(p. 173\)](#)

AWS Lambda [Lambda](#) lets you run code without provisioning or managing servers. You can configure triggers for AWS CodeCommit repositories that will invoke Lambda functions in response to repository events.

Learn more:

- [Create a Trigger for a Lambda Function \(p. 93\)](#)
- [AWS Lambda Developer Guide](#)

Amazon Simple Notification Service [Amazon SNS](#) is a web service that enables applications, end users, and devices to instantly send and receive notifications from the cloud. You can configure triggers for AWS CodeCommit repositories that will send Amazon SNS notifications in response to repository events. You can also use Amazon SNS notifications to integrate with other AWS services. For example, you can use an Amazon SNS notification to send messages to an Amazon Simple Queue Service queue.

Learn more:

- [Create a Trigger for an Amazon SNS Topic \(p. 87\)](#)
- [Amazon Simple Notification Service Developer Guide](#)

Integration Examples from the Community

The following sections provide links to blog posts, articles, and community-provided examples.

Note

These links are provided for informational purposes only, and should not be considered either a comprehensive list or an endorsement of the content of the examples. AWS is not responsible for the content or accuracy of external content.

Topics

- [Blog Posts](#) (p. 47)
- [Code Samples](#) (p. 47)

Blog Posts

- [Using AWS CodeCommit with Git Repositories in Multiple AWS Accounts](#)

Learn how to clone your AWS CodeCommit repository and, in one command, configure the credential helper to use a specific IAM role for connections to that repository.

Published November 2015

- [Using AWS CodeCommit and GitHub Credential Helpers](#)

Learn how to configure your gitconfig file to work with both AWS CodeCommit and GitHub credential helpers.

Published September 2015

- [Using AWS CodeCommit from Eclipse](#)

Learn how to use the EGit tools in Eclipse to work with AWS CodeCommit.

Published August 2015

- [AWS CodeCommit with Amazon EC2 Role Credentials](#)

Learn how to use an instance profile for Amazon EC2 when configuring automated agent access to an AWS CodeCommit repository.

Published July 2015

- [AWS CodeCommit and SourceTree Setup Tutorial with SSH Keys](#)

Learn how to use AWS CodeCommit and [Atlassian SourceTree](#) to manage your local repositories.

Published July 2015

- [Integrating AWS CodeCommit with Jenkins](#)

Learn how to use AWS CodeCommit and Jenkins to support two simple continuous integration (CI) scenarios.

Published July 2015

- [Integrating AWS CodeCommit with Review Board](#)

Learn how to integrate AWS CodeCommit into a development workflow using the [Review Board](#) code review system.

Published July 2015

Code Samples

The following are code samples that might be of interest to AWS CodeCommit users.

- [Mac OS X Script to Periodically Delete Cached Credentials in the OS X Certificate Store](#)

If you use the credential helper for AWS CodeCommit on Mac OS X, you are likely familiar with the problem with cached credentials. This script demonstrate one solution.

Author: Nico Coetzee

Published February 2016

Create an AWS CodeCommit Repository

Use AWS CLI or the AWS CodeCommit console to create a new, empty AWS CodeCommit repository.

These instructions assume you have already completed the steps in [Setting Up](#) (p. 4).

Note

Depending on your usage, you might be charged for creating or accessing a repository. For more information, see [Pricing](#) on the AWS CodeCommit product information page.

Topics

- [Use the AWS CodeCommit Console to Create a Repository](#) (p. 49)
- [Use the AWS CLI to Create an AWS CodeCommit Repository](#) (p. 50)

Use the AWS CodeCommit Console to Create a Repository

To create a new AWS CodeCommit repository (console):

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where you will create the repository. For more information, see [Regions and Git Connection Endpoints](#) (p. 157).
3. On the **Dashboard** page, choose **Create new repository**. (If a welcome page appears instead of the **Dashboard** page, choose **Get Started Now**.)
4. On the **Create new repository** page, in **Repository name**, type a name for the repository.

Note

This name must be unique across an AWS account.

5. Optionally, in the **Description** box, type a description for the repository. This can help you and other users identify the purpose of the repository.

Note

The description field for a repository accepts all HTML characters and all valid Unicode characters. If you are an application developer using the `GetRepository` or

`BatchGetRepositories` APIs and plan to display the repository description field in a web browser, see the [AWS CodeCommit API Reference](#) for additional guidance.

6. Choose **Create repository**. An empty repository will be created in AWS CodeCommit with the name and description you specified.

After you create a repository, you can connect to it and start adding code. To learn more, see [Connect to a Repository \(p. 80\)](#). You can also add your repository to a continuous delivery pipeline. To learn more, see [Simple Pipeline Walkthrough](#).

To get information about the new AWS CodeCommit repository, such as the URLs to use when cloning the repository, choose the repository's name from the list.

To share this repository with others, you will need to send them the HTTPS or SSH link to use to clone the repository. Make sure they have the permissions required to access the repository. For more information, see [Share a Repository \(p. 52\)](#) and [Access Permissions Reference \(p. 159\)](#).

Use the AWS CLI to Create an AWS CodeCommit Repository

To create a new AWS CodeCommit repository (CLI):

1. Make sure that you have configured the AWS CLI with the region where the repository exists. To verify the region, type the following command at the command line or terminal and review the information for default region name:

```
aws configure
```

The default region name must match the region for the repository in AWS CodeCommit. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).

2. Run the **create-repository** command, specifying:
 - A name that uniquely identifies the AWS CodeCommit repository (with the `--repository-name` option).

Note

This name must be unique across an AWS account.

- Optionally, a comment about the AWS CodeCommit repository (with the `--repository-description` option).

For example, to create an AWS CodeCommit repository named `MyDemoRepo` with the description "My demonstration repository":

```
aws codecommit create-repository --repository-name MyDemoRepo --  
repository-description "My demonstration repository"
```

Note

The description field for a repository accepts all HTML characters and all valid Unicode characters. If you are an application developer using the `GetRepository` or `BatchGetRepositories` APIs and plan to display the repository description field in a web browser, see the [AWS CodeCommit API Reference](#) for additional guidance.

3. If successful, this command outputs a `repositoryMetadata` object with the following information:

- The description (`repositoryDescription`).
- The unique, system-generated ID (`repositoryId`).
- The name (`repositoryName`).
- The ID of the AWS account associated with the AWS CodeCommit repository (`accountId`).

Here is some example output, based on the preceding example command:

```
{
  "repositoryMetadata": {
    "repositoryName": "MyDemoRepo",
    "repositoryDescription": "My demonstration repository",
    "repositoryId": "f7579e13-b83e-4027-aaef-650c0EXAMPLE",
    "accountId": "creator-account-ID"
  }
}
```

4. Note the AWS CodeCommit repository's name and ID. You will need them to monitor and change information about the AWS CodeCommit repository, especially if you use AWS CLI.

If you forget the AWS CodeCommit repository's name or ID, follow the instructions in [Use the AWS CLI to View AWS CodeCommit Repository Details \(p. 116\)](#).

After you create a repository, you can connect to it and start adding code. To learn more, see [Connect to a Repository \(p. 80\)](#). You can also add your repository to a continuous delivery pipeline. To learn more, see [Simple Pipeline Walkthrough](#).

Share an AWS CodeCommit Repository

After you have created an AWS CodeCommit repository, you can share it with other users. First, decide which protocol to recommend to users when connecting to your repository: HTTPS or SSH. Then send the URL and connection information to the users with whom you want to share the repository. Depending on your security requirements, sharing a repository may also require creating an IAM group, applying managed policies to that group, and editing IAM policies to refine access. This topic will walk you through these steps.

These instructions assume you have already completed the steps in [Setting Up](#) (p. 4) and [Create a Repository](#) (p. 49).

Note

Depending on your usage, you might be charged for creating or accessing a repository. For more information, see [Pricing](#) on the AWS CodeCommit product information page.

Topics

- [Choose the Connection Protocol to Share with Your Users](#) (p. 52)
- [Create IAM Policies for Your Repository](#) (p. 53)
- [Create an IAM Group for Repository Users](#) (p. 54)
- [Share the Connection Information with Your Users](#) (p. 54)

Choose the Connection Protocol to Share with Your Users

When you create a repository in AWS CodeCommit, two endpoints are generated: one for HTTPS connections and one for SSH connections. Both provide secure connections over a network. Your users can use either protocol. Both endpoints remain active regardless of which protocol you recommend to your users.

HTTPS connections require an AWS access key, which your repository users must configure in the credential helper included in the AWS CLI. This configuration is usually easier for the users of your repository to set up and use. SSH connections require your users to generate a public-private key pair, store the public key, associate the public key with their IAM user, configure their known hosts file on their local computer, and create and maintain a config file on their local computers. Because this is a

more complex configuration process, we recommend you choose HTTPS for your connections to AWS CodeCommit.

For more information about HTTPS, SSH, Git, and remote repositories, consult your Git documentation. For a general overview of communication protocols and how each communicates with remote repositories, see [Git on the Server - The Protocols](#).

Note

Although Git supports a variety of connection protocols, AWS CodeCommit does not support connections with unsecured protocols, such as the local protocol or generic HTTP.

Create IAM Policies for Your Repository

AWS provides three managed policies in IAM for AWS CodeCommit. These policies cannot be edited and apply to all repositories associated with your AWS account. However, you can use these policies as templates to create your own custom managed policies that apply only to the repository you want to share. If you are using HTTPS, you will need to create only one customer managed policy. Create a copy of `AWSCodeCommitPowerUser`, a managed policy that allows your users to pull and push changes to and from the repository and create branches and new repositories. Your customer managed policy will apply specifically to the repository you want to share. For more information about managed policies and IAM users, see [Managed Polices](#) and [IAM Users and Groups](#).

Tip

For more fine-grained control over access to your repository, you can create more than one customer managed policy and apply the policies to different IAM users and groups.

To review the contents of the policy and the other managed policies for AWS CodeCommit and learn more about creating and applying permissions by using policies, see [Access Permissions Reference \(p. 159\)](#).

Create a customer managed policy for your repository

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the **Dashboard** navigation area, choose **Policies**, and then choose **Create Policy**.
3. On the **Create Policy** page, next to **Copy an AWS Managed Policy**, choose **Select**.
4. On the **Copy an AWS Managed Policy** page, type `AWSCodeCommitPowerUser` in the **Search Policies** search box. Choose **Select** next to that policy name.
5. On the **Review Policy** page, in **Policy Name**, type a new name for the policy (for example, `AWSCodeCommitPowerUser-MyDemoRepo`).

In the **Policy Document** text box, replace the `""` portion of the `Resource` line with the Amazon Resource Name (ARN) of the AWS CodeCommit repository. For example:

```
"Resource" : [
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo"
]
```

Tip

To find the ARN for the AWS CodeCommit repository, go to the AWS CodeCommit console and choose the repository name from the list. For more information, see [View Repository Details \(p. 114\)](#).

If you want this policy to apply to more than one repository, add each repository as a resource by specifying its ARN. Include a comma between each resource statement, as shown in the following example:

```
"Resource": [  
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo" ,  
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyOtherDemoRepo"  
]
```

6. Choose **Validate Policy**. After it is validated, choose **Create Policy**.

Create an IAM Group for Repository Users

To manage access to your repository, create an IAM group for its users, add IAM users to that group, and then attach the customer managed policy you created in the previous step.

If you use SSH, you must attach another managed policy to the IAMUserSSHKeys group, the IAM managed policy that allows users to upload their SSH public key and associate it with the IAM user they use to connect to AWS CodeCommit.

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the **Dashboard** navigation area, choose **Groups**, and then choose **Create New Group**.
3. On the **Set Group Name** page, in the **Group Name** box, type a name for the group (for example, *MyDemoRepoGroup*), and then choose **Next Step**. Consider including the repository name as part of the group name.

Note

This name must be unique across an AWS account.

4. Select the check box next to the customer managed policy you created in the previous section (for example, **AWSCodeCommitPowerUser-MyDemoRepo**).
 - If your users will use HTTPS to connect to your repository, choose **Next Step**.
 - If your users will use SSH to connect to your repository, select the check boxes next to **IAMUserSSHKeys** and **IAMReadOnlyAccess**, and then choose **Next Step**.
5. On the **Review** page, choose **Create Group**. The group will be created in IAM with the specified policies already attached. It will appear in the list of groups associated with your AWS account.
6. Choose your group from the list.
7. On the group summary page, choose the **Users** tab, and then choose **Add Users to Group**. On the list that shows all users associated with your AWS account, select the check boxes next to the users to whom you want to allow access to the AWS CodeCommit repository, and then choose **Add Users**.

Tip

You can use the Search box to quickly find users by name.

8. When you have added your users, close the IAM console.

Share the Connection Information with Your Users

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).

3. On the **Dashboard** page, choose the name of the repository you want to share.
4. On the **Code** page, choose **Clone URL**, and then choose the protocol you want your users to use.
5. Copy the displayed URL for the connection protocol your users will use when connecting to your AWS CodeCommit repository.
6. Send your users the connection information along with any other instructions, such as installing the AWS CLI, configuring a profile, or installing Git. Make sure to include the configuration information for the connection protocol (for example, for HTTPS, configuring the credential helper for Git).

The following example email provides information for users connecting to the MyDemoRepo repository with the HTTPS connection protocol in the US East (Ohio) (us-east-2) region. This email assumes the user has already installed Git and is familiar with using it:

```
I've created an AWS CodeCommit repository for us to use while working on our
project.
The name of the repository is MyDemoRepo, and
it is in the US East (Ohio) (us-east-2) region.
Here's what you need to do in order to get started using it:

1. Install the AWS CLI on your development machine. (If you need
instructions, you can find them here.)
2. Configure a credential helper for your profile. From the terminal or
command prompt, run aws configure --profile CodeCommitProfile to set up a
profile
to use with AWS CodeCommit. Replace the red steps with your own information:
  AWS Access Key ID [None]: Type your AWS access key ID here, and then
press Enter
  AWS Secret Access Key [None]: Type your AWS secret access key here, and
then press Enter
  Default region name [None]: Type us-east-2 here, and then press Enter
  Default output format [None]: Type json here, and then press Enter
3. Configure Git to use the AWS CodeCommit credential helper. From the
terminal or command prompt, run the following two commands:
  git config --global credential.helper '!aws --profile CodeCommitProfile
codecommit credential-helper $@'
  git config --global credential.UseHttpPath true
4. Switch to a directory of your choice and clone the AWS CodeCommit
repository to your local machine by running the following command:
  git clone https://git-codecommit.us-east-2.amazonaws.com/v1/repos/
MyDemoRepo my-demo-repo

That's it! If you'd like to learn more about using AWS CodeCommit, you can
start with the tutorial here (p. 37).
```

You can find complete setup instructions in [Setting Up](#) (p. 4).

Migrate to AWS CodeCommit

You can migrate a Git repository to an AWS CodeCommit repository in a number of ways: by cloning it, mirroring it, migrating all or just some of the branches, and so on. You can also migrate local, unversioned content on your computer to AWS CodeCommit.

The following topics demonstrate some of the ways you can choose to migrate a repository. Your steps may vary, depending on the type, style, or complexity of your repository and the decisions you make about what and how you want to migrate. For very large repositories, you might want to consider [migrating incrementally](#) (p. 71).

Note

You can migrate to AWS CodeCommit from other version control systems, such as Perforce, Subversion, or TFS, but you will have to migrate to Git first. For more options, see your Git documentation.

Alternatively, you can review the information about [migrating to Git](#) in the *Pro Git* book by Scott Chacon and Ben Straub.

Topics

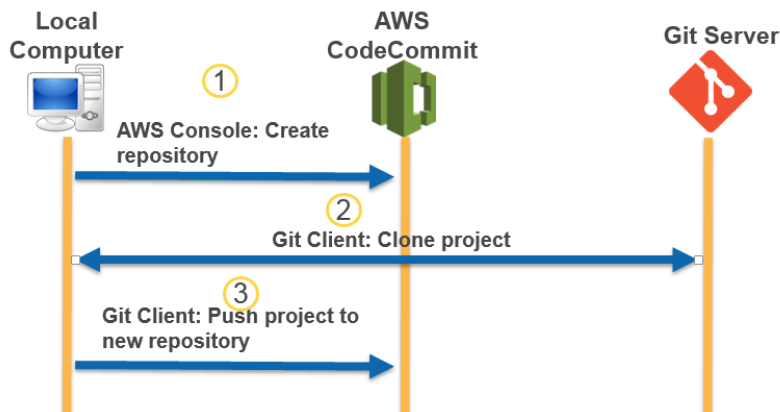
- [Migrate a Git Repository to AWS CodeCommit](#) (p. 56)
- [Migrate Content to AWS CodeCommit](#) (p. 64)
- [Migrate a Repository in Increments](#) (p. 71)

Migrate a Git Repository to AWS CodeCommit

You can migrate an existing Git repository to an AWS CodeCommit repository. The procedures in this topic walk you through the process of migrating a project hosted on another Git repository to AWS CodeCommit. As part of this process, you will:

- Complete the initial setup required for AWS CodeCommit.
- Create an AWS CodeCommit repository.
- Clone the repository and push it to AWS CodeCommit.

- View files in the AWS CodeCommit repository.
- Share the AWS CodeCommit repository with your team.



Topics

- [Step 0: Setup Required for Access to AWS CodeCommit \(p. 57\)](#)
- [Step 1: Create an AWS CodeCommit Repository \(p. 60\)](#)
- [Step 2: Clone the Repository and Push to the AWS CodeCommit Repository \(p. 61\)](#)
- [Step 3: View Files in AWS CodeCommit \(p. 61\)](#)
- [Step 4: Share the AWS CodeCommit Repository \(p. 62\)](#)

Step 0: Setup Required for Access to AWS CodeCommit

Before you can migrate a repository to AWS CodeCommit, you must create and configure an IAM user for AWS CodeCommit and configure your local computer for access. You should also install the AWS CLI to manage AWS CodeCommit. Although you can perform most AWS CodeCommit tasks without it, the AWS CLI offers flexibility when working with Git at the command line or terminal.

If you are already set up for AWS CodeCommit, you can skip ahead to [Step 1: Create an AWS CodeCommit Repository \(p. 60\)](#).

To create and configure an IAM user for accessing AWS CodeCommit

1. Create an AWS account by going to <http://aws.amazon.com> and choosing **Sign Up**.
2. Create an IAM user, or use an existing one, in your AWS account. Make sure you have an access key ID and a secret access key associated with that IAM user. For more information, see [Creating an IAM User in Your AWS Account](#).

Tip

AWS CodeCommit requires AWS Key Management Service. If you are using an existing IAM user, make sure there are no policies attached to the user that expressly deny the AWS KMS actions required by AWS CodeCommit. For more information, see [Encryption \(p. 173\)](#).

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.

4. In the IAM console, in the navigation pane, choose **Users**, and then choose the IAM user you want to configure for AWS CodeCommit access.
5. On the **Permissions** tab, in **Grant permissions**, choose **Attach existing policies directly to user**.
6. Select **AWSCodeCommitFullAccess** from the list of policies, or another managed policy for AWS CodeCommit access. For more information about managed policies for AWS CodeCommit, see [Managed Policies for AWS CodeCommit \(p. 160\)](#).

If you want to use SSH to connect to AWS CodeCommit, also select the **IAMUserSSHKeys** and **IAMReadOnlyAccess** managed policies.

After you have selected the policies you want to attach, choose **Next: Review** to review the list of policies that will be attached to the IAM user. If the list is correct, choose **Add permissions**.

Tip

To learn more about AWS CodeCommit managed policies and sharing access to repositories with other groups and users, see [Share a Repository \(p. 52\)](#) and [Access Permissions Reference \(p. 159\)](#).

To install and configure the AWS CLI

1. On your local machine, download and install the AWS CLI. This is a prerequisite for interacting with AWS CodeCommit from the command line. For more information, see [Getting Set Up with the AWS Command Line Interface](#).

Note

AWS CodeCommit works only with AWS CLI versions 1.7.38 and later. To determine which version of the AWS CLI you have installed, run the `aws --version` command. To upgrade an older version of the AWS CLI to the latest version, follow the instructions in [Uninstalling the AWS CLI](#), and then follow the instructions in [Installing the AWS Command Line Interface](#).

2. Run this command to verify the AWS CodeCommit commands for the AWS CLI are installed:

```
aws codecommit help
```

This command should return a list of AWS CodeCommit commands.

3. Configure the AWS CLI with the **configure** command, as follows:

```
aws configure
```

When prompted, specify the AWS access key and AWS secret access key of the IAM user you will use with AWS CodeCommit. Also, be sure to specify the region where the repository exists, such as `us-east-2`. When prompted for the default output format, specify `json`. For example:

```
AWS Access Key ID [None]: Type your target AWS access key ID here, and then press Enter
AWS Secret Access Key [None]: Type your target AWS secret access key here, and then press Enter
Default region name [None]: Type a supported region for AWS CodeCommit here, and then press Enter
Default output format [None]: Type json here, and then press Enter
```

To connect to a repository or a resource in another region, you must re-configure the AWS CLI with the default region name for that region. Supported default region names for AWS CodeCommit include:

- us-east-1
- us-east-2
- eu-west-1
- us-west-2

For more information about AWS CodeCommit and regions, see [Regions and Git Connection Endpoints \(p. 157\)](#). For more information about IAM, access keys, and secret keys, see [How Do I Get Credentials?](#) and [Managing Access Keys for IAM Users](#).

Next, you must install Git.

- **For Linux, OS X, or Unix:**

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git Downloads](#).

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting \(p. 139\)](#).

- **For Windows:**

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git for Windows](#). If you use this link to install Git, you can accept all of the installation default settings except for the following:

- When prompted during the **Adjusting your PATH environment** step, select the **Use Git from the Windows Command Prompt** option.
- On the **Configuring extra options** page, make sure the **Enable Git Credential Manager** option is cleared. Although you can choose to install the Git Credential Manager, it is not compatible with AWS CodeCommit. If you install it, you must manually modify your `.gitconfig` file to use the credential helper for AWS CodeCommit. Otherwise, you will not be able to connect to your AWS CodeCommit repository.

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting \(p. 139\)](#).

AWS CodeCommit supports both HTTPS and SSH authentication. To complete setup, you must configure either a credential helper (HTTPS) or an SSH key pair (SSH) to use when accessing AWS CodeCommit.

- For HTTPS on Linux, OS X, or Unix, see [Set Up the Credential Helper \(Linux, OS X, or Unix\) \(p. 9\)](#).
- For SSH on Linux, OS X, or Unix, see [SSH and Linux, OS X, or Unix: Set Up the Public and Private Keys for Git and AWS CodeCommit \(p. 17\)](#).
- For HTTPS on Windows, see [Set Up the Credential Helper \(Windows\) \(p. 14\)](#).
- Because SSH is not natively supported on most Windows operating systems, configuration is more complex, and is therefore not recommended for this tutorial. If you would like to use SSH on Windows, see [SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit \(p. 22\)](#).

Step 1: Create an AWS CodeCommit Repository

In this section, you will use the AWS CodeCommit console to create the AWS CodeCommit repository you will use for the rest of this tutorial. To use the AWS CLI to create the repository, see [Use the AWS CLI to Create an AWS CodeCommit Repository \(p. 50\)](#).

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where you will create the repository. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. On the **Dashboard** page, choose **Create new repository**. (If a welcome page appears instead of the **Dashboard** page, choose **Get Started Now**.)
4. On the **Create new repository** page, in **Repository name**, type a name for the repository.

Note

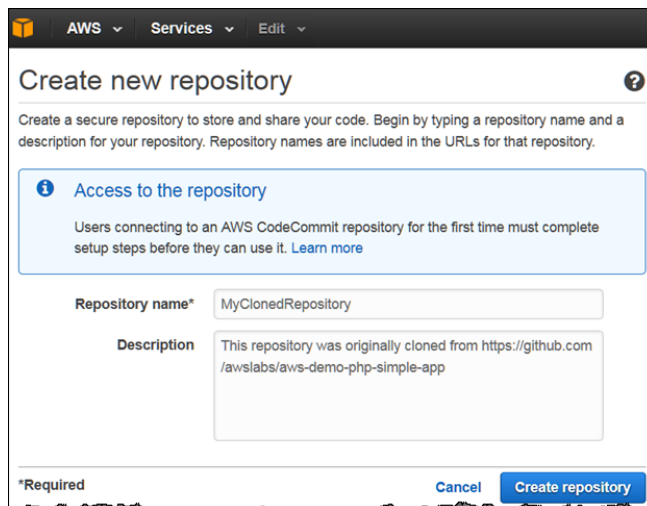
This name must be unique across an AWS account.

5. Optionally, in the **Description** box, type a description for the repository. This can help you and other users identify the purpose of the repository.

Note

The description field for a repository accepts all HTML characters and all valid Unicode characters. If you are an application developer using the `GetRepository` or `BatchGetRepositories` APIs and plan to display the repository description field in a web browser, see the [AWS CodeCommit API Reference](#) for additional guidance.

6. Choose **Create repository**. An empty repository will be created in AWS CodeCommit with the name and description you specified.



The screenshot shows the 'Create new repository' page in the AWS CodeCommit console. At the top, there are navigation tabs for 'AWS', 'Services', and 'Edit'. The main heading is 'Create new repository'. Below the heading is a brief instruction: 'Create a secure repository to store and share your code. Begin by typing a repository name and a description for your repository. Repository names are included in the URLs for that repository.' There is an information box titled 'Access to the repository' with a blue header and an 'i' icon. The text inside says: 'Users connecting to an AWS CodeCommit repository for the first time must complete setup steps before they can use it. [Learn more](#)'. Below this is the form. The 'Repository name*' field contains 'MyClonedRepository'. The 'Description' field contains 'This repository was originally cloned from https://github.com /awslabs/aws-demo-php-simple-app'. At the bottom left, there is a '*Required' label. At the bottom right, there are two buttons: 'Cancel' and 'Create repository'.

After it is created, the repository will appear in the list of repositories in your dashboard. In the URL column, choose the copy icon, and then choose the protocol (SSH or HTTPS) you will use to connect to AWS CodeCommit. Copy the URL.

For example, if you named your repository *MyClonedRepository* and you are using SSH, the URL would look like the following:

```
ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyClonedRepository
```

You will need this URL later in [Step 2: Clone the Repository and Push to the AWS CodeCommit Repository \(p. 61\)](#).

Step 2: Clone the Repository and Push to the AWS CodeCommit Repository

In this section, you will clone an existing Git repository to your local computer, creating what is called a local repo. You will then push the contents of the local repo to the AWS CodeCommit repository you created earlier.

1. From the terminal or command prompt on your local computer, run the **git clone** command to clone a copy of the remote repository into a new folder named `aws-codecommit-demo`. The following example clones a sample application created for AWS demonstration purposes and hosted on GitHub (<https://github.com/awslabs/aws-demo-php-simple-app.git>) to a local repo in a directory named `aws-codecommit-demo`.

```
git clone --mirror https://github.com/awslabs/aws-demo-php-simple-app.git aws-codecommit-demo
```

2. Change directories to the directory where you made the clone.

```
cd aws-codecommit-demo
```

3. Run the **git push** command, specifying the URL and name of the destination AWS CodeCommit repository and the **--all** option. (This is the URL you copied in [Step 1: Create an AWS CodeCommit Repository](#) (p. 60)).

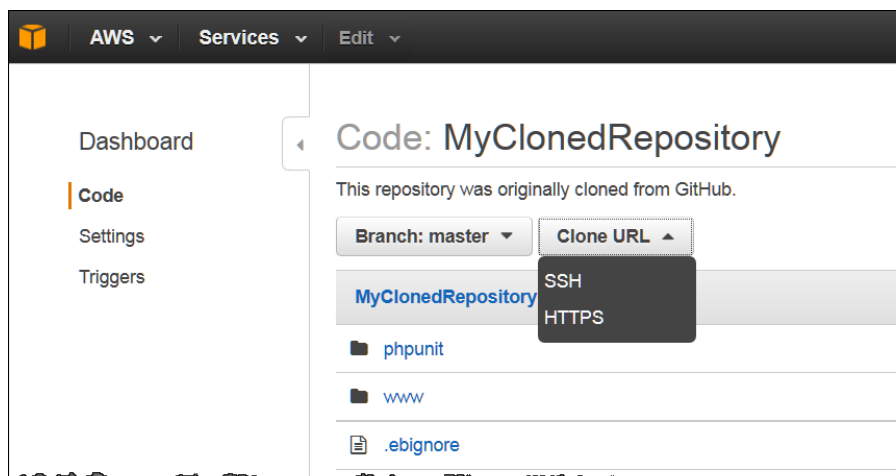
For example, if you named your repository `MyClonedRepository` and you are set up to use SSH, you would type the following command:

```
git push ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyClonedRepository --all
```

Step 3: View Files in AWS CodeCommit

After you have pushed the contents of your directory, you can use the AWS CodeCommit console to quickly view all of the files in that repository.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. Choose the name of the repository from the list (for example, `MyClonedRepository`).
3. View the files in the repository for the branches, the clone URLs, the settings, and more.



Step 4: Share the AWS CodeCommit Repository

When you create a repository in AWS CodeCommit, two endpoints are generated: one for HTTPS connections and one for SSH connections. Both provide secure connections over a network. Your users can use either protocol. Both endpoints remain active no matter which protocol you recommend to your users. Before you can share your repository with others, you must create IAM policies that allow access to your repository to other users. Provide those access instructions to your users.

Create a customer managed policy for your repository

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the **Dashboard** navigation area, choose **Policies**, and then choose **Create Policy**.
3. On the **Create Policy** page, next to **Copy an AWS Managed Policy**, choose **Select**.
4. On the **Copy an AWS Managed Policy** page, type `AWSCodeCommitPowerUser` in the **Search Policies** search box. Choose **Select** next to that policy name.
5. On the **Review Policy** page, in **Policy Name**, type a new name for the policy (for example, `AWSCodeCommitPowerUser-MyDemoRepo`).

In the **Policy Document** text box, replace the "*" portion of the `Resource` line with the Amazon Resource Name (ARN) of the AWS CodeCommit repository. For example:

```
"Resource" : [
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo"
]
```

Tip

To find the ARN for the AWS CodeCommit repository, go to the AWS CodeCommit console and choose the repository name from the list. For more information, see [View Repository Details](#) (p. 114).

If you want this policy to apply to more than one repository, add each repository as a resource by specifying its ARN. Include a comma between each resource statement, as shown in the following example:

```
"Resource" : [
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo" ,
```

```
"arn:aws:codecommit:us-east-2:80398EXAMPLE:MyOtherDemoRepo"  
]
```

6. Choose **Validate Policy**. After it is validated, choose **Create Policy**.

To manage access to your repository, create an IAM group for its users, add IAM users to that group, and then attach the customer managed policy you created in the previous step.

If you use SSH, you must attach another managed policy to the IAMUserSSHKeys group. This IAM managed policy allows users to upload their SSH public key and associate it with the IAM user they use to connect to AWS CodeCommit.

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the **Dashboard** navigation area, choose **Groups**, and then choose **Create New Group**.
3. On the **Set Group Name** page, in the **Group Name** box, type a name for the group (for example, *MyDemoRepoGroup*), and then choose **Next Step**. Consider including the repository name as part of the group name.

Note

This name must be unique across an AWS account.

4. Select the check box next to the customer managed policy you created in the previous section (for example, **AWSCodeCommitPowerUser-MyDemoRepo**).
 - If your users will use HTTPS to connect to your repository, choose **Next Step**.
 - If your users will use SSH to connect to your repository, select the check boxes next to **IAMUserSSHKeys** and **IAMReadOnlyAccess**, and then choose **Next Step**.
5. On the **Review** page, choose **Create Group**. The group will be created in IAM with the specified policies already attached. It will appear in the list of groups associated with your AWS account.
6. Choose your group from the list.
7. On the group summary page, choose the **Users** tab, and then choose **Add Users to Group**. On the list that shows all users associated with your AWS account, select the check boxes next to the users to whom you want to allow access to the AWS CodeCommit repository, and then choose **Add Users**.

Tip

You can use the Search box to quickly find users by name.

8. When you have added your users, close the IAM console.

After you have created an IAM user that will access AWS CodeCommit using the policy group and policies you configured, send that user the connection information they will use to connect to the repository.

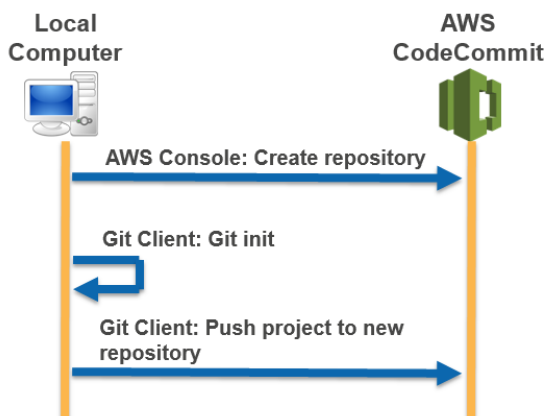
1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. On the **Dashboard** page, choose the name of the repository you want to share.
4. On the **Code** page, choose **Clone URL**, and then choose the protocol you want your users to use.
5. Copy the displayed URL for the connection protocol your users will use when connecting to your AWS CodeCommit repository.
6. Send your users the connection information along with any other instructions, such as installing the AWS CLI, configuring a profile, or installing Git. Make sure to include the configuration

information for the connection protocol (for example, for HTTPS, configuring the credential helper for Git).

Migrate Local or Unversioned Content to AWS CodeCommit

The procedures in this topic walk you through the process of migrating an existing project or local content on your computer to an AWS CodeCommit repository. As part of this process, you will:

- Complete the initial setup required for AWS CodeCommit.
- Create an AWS CodeCommit repository.
- Place a local folder under Git version control and push the contents of that folder to the AWS CodeCommit repository.
- View files in the AWS CodeCommit repository.
- Share the AWS CodeCommit repository with your team.



Topics

- [Step 0: Setup Required for Access to AWS CodeCommit \(p. 64\)](#)
- [Step 1: Create an AWS CodeCommit Repository \(p. 67\)](#)
- [Step 2: Migrate Local Content to the AWS CodeCommit Repository \(p. 68\)](#)
- [Step 3: View Files in AWS CodeCommit \(p. 69\)](#)
- [Step 4: Share the AWS CodeCommit Repository \(p. 69\)](#)

Step 0: Setup Required for Access to AWS CodeCommit

Before you can migrate local content to AWS CodeCommit, you must create and configure an IAM user for AWS CodeCommit and configure your local computer for access. You should also install the AWS CLI to manage AWS CodeCommit. Although you can perform most AWS CodeCommit tasks without it, the AWS CLI offers flexibility when working with Git.

If you are already set up for AWS CodeCommit, you can skip ahead to [Step 1: Create an AWS CodeCommit Repository](#) (p. 67).

To create and configure an IAM user for accessing AWS CodeCommit

1. Create an AWS account by going to <http://aws.amazon.com> and choosing **Sign Up**.
2. Create an IAM user, or use an existing one, in your AWS account. Make sure you have an access key ID and a secret access key associated with that IAM user. For more information, see [Creating an IAM User in Your AWS Account](#).

Tip

AWS CodeCommit requires AWS Key Management Service. If you are using an existing IAM user, make sure there are no policies attached to the user that expressly deny the AWS KMS actions required by AWS CodeCommit. For more information, see [Encryption](#) (p. 173).

3. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
4. In the IAM console, in the navigation pane, choose **Users**, and then choose the IAM user you want to configure for AWS CodeCommit access.
5. On the **Permissions** tab, in **Grant permissions**, choose **Attach existing policies directly to user**.
6. Select **AWSCodeCommitFullAccess** from the list of policies, or another managed policy for AWS CodeCommit access. For more information about managed policies for AWS CodeCommit, see [Managed Policies for AWS CodeCommit](#) (p. 160).

If you want to use SSH to connect to AWS CodeCommit, also select the **IAMUserSSHKeys** and **IAMReadOnlyAccess** managed policies.

After you have selected the policies you want to attach, choose **Next: Review** to review the list of policies that will be attached to the IAM user. If the list is correct, choose **Add permissions**.

Tip

To learn more about AWS CodeCommit managed policies and sharing access to repositories with other groups and users, see [Share a Repository](#) (p. 52) and [Access Permissions Reference](#) (p. 159).

To install and configure the AWS CLI

1. On your local machine, download and install the AWS CLI. This is a prerequisite for interacting with AWS CodeCommit from the command line. For more information, see [Getting Set Up with the AWS Command Line Interface](#).

Note

AWS CodeCommit works only with AWS CLI versions 1.7.38 and later. To determine which version of the AWS CLI you have installed, run the `aws --version` command. To upgrade an older version of the AWS CLI to the latest version, follow the instructions in [Uninstalling the AWS CLI](#), and then follow the instructions in [Installing the AWS Command Line Interface](#).

2. Run this command to verify the AWS CodeCommit commands for the AWS CLI are installed:

```
aws codecommit help
```

This command should return a list of AWS CodeCommit commands.

3. Configure the AWS CLI with the **configure** command, as follows:

```
aws configure
```


When prompted, specify the AWS access key and AWS secret access key of the IAM user you will use with AWS CodeCommit. Also, be sure to specify the region where the repository exists, such as `us-east-2`. When prompted for the default output format, specify `json`. For example:

```
AWS Access Key ID [None]: Type your target AWS access key ID here, and  
then press Enter  
AWS Secret Access Key [None]: Type your target AWS secret access key here,  
and then press Enter  
Default region name [None]: Type a supported region for AWS CodeCommit  
here, and then press Enter  
Default output format [None]: Type json here, and then press Enter
```

To connect to a repository or a resource in another region, you must re-configure the AWS CLI with the default region name for that region. Supported default region names for AWS CodeCommit include:

- `us-east-1`
- `us-east-2`
- `eu-west-1`
- `us-west-2`

For more information about AWS CodeCommit and regions, see [Regions and Git Connection Endpoints \(p. 157\)](#). For more information about IAM, access keys, and secret keys, see [How Do I Get Credentials?](#) and [Managing Access Keys for IAM Users](#).

Next, you must install Git.

- **For Linux, OS X, or Unix:**

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git Downloads](#).

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting \(p. 139\)](#).

- **For Windows:**

To work with files, commits, and other information in AWS CodeCommit repositories, you must install Git on your local machine. AWS CodeCommit supports Git versions 1.7.9 and later.

To install Git, we recommend websites such as [Git for Windows](#). If you use this link to install Git, you can accept all of the installation default settings except for the following:

- When prompted during the **Adjusting your PATH environment** step, select the **Use Git from the Windows Command Prompt** option.
- On the **Configuring extra options** page, make sure the **Enable Git Credential Manager** option is cleared. Although you can choose to install the Git Credential Manager, it is not compatible with AWS CodeCommit. If you install it, you must manually modify your `.gitconfig` file to use the credential helper for AWS CodeCommit. Otherwise, you will not be able to connect to your AWS CodeCommit repository.

Note

Git is an evolving, regularly updated platform. Occasionally, a feature change might affect the way it works with AWS CodeCommit. If you encounter issues with a specific version of Git and AWS CodeCommit, review the information in [Troubleshooting](#) (p. 139).

AWS CodeCommit supports both HTTPS and SSH authentication. To complete setup, you must configure either a credential helper (HTTPS) or an SSH key pair (SSH) to use when accessing AWS CodeCommit.

- For HTTPS on Linux, OS X, or Unix, see [Set Up the Credential Helper \(Linux, OS X, or Unix\)](#). (p. 9)
- For SSH on Linux, OS X, or Unix, see [SSH and Linux, OS X, or Unix: Set Up the Public and Private Keys for Git and AWS CodeCommit](#) (p. 17).
- For HTTPS on Windows, see [Set Up the Credential Helper \(Windows\)](#) (p. 14).
- Because SSH is not natively supported on most Windows operating systems, configuration is more complex, and is therefore not recommended for this tutorial. If you would like to use SSH on Windows, see [SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit](#) (p. 22).

Step 1: Create an AWS CodeCommit Repository

In this section, you will use the AWS CodeCommit console to create the AWS CodeCommit repository you will use for the rest of this tutorial. To use the AWS CLI to create the repository, see [Use the AWS CLI to Create an AWS CodeCommit Repository](#) (p. 50).

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where you will create the repository. For more information, see [Regions and Git Connection Endpoints](#) (p. 157).
3. On the **Dashboard** page, choose **Create new repository**. (If a welcome page appears instead of the **Dashboard** page, choose **Get Started Now**.)
4. On the **Create new repository** page, in **Repository name**, type a name for the repository.

Note

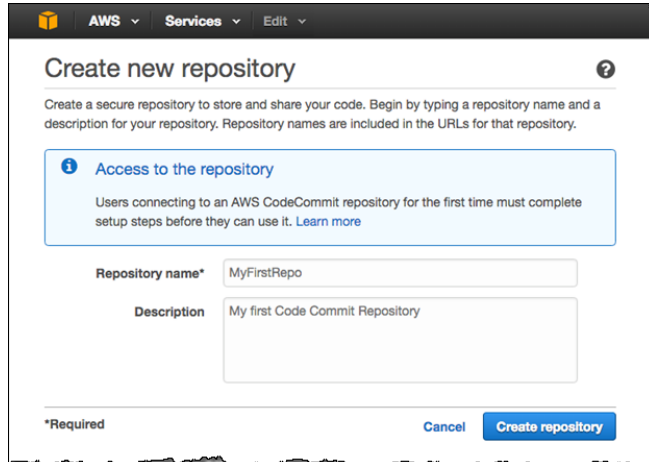
This name must be unique across an AWS account.

5. Optionally, in the **Description** box, type a description for the repository. This can help you and other users identify the purpose of the repository.

Note

The description field for a repository accepts all HTML characters and all valid Unicode characters. If you are an application developer using the `GetRepository` or `BatchGetRepositories` APIs and plan to display the repository description field in a web browser, see the [AWS CodeCommit API Reference](#) for additional guidance.

6. Choose **Create repository**. An empty repository will be created in AWS CodeCommit with the name and description you specified.



After it is created, the repository will appear in the list of repositories in your dashboard. In the URL column, choose the copy icon, and then choose the protocol (SSH or HTTPS) you will use to connect to AWS CodeCommit. Copy the URL.

For example, if you named your repository *MyFirstRepo* and you are using SSH, the URL would look like the following:

```
ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyFirstRepo
```

You will need this URL later in [Step 2: Migrate Local Content to the AWS CodeCommit Repository](#) (p. 68).

Step 2: Migrate Local Content to the AWS CodeCommit Repository

Now that you have an AWS CodeCommit repository, you can choose a directory on your local computer to convert into a local Git repository. The **git init** command can be used to either convert existing, unversioned content to a Git repository or, if you do not yet have files or content, to initialize a new, empty repository.

1. From the terminal or command line on your local computer, change directories to the directory you want to use as the source for your repository.
2. Run the **git init** command to initialize Git version control in the directory. This will create a `.git` subdirectory in the root of the directory that enables version control tracking. The `.git` folder also contains all of the required metadata for the repository.

```
git init
```

3. Add the files you want to add to version control. In this tutorial, you will run the `git add` command with the `.` specifier to add all of the files in this directory. For other options, consult your Git documentation.

```
git add .
```

4. Create a commit for the added files with a commit message.

```
git commit -m "Initial commit"
```

5. Run the **git push** command, specifying the URL and name of the destination AWS CodeCommit repository and the `--all` option. (This is the URL you copied in [Step 1: Create an AWS CodeCommit Repository](#) (p. 67).)

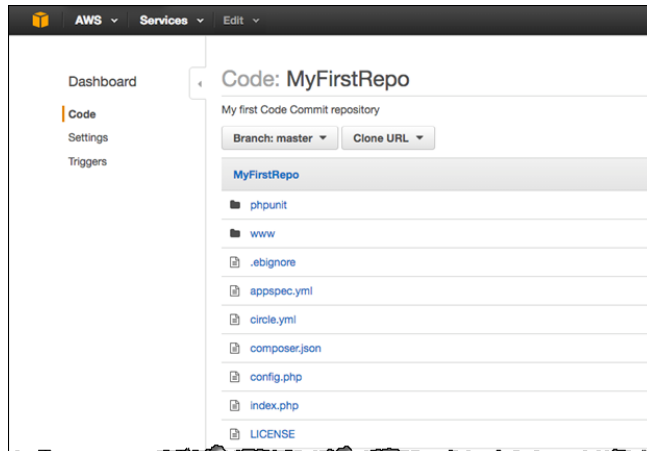
For example, if you named your repository *MyFirstRepo* and you are set up to use SSH, you would type the following command:

```
git push ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyFirstRepo
--all
```

Step 3: View Files in AWS CodeCommit

After you have pushed the contents of your directory, you can use the AWS CodeCommit console to quickly view all of the files in the repository.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. Choose the name of the repository from the list (for example, *MyFirstRepository*).
3. View the files in the repository for the branches, the clone URLs, the settings, and more.



Step 4: Share the AWS CodeCommit Repository

When you create a repository in AWS CodeCommit, two endpoints are generated: one for HTTPS connections and one for SSH connections. Both provide secure connections over a network. Your users can use either protocol. Both endpoints remain active no matter which protocol you recommend to your users. Before you can share your repository with others, you must create IAM policies that allow access to your repository to other users. Provide those access instructions to your users.

Create a customer managed policy for your repository

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the **Dashboard** navigation area, choose **Policies**, and then choose **Create Policy**.
3. On the **Create Policy** page, next to **Copy an AWS Managed Policy**, choose **Select**.
4. On the **Copy an AWS Managed Policy** page, type `AWSCodeCommitPowerUser` in the **Search Policies** search box. Choose **Select** next to that policy name.
5. On the **Review Policy** page, in **Policy Name**, type a new name for the policy (for example, *AWSCodeCommitPowerUser-MyDemoRepo*).

In the **Policy Document** text box, replace the "*" portion of the `Resource` line with the Amazon Resource Name (ARN) of the AWS CodeCommit repository. For example:

```
"Resource" : [
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo"
]
```

Tip

To find the ARN for the AWS CodeCommit repository, go to the AWS CodeCommit console and choose the repository name from the list. For more information, see [View Repository Details \(p. 114\)](#).

If you want this policy to apply to more than one repository, add each repository as a resource by specifying its ARN. Include a comma between each resource statement, as shown in the following example:

```
"Resource" : [
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo" ,
  "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyOtherDemoRepo"
]
```

6. Choose **Validate Policy**. After it is validated, choose **Create Policy**.

To manage access to your repository, create an IAM group for its users, add IAM users to that group, and then attach the customer managed policy you created in the previous step to the group.

If you use SSH, you must attach another managed policy to the IAMUserSSHKeys group. This IAM managed policy allows users to upload their SSH public key and associate it with the IAM user they use to connect to AWS CodeCommit.

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the **Dashboard** navigation area, choose **Groups**, and then choose **Create New Group**.
3. On the **Set Group Name** page, in the **Group Name** box, type a name for the group (for example, *MyDemoRepoGroup*), and then choose **Next Step**. Consider including the repository name as part of the group name.

Note

This name must be unique across an AWS account.

4. Select the check box next to the customer managed policy you created in the previous section (for example, **AWSCodeCommitPowerUser-MyDemoRepo**).
 - If your users will use HTTPS to connect to your repository, choose **Next Step**.
 - If your users will use SSH to connect to your repository, select the check boxes next to **IAMUserSSHKeys** and **IAMReadOnlyAccess**, and then choose **Next Step**.
5. On the **Review** page, choose **Create Group**. The group will be created in IAM with the specified policies already attached. It will appear in the list of groups associated with your AWS account.
6. Choose your group from the list.
7. On the group summary page, choose the **Users** tab, and then choose **Add Users to Group**. On the list that shows all users associated with your AWS account, select the check boxes next to the users to whom you want to allow access to the AWS CodeCommit repository, and then choose **Add Users**.

Tip

You can use the Search box to quickly find users by name.

8. When you have added your users, close the IAM console.

After you have created an IAM user that will access AWS CodeCommit using the policy group and policies you configured, send that user the connection information they will use to connect to the repository.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the region selector, choose the region where the repository was created. Repositories are specific to an AWS region. For more information, see [Regions and Git Connection Endpoints \(p. 157\)](#).
3. On the **Dashboard** page, choose the name of the repository you want to share.
4. On the **Code** page, choose **Clone URL**, and then choose the protocol you want your users to use.
5. Copy the displayed URL for the connection protocol your users will use when connecting to your AWS CodeCommit repository.
6. Send your users the connection information along with any other instructions, such as installing the AWS CLI, configuring a profile, or installing Git. Make sure to include the configuration information for the connection protocol (for example, for HTTPS, configuring the credential helper for Git).

Migrate a Repository Incrementally

When migrating to AWS CodeCommit, consider pushing your repository in increments or chunks to reduce the chances an intermittent network issue or degraded network performance will cause the entire push to fail. By using incremental pushes with a script like the following, you can restart the migration and push only those commits that did not succeed on the earlier attempt.

The procedures in this topic show you how to create and run a script that will migrate your repository in increments and repush only those increments that did not succeed until the migration is complete.

These instructions assume you have already completed the steps in [Setting Up \(p. 4\)](#) and [Create a Repository \(p. 49\)](#).

Topics

- [Step 0: Determine Whether to Migrate Incrementally \(p. 71\)](#)
- [Step 1: Install Prerequisites and Add the AWS CodeCommit Repository as a Remote \(p. 72\)](#)
- [Step 2: Create the Script to Use for Migrating Incrementally \(p. 73\)](#)
- [Step 3: Run the Script and Migrate Incrementally to AWS CodeCommit \(p. 73\)](#)
- [Appendix: Sample Script incremental-repo-migration.py \(p. 74\)](#)

Step 0: Determine Whether to Migrate Incrementally

There are several factors to consider to determine the overall size of your repository and whether to migrate incrementally. The most obvious is the overall size of the artifacts in the repository. Factors such as the accumulated history of the repository can also contribute to size. A repository with years of history and branches can be very large, even though the individual assets are not. There are a number of strategies you can pursue to make migrating these repositories simpler and more efficient, such as using a shallow clone strategy when cloning a repository with a long history of development, or turning off delta compression for large binary files. You can research options by consulting your Git documentation, or you can choose to set up and configure incremental pushes for migrating your repository using the sample script included in this topic, `incremental-repo-migration.py`.

You might want to configure incremental pushes if one or more of the following conditions is true:

- The repository you want to migrate has more than five years of history.
- Your internet connection is subject to intermittent outages, dropped packets, slow response, or other interruptions in service.
- The overall size of the repository is larger than 2 GB and you intend to migrate the entire repository.
- The repository contains large artifacts or binaries that do not compress well, such as large image files with more than five tracked versions.
- You have previously attempted a migration to AWS CodeCommit and received an "Internal Service Error" message.

Even if none of the above conditions are true, you can still choose to push incrementally.

Step 1: Install Prerequisites and Add the AWS CodeCommit Repository as a Remote

You can create your own custom script, which will have its own prerequisites. If you choose to use the sample included in this topic, you must first install its prerequisites, as well as clone the repository to your local computer and add the AWS CodeCommit repository as a remote for the repository you want to migrate.

Set up to run `incremental-repo-migration.py`

1. On your local computer, install Python 2.6 or later, if it is not already installed. For more information and the latest versions, see [the Python website](#).
2. On the same computer, install GitPython, which is a Python library used to interact with Git repositories, if it is not already installed. For more information, see [the GitPython documentation](#).
3. Use the `git clone --mirror` command to clone the repository you want to migrate to your local computer. From the terminal (Linux, OS X, or Unix) or the command prompt (Windows), use the `git clone --mirror` command to create a local repo for the repository, including the directory where you want to create the local repo. For example, to clone a Git repository named `MyMigrationRepo` with a URL of `https://example.com/my-repo/` to a directory named `my-repo`:

```
git clone --mirror https://example.com/my-repo/MyMigrationRepo.git my-repo
```

You should see output similar to the following, which indicates the repository has been cloned into a bare local repo named `my-repo`:

```
Cloning into bare repository 'my-repo'...
remote: Counting objects: 20, done.
remote: Compressing objects: 100% (17/17), done.
remote: Total 20 (delta 5), reused 15 (delta 3)
Unpacking objects: 100% (20/20), done.
Checking connectivity... done.
```

4. Change directories to the local repo for the repository you just cloned (for example, `my-repo`). From that directory, use the `git remote add` `DefaultRemoteName RemoteRepositoryURL` command to add the AWS CodeCommit repository as a remote repository for the local repo.

Note

When pushing large repositories, consider using SSH instead of HTTPS. When pushing a large change, a large number of changes, or a large repository, long-running HTTPS connections are often terminated prematurely due to networking issues or firewall settings. For more information about setting up AWS CodeCommit for SSH, see [For SSH Connections on Linux, OS X, or Unix \(p. 16\)](#) or [For SSH Connections on Windows \(p. 21\)](#).

For example, to add the SSH endpoint for an AWS CodeCommit repository named `MyDestinationRepo` as a remote repository for the remote named `codecommit`, use the following command:

```
git remote add codecommit ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDestinationRepo
```

Tip

Because this is a clone, the default remote name (`origin`) will already be in use. You must use another remote name. Although the example uses `codecommit`, you can use any name you want. Use the **git remote show** command to review the list of remotes set for your local repo.

5. Use the **git remote -v** command to display the fetch and push settings for your local repo and confirm they are set correctly. For example:

```
codecommit ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDestinationRepo (fetch)
codecommit ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDestinationRepo (push)
```

Tip

If you still see fetch and push entries for a different remote repository (for example, entries for `origin`), remove them using the **git remote set-url --delete** command.

Step 2: Create the Script to Use for Migrating Incrementally

These steps assume you will use the `incremental-repo-migration.py` sample script.

1. Open a text editor and paste the contents of [the sample script \(p. 74\)](#) into an empty document.
2. Save the document in a documents directory (not the working directory of your local repo) and name it `incremental-repo-migration.py`. Make sure the directory you choose is one configured in your local environment or path variables, so you can run the Python script from a command line or terminal.

Step 3: Run the Script and Migrate Incrementally to AWS CodeCommit

Now that you have created your `incremental-repo-migration.py` script, you can use it to incrementally migrate a local repo to an AWS CodeCommit repository. By default, the script pushes commits in batches of 1,000 commits and attempts to use the Git settings for the directory from which it is run as the settings for the local repo and remote repository. You can use the options included in `incremental-repo-migration.py` to configure other settings, if necessary.

1. From the terminal or command prompt, change directories to the local repo you want to migrate.
2. From that directory, type the following command:

```
python incremental-repo-migration.py
```

3. The script runs and shows progress at the terminal or command prompt. Some large repositories will be slow to show progress. The script will stop if a single push fails three times. You can then

rerun the script, and it will start from the batch that failed. You can rerun the script until all pushes succeed and the migration is complete.

Tip

You can run `incremental-repo-migration.py` from any directory as long as you use the `-l` and `-r` options to specify the local and remote settings to use. For example, to use the script from any directory to migrate a local repo located at `/tmp/my-repo` to a remote nicknamed `codecommit`:

```
python incremental-repo-migration.py -l "/tmp/my-repo" -r "codecommit"
```

You might also want to use the `-b` option to change the default batch size used when pushing incrementally. For example, if you are regularly pushing a repository with very large binary files that change often and are working from a location that has restricted network bandwidth, you might want to use the `-b` option to change the batch size to 500 instead of 1,000. For example:

```
python incremental-repo-migration.py -b 500
```

This will push the local repo incrementally in batches of 500 commits. If you decide to change the batch size again when migrating the repository (for example, if you decide to decrease the batch size after an unsuccessful attempt), remember to use the `-c` option to remove the batch tags before resetting the batch size with `-b`:

```
python incremental-repo-migration.py -c  
python incremental-repo-migration.py -b 250
```

Important

Do not use the `-c` option if you want to rerun the script after a failure. The `-c` option removes the tags used to batch the commits. Use the `-c` option only if you want to change the batch size and start again, or if you decide you no longer want to use the script.

Appendix: Sample Script `incremental-repo-migration.py`

For your convenience, we have developed a sample Python script, `incremental-repo-migration.py`, for pushing a repository incrementally. This script is an open source code sample and provided as-is.

```
# Copyright 2015 Amazon.com, Inc. or its affiliates. All Rights Reserved.  
Licensed under the Amazon Software License (the "License").  
# You may not use this file except in compliance with the License. A copy of  
the License is located at  
# http://aws.amazon.com/asl/  
# This file is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR  
CONDITIONS OF ANY KIND, express or implied. See the License for  
# the specific language governing permissions and limitations under the  
License.  
  
#!/usr/bin/env python  
  
import os  
import sys  
from optparse import OptionParser  
from git import Repo, TagReference, RemoteProgress, GitCommandError
```

```
class PushProgressPrinter(RemoteProgress):
    def update(self, op_code, cur_count, max_count=None, message=''):
        op_id = op_code & self.OP_MASK
        stage_id = op_code & self.STAGE_MASK
        if op_id == self.WRITING and stage_id == self.BEGIN:
            print("\tObjects: %d" % max_count)

class RepositoryMigration:

    MAX_COMMITS_TOLERANCE_PERCENT = 0.05
    PUSH_RETRY_LIMIT = 3
    MIGRATION_TAG_PREFIX = "codecommit_migration_"

    def migrate_repository_in_parts(self, repo_dir, remote_name,
    commit_batch_size, clean):
        self.next_tag_number = 0
        self.migration_tags = []
        self.walked_commits = set()
        self.local_repo = Repo(repo_dir)
        self.remote_name = remote_name
        self.max_commits_per_push = commit_batch_size
        self.max_commits_tolerance = self.max_commits_per_push *
self.MAX_COMMITS_TOLERANCE_PERCENT

        try:
            self.remote_repo = self.local_repo.remote(remote_name)
            self.get_remote_migration_tags()
        except (ValueError, GitCommandError):
            print("Could not contact the remote repository. The most common
reasons for this error are that the name of the remote repository is
incorrect, or that you do not have permissions to interact with that remote
repository.")
            sys.exit(1)

        if clean:
            self.clean_up(clean_up_remote=True)
            return

        self.clean_up()

        print("Analyzing repository")
        head_commit = self.local_repo.head.commit
        sys.setrecursionlimit(max(sys.getrecursionlimit(),
head_commit.count()))

        # tag commits on default branch
        leftover_commits = self.migrate_commit(head_commit)
        self.tag_commits([commit for (commit, commit_count) in
leftover_commits])

        # tag commits on each branch
        for branch in self.local_repo.heads:
            leftover_commits = self.migrate_commit(branch.commit)
            self.tag_commits([commit for (commit, commit_count) in
leftover_commits])

        # push the tags
        self.push_migration_tags()
```

```
# push all branch references
for branch in self.local_repo.heads:
    print("Pushing branch %s" % branch.name)
    self.do_push_with_retries(ref=branch.name)

# push all tags
print("Pushing tags")
self.do_push_with_retries(push_tags=True)

self.get_remote_migration_tags()
self.clean_up(clean_up_remote=True)

print("Migration to CodeCommit was successful")

def migrate_commit(self, commit):
    if commit in self.walked_commits:
        return []

    pending_ancestor_pushes = []
    commit_count = 1

    if len(commit.parents) > 1:
        # This is a merge commit
        # Ensure that all parents are pushed first
        for parent_commit in commit.parents:

pending_ancestor_pushes.extend(self.migrate_commit(parent_commit))
        elif len(commit.parents) == 1:
            # Split linear history into individual pushes
            next_ancestor, commits_to_next_ancestor =
self.find_next_ancestor_for_push(commit.parents[0])
            commit_count += commits_to_next_ancestor

pending_ancestor_pushes.extend(self.migrate_commit(next_ancestor))

        self.walked_commits.add(commit)

        return self.stage_push(commit, commit_count, pending_ancestor_pushes)

def find_next_ancestor_for_push(self, commit):
    commit_count = 0

    # Traverse linear history until we reach our commit limit, a merge
commit, or an initial commit
    while len(commit.parents) == 1 and commit_count <
self.max_commits_per_push and commit not in self.walked_commits:
        commit_count += 1
        self.walked_commits.add(commit)
        commit = commit.parents[0]

    return commit, commit_count

def stage_push(self, commit, commit_count, pending_ancestor_pushes):
    # Determine whether we can roll up pending ancestor pushes into this
push
    combined_commit_count = commit_count + sum(ancestor_commit_count for
(ancestor, ancestor_commit_count) in pending_ancestor_pushes)

    if combined_commit_count < self.max_commits_per_push:
```

```
        # don't push anything, roll up all pending ancestor pushes into
        this pending push
        return [(commit, combined_commit_count)]

        if combined_commit_count <= (self.max_commits_per_push +
self.max_commits_tolerance):
            # roll up everything into this commit and push
            self.tag_commits([commit])
            return []

        if commit_count >= self.max_commits_per_push:
            # need to push each pending ancestor and this commit
            self.tag_commits([ancestor for (ancestor, ancestor_commit_count)
in pending_ancestor_pushes])
            self.tag_commits([commit])
            return []

        # push each pending ancestor, but roll up this commit
        self.tag_commits([ancestor for (ancestor, ancestor_commit_count) in
pending_ancestor_pushes])
        return [(commit, commit_count)]

    def tag_commits(self, commits):
        for commit in commits:
            self.next_tag_number += 1
            tag_name = self.MIGRATION_TAG_PREFIX + str(self.next_tag_number)

            if tag_name not in self.remote_migration_tags:
                tag = self.local_repo.create_tag(tag_name, ref=commit)
                self.migration_tags.append(tag)
            elif self.remote_migration_tags[tag_name] != str(commit):
                print("Migration tags on the remote do not match the local
tags. Most likely your batch size has changed since the last time you
ran this script. Please run this script with the --clean option, and try
again.")
                sys.exit(1)

    def push_migration_tags(self):
        print("Will attempt to push %d tags" % len(self.migration_tags))
        self.migration_tags.sort(key=lambda tag:
int(tag.name.replace(self.MIGRATION_TAG_PREFIX, "")))
        for tag in self.migration_tags:
            print("Pushing tag %s (out of %d tags), commit %s" % (tag.name,
self.next_tag_number, str(tag.commit)))
            self.do_push_with_retries(ref=tag.name)

    def do_push_with_retries(self, ref=None, push_tags=False):
        for i in range(0, self.PUSH_RETRY_LIMIT):
            if i == 0:
                progress_printer = PushProgressPrinter()
            else:
                progress_printer = None

            try:
                if push_tags:
                    infos = self.remote_repo.push(tags=True,
progress=progress_printer)
                elif ref is not None:
```

```
        infos = self.remote_repo.push(refspec=ref,
progress=progress_printer)
    else:
        infos = self.remote_repo.push(progress=progress_printer)

    success = True
    if len(infos) == 0:
        success = False
    else:
        for info in infos:
            if info.flags & info.UP_TO_DATE or info.flags &
info.NEW_TAG or info.flags & info.NEW_HEAD:
                continue
            success = False
            print(info.summary)

    if success:
        return
    except GitCommandError as err:
        print(err)

    if push_tags:
        print("Pushing all tags failed after %d attempts" %
(self.PUSH_RETRY_LIMIT))
        elif ref is not None:
            print("Pushing %s failed after %d attempts" % (ref,
self.PUSH_RETRY_LIMIT))
            print("For more information about the cause of this error,
run the following command from the local repo: 'git push %s %s'" %
(self.remote_name, ref))
        else:
            print("Pushing all branches failed after %d attempts" %
(self.PUSH_RETRY_LIMIT))
            sys.exit(1)

    def get_remote_migration_tags(self):
        remote_tags_output = self.local_repo.git.ls_remote(self.remote_name,
tags=True).split('\n')
        self.remote_migration_tags = dict((tag.split()[1].replace("refs/
tags/", ""), tag.split()[0]) for tag in remote_tags_output if
self.MIGRATION_TAG_PREFIX in tag)

    def clean_up(self, clean_up_remote=False):
        tags = [tag for tag in self.local_repo.tags if
tag.name.startswith(self.MIGRATION_TAG_PREFIX)]

        # delete the local tags
        TagReference.delete(self.local_repo, *tags)

        # delete the remote tags
        if clean_up_remote:
            tags_to_delete = [":" + tag_name for tag_name in
self.remote_migration_tags]
            self.remote_repo.push(refspec=tags_to_delete)

parser = OptionParser()
parser.add_option("-l", "--local",
                action="store", dest="localrepo", default=os.getcwd(),
```

```
        help="The path to the local repo. If this option is not
specified, the script will attempt to use current directory by default. If
it is not a local git repo, the script will fail.")
parser.add_option("-r", "--remote",
                  action="store", dest="remoterepo", default="codecommit",
                  help="The name of the remote repository to be used as the
push or migration destination. The remote must already be set in the local
repo ('git remote add ...'). If this option is not specified, the script
will use 'codecommit' by default.")
parser.add_option("-b", "--batch",
                  action="store", dest="batchsize", default="1000",
                  help="Specifies the commit batch size for pushes. If not
explicitly set, the default is 1,000 commits.")
parser.add_option("-c", "--clean",
                  action="store_true", dest="clean", default=False,
                  help="Remove the temporary tags created by migration from
both the local repo and the remote repository. This option will not do any
migration work, just cleanup. Cleanup is done automatically at the end of
a successful migration, but not after a failure so that when you re-run the
script, the tags from the prior run can be used to identify commit batches
that were not pushed successfully.")

(options, args) = parser.parse_args()

migration = RepositoryMigration()
migration.migrate_repository_in_parts(options.localrepo, options.remoterepo,
int(options.batchsize), options.clean)
```

Connect to an AWS CodeCommit Repository

When you connect to an AWS CodeCommit repository for the first time, you typically clone its contents to your local machine. Alternatively, if you already have a local repo, you can add an AWS CodeCommit repository as a remote. This topic provides instructions for connecting to an AWS CodeCommit repository. If you want to migrate an existing repository to AWS CodeCommit, see [Migrate to AWS CodeCommit \(p. 56\)](#).

Note

Depending on your usage, you might be charged for creating or accessing a repository. For more information, see [Pricing](#) on the AWS CodeCommit product information page.

Topics

- [Prerequisites for Connecting to an AWS CodeCommit Repository \(p. 80\)](#)
- [Connect to the AWS CodeCommit Repository by Cloning the Repository \(p. 81\)](#)
- [Connect a Local Repo to the AWS CodeCommit Repository \(p. 82\)](#)

Prerequisites for Connecting to an AWS CodeCommit Repository

Before you can connect to an AWS CodeCommit repository:

- You must have configured your local computer with the software and settings required to connect to AWS CodeCommit. For more information, see [Setting Up \(p. 4\)](#).
- You must have the clone URL of the AWS CodeCommit repository to which you want to connect. This URL includes the name of the repository as well as its AWS region. For more information, see [View Repository Details \(p. 114\)](#).

If you have not yet created an AWS CodeCommit repository, follow the instructions in [Create a Repository \(p. 49\)](#), copy the clone URL of the new AWS CodeCommit repository, and return to this page.

If you have an AWS CodeCommit repository but you do not know its name, follow the instructions in [View Repository Details \(p. 114\)](#).

- You must have a location on your local machine to store a local copy of the AWS CodeCommit repository to which you will be connecting. (This local copy of the AWS CodeCommit repository is known as a *local repo*.) You then switch to and run Git commands from that location. For example, you could use `/tmp` (for Linux, OS X, or Unix) or `c:\temp` (for Windows).

Note

You can use any directory you want. If you use a different directory than `/tmp` or `c:\temp`, be sure to substitute it for ours when you follow these instructions.

Connect to the AWS CodeCommit Repository by Cloning the Repository

If you do not already have a local repo, follow the steps in this procedure to clone the AWS CodeCommit repository to your local machine.

1. Complete the prerequisites, including [Setting Up \(p. 4\)](#).

Important

If you have not completed setup, you will not be able to connect to or clone the repository.

2. From the `/tmp` directory or the `c:\temp` directory, use Git to run the **clone** command, as shown in the following example for cloning a repository named *MyDemoRepo* in the US East (Ohio) region:

For HTTPS:

```
git clone https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

For SSH:

```
git clone ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

In this example, `git-codecommit.us-east-2.amazonaws.com` is the Git connection point for the US East (Ohio) region where the repository exists, `MyDemoRepo` represents the name of your AWS CodeCommit repository, and `my-demo-repo` represents the name of the directory Git will create in the `/tmp` directory or the `c:\temp` directory. For more information about the regions that support AWS CodeCommit and the Git connections for those regions, see [Regions and Git Connection Endpoints \(p. 157\)](#).

Note

When you use SSH on Windows operating systems to clone a repository, you might need to add the SSH key ID to the connection string as follows:

```
git clone ssh://Your-SSH-Key-ID@git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

For more information, see [For SSH Connections on Windows \(p. 21\)](#) and [Troubleshooting \(p. 139\)](#).

After Git creates the directory, it will pull down a copy of your AWS CodeCommit repository into the newly created directory.

If the AWS CodeCommit repository is new or otherwise empty, you will see a message that you are cloning an empty repository. This is expected.

Note

If you receive an error that Git can't find the AWS CodeCommit repository or that you don't have permission to connect to the AWS CodeCommit repository, make sure you completed the [prerequisites \(p. 4\)](#), including assigning permissions to the IAM user and setting up your IAM user credentials for Git and AWS CodeCommit on the local machine. Also, make sure you specified the correct repository name.

After you successfully connect your local repo to your AWS CodeCommit repository, you are now ready to start running Git commands from the local repo to create commits, branches, and tags and push to and pull from the AWS CodeCommit repository.

Connect a Local Repo to the AWS CodeCommit Repository

Complete the following steps if you already have a local repo and want to add an AWS CodeCommit repository as the remote repository. If you already have a remote repository and want to push your commits to AWS CodeCommit as well as that other remote repository, follow the steps in [Push Commits to Two Repositories \(p. 135\)](#) instead.

1. Complete the [prerequisites \(p. 80\)](#).
2. From the command prompt or terminal, switch to your local repo directory and run the **git remote add** command to add the AWS CodeCommit repository as a remote repository for your local repo.

For example, the following command adds the remote nicknamed `origin` to `https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo`:

For HTTPS:

```
git remote add origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
```

For SSH:

```
git remote add origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
```

This command returns nothing.

3. To verify you have added the AWS CodeCommit repository as a remote for your local repo, run the **git remote -v** command, which should create output similar to the following:

For HTTPS:

```
origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo (fetch)
origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo (push)
```

For SSH:

```
origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo (fetch)
```

```
origin  ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo  
(push)
```

After you successfully connect your local repo to your AWS CodeCommit repository, you are ready to start running Git commands from the local repo to create commits, branches, and tags, and to push to and pull from the AWS CodeCommit repository.

Browse the Contents of an AWS CodeCommit Repository

After you connect to an AWS CodeCommit repository, you can clone it to a local repo or use the AWS CodeCommit console to browse its contents. This topic provides instructions for browsing the content of an AWS CodeCommit repository by using the console.

Note

For active AWS CodeCommit users, there is no charge for browsing code from the AWS CodeCommit console. For information about when additional charges may apply, see [Pricing](#).

Browse the Contents of an AWS CodeCommit Repository

You can use the AWS CodeCommit console to review the files contained in a repository or to quickly read the contents of a file. This can help you determine which branch to check out or whether you want to create a local copy of a repository.

To browse the content of a repository

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. On the **Dashboard** page, from the list of repositories, choose the repository you want to browse.
3. In the **Code** view, browse the contents of the default branch for your repo.

To change the view to a different branch or tag, choose the view selector button. Either choose a branch or tag name from the drop-down list, or in the filter box, type the name of the branch or tag, and then choose it from the list.

4. Do one of the following:
 - To view the contents of a directory, choose it from the list. You can choose any of the directories in the navigation list to return to that directory view. You can also use the up arrow at the top of the directory list.
 - To view the contents of a file, choose it from the list. If the file is larger than the commit object limit, it cannot be displayed in the console, and instead must be viewed in a local repo. For more information, see [Limits \(p. 175\)](#). To exit the file view, from the code navigation bar, choose the directory you want to view.

Note

If you choose a binary file, a warning message will appear asking you to confirm you want to display the contents. To view the file, choose **Show file contents**. If you do not want to view the file, from the code navigation bar, choose the directory you want to view.

If you choose a markdown file (.md), use the **Rendered Markdown** and **Markdown Source** buttons to toggle between the rendered and syntax views.

Manage Triggers for an AWS CodeCommit Repository

You can configure an AWS CodeCommit repository so that code pushes or other events trigger actions, such as sending a notification from Amazon Simple Notification Service (Amazon SNS) or invoking a function in AWS Lambda. You can create up to ten triggers for each AWS CodeCommit repository.

Triggers are commonly configured to:

- Send emails to subscribed users every time someone pushes to the repository.
- Notify an external build system to start a build after someone pushes to the main branch of the repository.

Scenarios like notifying an external build system require writing a Lambda function to interact with other applications. The email scenario simply requires creating an Amazon SNS topic.

In this topic, you will learn how to set permissions that allow AWS CodeCommit to trigger actions in Amazon SNS and Lambda. You will also find links to examples for creating, editing, testing, and deleting triggers.

Topics

- [Create the Resource and Add Permissions for AWS CodeCommit \(p. 86\)](#)
- [Example: Create an AWS CodeCommit Trigger for an Amazon SNS Topic \(p. 87\)](#)
- [Example: Create an AWS CodeCommit Trigger for an AWS Lambda Function \(p. 93\)](#)
- [Example: Create a Trigger in AWS CodeCommit for an Existing AWS Lambda Function \(p. 97\)](#)
- [Edit Triggers for an AWS CodeCommit Repository \(p. 102\)](#)
- [Test Triggers for an AWS CodeCommit Repository \(p. 104\)](#)
- [Delete Triggers from an AWS CodeCommit Repository \(p. 105\)](#)

Create the Resource and Add Permissions for AWS CodeCommit

You can integrate Amazon SNS topics and Lambda functions with triggers in AWS CodeCommit, but you must first create and then configure resources with a policy that allows AWS CodeCommit the permissions to interact with those resources. You must create the resource in the same region as

the AWS CodeCommit repository. For example, if the repository is in US East (Ohio) (us-east-2), the Amazon SNS topic or Lambda function must be in US East (Ohio).

- For Amazon SNS topics, you do not need to configure additional IAM policies or permissions if the Amazon SNS topic is created using the same account as the AWS CodeCommit repository. You can create the AWS CodeCommit trigger as soon as you have created and subscribed to the Amazon SNS topic.
 - For more information about creating topics in Amazon SNS, see the [Amazon SNS documentation](#).
 - For information about using Amazon SNS to send messages to Amazon SQS queues, see [Sending Messages to Amazon SQS Queues](#).
 - For information about using Amazon SNS to invoke a Lambda function, see [Invoking Lambda Functions](#).
- If you want to configure your trigger to use an Amazon SNS topic in another AWS account, you must first configure that topic with a policy that allows AWS CodeCommit to publish to that topic. For more information, see [Create a Policy That Enables Cross-Account Access to an Amazon SNS Topic](#) (p. 163).
- You can configure Lambda functions by creating the trigger in the Lambda console as part of the function. This is the simplest method, as triggers created in the Lambda console automatically include the permissions required for AWS CodeCommit to invoke the Lambda function. If you create the trigger in AWS CodeCommit, you must include a policy to allow AWS CodeCommit to invoke the function. For more information, see [Create a Trigger for an Existing Lambda Function](#) (p. 97) and [Create a Policy for AWS Lambda Integration](#) (p. 164).

Example: Create an AWS CodeCommit Trigger for an Amazon SNS Topic

You can create a trigger for an AWS CodeCommit repository so that events in that repository trigger notifications from an Amazon Simple Notification Service (Amazon SNS) topic. You might want to create a trigger to an Amazon SNS topic to enable users to subscribe to notifications about repository events, such as the deletion of branches. You can also take advantage of the integration of Amazon SNS topics with other services, such as Amazon Simple Queue Service (Amazon SQS) and AWS Lambda.

Note

You must point the trigger to an existing Amazon SNS topic that will be the action taken in response to repository events. For more information about creating and subscribing to Amazon SNS topics, see [Getting Started with Amazon Simple Notification Service](#).

Topics

- [Create a Trigger to an Amazon SNS Topic for an AWS CodeCommit Repository \(Console\)](#) (p. 87)
- [Create a Trigger to an Amazon SNS Topic for an AWS CodeCommit Repository \(AWS CLI\)](#) (p. 89)

Create a Trigger to an Amazon SNS Topic for an AWS CodeCommit Repository (Console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. From the list of repositories, choose the repository where you want to create triggers for repository events.

3. In the **Dashboard** navigation pane for the repository, choose **Triggers**.
4. On the triggers page for the repository, choose **Create trigger**.
5. In the **Create trigger** pane, do the following:
 - In **Trigger name**, type a name for the trigger, such as *MyFirstTrigger*.
 - In **Events**, select the repository events that will trigger the Amazon SNS topic to send notifications.

If you choose **All repository events**, you cannot choose any other events. To choose a subset of events, remove **All repository events**, and then choose one or more events from the list. For example, if you want the trigger to run only when a user creates a branch or tag in the AWS CodeCommit repository, remove **All repository events**, and then choose **Create branch or tag**.

- If you want the trigger to apply to all branches of the repository, in **Branches**, choose **All branches**. Otherwise, choose **Specific branches**. The default branch for the repository will be added by default. You can keep or delete this branch from the list. Choose up to ten branch names from the list of repository branches.
- In **Send to**, choose **Amazon SNS**.
- In **Amazon SNS Topic**, choose a topic name from the list, or choose **Add an Amazon SNS topic ARN** and then type the ARN for the function.
- In **Custom data**, optionally provide any information you want included in the notification sent by the Amazon SNS topic (for example, an IRC channel name developers use when discussing development in this repository). This field is a string. It cannot be used to pass any dynamic parameters.

The screenshot shows the 'Create trigger' console page. At the top, it says 'Create trigger' and provides a brief explanation of triggers. Below this, there are three required fields: 'Trigger name*' with the value 'MyFirstTrigger', 'Events*' with a dropdown menu set to 'All repository events', and 'Branch names*' with a dropdown menu set to 'All branches'. Under the 'Service' section, there are radio buttons for 'Send to*' with 'Amazon SNS' selected and 'AWS Lambda' unselected. Below that is the 'SNS topic*' dropdown menu set to 'MyCodeCommitTopic'. There is also a 'Custom data' text input field with the placeholder text 'For example, an IRC channel ID #'. A blue information box states: 'AWS CodeCommit must have permission to publish to Amazon SNS topics from this trigger. Learn more'. Below this is a 'Test trigger' button with a lightning bolt icon and a note: 'Choose this option to test your trigger and confirm it functions as expected.' At the bottom right, there are 'Cancel' and 'Create' buttons. A '*Required' label is at the bottom left.

6. Optionally, choose **Test trigger**. This step will help you confirm have correctly configured access between AWS CodeCommit and the Amazon SNS topic. It will use the Amazon SNS topic to send a test notification using data from your repository, if available. If no real data is available, the test notification will contain sample data.
7. Choose **Create** to finish creating the trigger.

Create a Trigger to an Amazon SNS Topic for an AWS CodeCommit Repository (AWS CLI)

You can also use the command line to create a trigger for an Amazon SNS topic in response to AWS CodeCommit repository events, such as when someone pushes a commit to your repository.

To create a trigger for an Amazon SNS topic

1. Open a plain-text editor and create a JSON file that specifies:
 - The Amazon SNS topic name.

- The repository and branches you want to monitor with this trigger. (If you do not specify any branches, the trigger will apply to all branches in the repository.)
- The events that will activate this trigger.

Save the file.

For example, to create a trigger for a repository named *MyDemoRepo* that will publish all repository events to an Amazon SNS topic named *MySNSTopic* for two branches, *master* and *preprod*:

```
{
  "repositoryName": "MyDemoRepo",
  "triggers": [
    {
      "name": "MyFirstTrigger",
      "destinationArn": "arn:aws:sns:us-
east-2:80398EXAMPLE:MySNSTopic",
      "customData": "",
      "branches": [
        "master", "preprod"
      ],
      "events": [
        "all"
      ]
    }
  ]
}
```

There must be a trigger block in the JSON for each trigger for a repository. To create more than one trigger for the repository, include more than one trigger block in the JSON. Remember that all triggers created in this file are for the specified repository. You cannot create triggers for multiple repositories in a single JSON file. For example, if you wanted to create two triggers for a repository, you could create a JSON file with two trigger blocks. In the following example, no branches are specified for the second trigger, so that trigger will apply to all branches:

```
{
  "repositoryName": "MyDemoRepo",
  "triggers": [
    {
      "name": "MyFirstTrigger",
      "destinationArn": "arn:aws:sns:us-
east-2:80398EXAMPLE:MySNSTopic",
      "customData": "",
      "branches": [
        "master", "preprod"
      ],
      "events": [
        "all"
      ]
    },
    {
      "name": "MySecondTrigger",
      "destinationArn": "arn:aws:sns:us-
east-2:80398EXAMPLE:MySNSTopic2",
      "customData": "",
      "branches": [],
      "events": [
```

```
        "updateReference", "deleteReference"  
      ]  
    }  
  ]  
}
```

You can create triggers for events you specify, such as when a commit is pushed to a repository. Event types include:

- `all` for all events in the specified repository and branches.
- `updateReference` for when commits are pushed to the specified repository and branches.
- `createReference` for when a new branch or tag is created in the specified repository.
- `deleteReference` for when a branch or tag is deleted in the specified repository.

Note

You can use more than one event type in a trigger. However, if you specify `all`, you cannot specify other events.

To see the full list of valid event types, at the terminal or command prompt, type **`aws codecommit put-repository-triggers help`**.

In addition, you can include a string in `customData` (for example, an IRC channel name developers use when discussing development in this repository). This field is a string. It cannot be used to pass any dynamic parameters. This string will be appended as an attribute to the AWS CodeCommit JSON returned in response to the trigger.

2. At a terminal or command prompt, optionally run the **`test-repository-triggers`** command. This test uses sample data from the repository (or generates sample data if no data is available) to send a notification to the subscribers of the Amazon SNS topic. For example, the following is used to test that the JSON in the trigger file named `trigger.json` is valid and that AWS CodeCommit can publish to the Amazon SNS topic:

```
aws codecommit test-repository-triggers --cli-input-json  
file://trigger.json
```

If successful, this command returns information similar to the following:

```
{  
  "successfulExecutions": [  
    "MyFirstTrigger"  
  ],  
  "failedExecutions": []  
}
```

3. At a terminal or command prompt, run the **`put-repository-triggers`** command to create the trigger in AWS CodeCommit. For example, to use a JSON file named `trigger.json` to create the trigger:

```
aws codecommit put-repository-triggers --cli-input-json  
file://trigger.json
```

This command returns a [configuration ID](#), similar to the following:

```
{  
  "configurationId": "0123456-I-AM-AN-EXAMPLE"
```

```
}
```

4. To view the configuration of the trigger, run the **get-repository-triggers** command, specifying the name of the repository:

```
aws codecommit get-repository-triggers --repository-name MyDemoRepo
```

This command returns the structure of all triggers configured for the repository, similar to the following:

```
{
  "configurationId": "0123456-I-AM-AN-EXAMPLE",
  "triggers": [
    {
      "events": [
        "all"
      ],
      "destinationArn": "arn:aws:sns:us-
east-2:80398EXAMPLE:MySNSTopic",
      "branches": [
        "master",
        "preprod"
      ],
      "name": "MyFirstTrigger",
      "customData": "Project ID 12345"
    }
  ]
}
```

5. To test the functionality of the trigger itself, make and push a commit to the repository where you configured the trigger. You should see a response from the Amazon SNS topic. For example, if you configured the Amazon SNS topic to send an email, you should see an email from Amazon SNS in the email account subscribed to the topic.

The following is example output from an email sent from Amazon SNS in response to a push to an AWS CodeCommit repository:

```
{
  "Records": [
    {
      "awsRegion": "us-east-2",
      "codecommit": {
        "references": [
          {
            "commit": "317f8570EXAMPLE",
            "created": true,
            "ref": "refs/heads/NewBranch"
          },
          {
            "commit": "4c925148EXAMPLE",
            "ref": "refs/heads/preprod",
          }
        ]
      },
      "eventId": "1111-EXAMPLE-ID",
      "eventName": "ReferenceChange",
      "eventPartNumber": 1,
      "eventSource": "aws:codecommit",
    }
  ]
}
```

```
    "eventSourceARN": "arn:aws:codecommit:us-  
east-2:80398EXAMPLE:MyDemoRepo",  
    "eventTime": "2016-02-09T00:08:11.743+0000",  
    "eventTotalParts": 1,  
    "eventTriggerConfigId": "0123456-I-AM-AN-EXAMPLE",  
    "eventTriggerName": "MyFirstTrigger",  
    "eventVersion": "1.0",  
    "customData": "Project ID 12345",  
    "userIdentityARN": "arn:aws:iam:80398EXAMPLE:user/JaneDoe-  
CodeCommit",  
  }  
]  
}
```

Example: Create an AWS CodeCommit Trigger for an AWS Lambda Function

You can create a trigger for an AWS CodeCommit repository so that events in the repository will invoke a Lambda function. In this example, you will create a Lambda function that returns the URL used to clone the repository to an Amazon CloudWatch log.

Topics

- [Create the Lambda Function \(p. 93\)](#)
- [View the Trigger for the Lambda Function in the AWS CodeCommit Repository \(Console\) \(p. 96\)](#)



Create the Lambda Function

You can create an AWS CodeCommit trigger for a Lambda function as part of creating the function itself in the Lambda console. The following steps include a sample Lambda function. The sample is available in two languages: JavaScript and Python. The function returns the URLs used for cloning a repository to a CloudWatch log.

To create a Lambda function using a Lambda blueprint

1. Sign in to the AWS Management Console and open the AWS Lambda console at <https://console.aws.amazon.com/lambda/>.
2. On the **Lambda Functions** page, choose **Create a Lambda function**. (If you have not used Lambda before, choose **Get Started Now**.)
3. On the **Select blueprint** page, choose **Blank function**.
4. On the **Configure triggers** page, choose AWS CodeCommit from the drop-down list of services to integrate with Lambda.

Configure triggers
Configure an optional trigger to automatically invoke your function.

CodeCommit  ▶  Lambda Remove

Repository name: MyDemoRepo ⓘ

Trigger name: MyLambdaFunctionTrigger ⓘ

Events: Push to existing branch ⓘ

Branch names: All branches ⓘ

Custom data: # ⓘ

Lambda will add the necessary permissions for AWS CodeCommit to invoke your Lambda function. [Learn more](#) about the Lambda permissions model.

Cancel Previous **Next**

- In **Repository name**, choose the name of the repository where you want to configure a trigger that will use the Lambda function in response to repository events.
- In **Trigger name**, type a name for the trigger (for example, *MyLambdaFunctionTrigger*).
- In **Events**, choose the repository events that will trigger the Lambda function. If you choose **All repository events**, you cannot choose any other events. If you want to choose a subset of events, clear **All repository events**, and then choose the events you want from the list. For example, if you want the trigger to run only when a user creates a tag or a branch in the AWS CodeCommit repository, remove **All repository events**, and then choose **Create branch or tag**.
- If you want the trigger to apply to all branches of the repository, in **Branches**, choose **All branches**. Otherwise, choose **Specific branches**. The default branch for the repository will be added by default. You can keep or delete this branch from the list. Choose up to ten branch names from the list of repository branches.
- In **Custom data**, optionally provide information you want included in the Lambda function (for example, the name of the IRC channel used by developers to discuss development in the repository). This field is a string. It cannot be used to pass any dynamic parameters.

Choose **Next**.

5. On the **Configure function** page, in **Name**, type a name for the function (for example, *MyCodeCommitFunction*). Optionally, in **Description**, type a description for the function. If you want to create a sample JavaScript function, in **Runtime**, choose **Node.js**. If you want to create a sample Python function, choose **Python 2.7**.
6. In **Code entry type**, choose **Edit code inline**, and then replace the hello world code with one of the two following samples.

For Node.js:

```
var aws = require('aws-sdk');
var codecommit = new aws.CodeCommit({ apiVersion: '2015-04-13' });

exports.handler = function(event, context) {

    //Log the updated references from the event
    var references =
    event.Records[0].codecommit.references.map(function(reference) {return
    reference.ref;});
    console.log('References:', references);

    //Get the repository from the event and show its git clone URL
    var repository = event.Records[0].eventSourceARN.split(":")[5];
    var params = {
        repositoryName: repository
    };
    codecommit.getRepository(params, function(err, data) {
        if (err) {
            console.log(err);
            var message = "Error getting repository metadata for
repository " + repository;
            console.log(message);
            context.fail(message);
        } else {
            console.log('Clone URL:',
data.repositoryMetadata.cloneUrlHttp);
            context.succeed(data.repositoryMetadata.cloneUrlHttp);
        }
    });
};
```

For Python:

```
import json
import boto3

codecommit = boto3.client('codecommit')

def lambda_handler(event, context):
    #Log the updated references from the event
    references = { reference['ref'] for reference in event['Records'][0]
['codecommit']['references'] }
    print("References: " + str(references))

    #Get the repository from the event and show its git clone URL
    repository = event['Records'][0]['eventSourceARN'].split(':')[5]
    try:
        response = codecommit.get_repository(repositoryName=repository)
        print("Clone URL: " +response['repositoryMetadata']
['cloneUrlHttp'])
        return response['repositoryMetadata']['cloneUrlHttp']
    except Exception as e:
        print(e)
        print('Error getting repository {}. Make sure it
exists and that your repository is in the same region as this
function.'.format(repository))
```

```
raise e
```

7. In **Lambda function handler and role**, do the following:
 - In **Handler**, leave the default value as derived from the function (`index.handler` for the Node.js sample or `lambda_function.lambda_handler` for the Python sample).
 - In **Role**, choose **Create a custom role** from the list. In the IAM console, do the following:
 - In **IAM Role**, choose **lambda_basic_execution**.
 - In **Policy Name**, choose **Create a new role policy**.
 - Choose **Allow** to create the role and return to the Lambda console. A value of `lambda_basic_execution` should now be displayed for **Role**.

Note

If you choose a different role or a different name for the role, be sure to use it in the steps in this topic.

Choose **Next**.

8. On the **Review** page, review the settings for the function, and then choose **Create function**.

View the Trigger for the Lambda Function in the AWS CodeCommit Repository (Console)

After you have created the Lambda function, you can view and test the trigger in AWS CodeCommit. Testing the trigger will run the function in response to the repository events you specify.

To view and test the trigger for the Lambda function

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. From the list of repositories, choose the repository where you want to view triggers.
3. In the **Dashboard** navigation pane for the repository, choose **Triggers**.
4. On the triggers page for the repository, review the list of triggers for the repository. You should see the trigger you created in the Lambda console. Choose it from the list.
5. In the **Edit trigger** pane, choose **Test trigger**. This option will attempt to invoke the function with sample data about your repository, including the most recent commit ID for the repository. (If no commit history exists, sample values consisting of zeroes will be generated instead.) This will help you confirm you have correctly configured access between AWS CodeCommit and the Lambda function.
6. Choose **Cancel** after you see a success message from the test.
7. To further verify the functionality of the trigger, make and push a commit to the repository where you configured the trigger. You should see a response from the Lambda function on the **Monitoring** tab for that function in the Lambda console. From the **Monitoring** tab, choose **View logs in CloudWatch**. The CloudWatch console will open in a new tab and display events for your function. Select the log stream from the list that corresponds to the time you pushed your commit. You should see event data similar to the following:

```
START RequestId: 70afdc9a-EXAMPLE Version: $LATEST
2015-11-10T18:18:28.689Z 70afdc9a-EXAMPLE References: [ 'refs/
heads/master' ]
2015-11-10T18:18:29.814Z 70afdc9a-EXAMPLE Clone URL: https://git-
codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
END RequestId: 70afdc9a-EXAMPLE
```

```
REPORT RequestId: 70afdc9a-EXAMPLE Duration: 1126.87 ms Billed Duration:
1200 ms Memory Size: 128 MB Max Memory Used: 14 MB
```

Example: Create a Trigger in AWS CodeCommit for an Existing AWS Lambda Function

The easiest way to create a trigger that will invoke a Lambda function is to create that trigger in the Lambda console. This built-in integration ensures that AWS CodeCommit will have the permissions required to run the function. You can add a trigger for an existing Lambda function by going to the Lambda console, choosing the function, and on the **Triggers** tab for the function, and then following the steps in **Add trigger**. These are similar steps to the ones shown in [Create the Lambda Function](#) (p. 93).

However, you can also create a trigger for a Lambda function in an AWS CodeCommit repository. Doing so requires that you choose an existing Lambda function to invoke, and also requires that you manually configure the permissions required for AWS CodeCommit to run the function.

Topics

- [Manually Configure Permissions to Allow AWS CodeCommit to Run a Lambda Function](#) (p. 97)
- [Create a Trigger for the Lambda Function in an AWS CodeCommit Repository \(Console\)](#) (p. 99)
- [Create a Trigger to a Lambda Function for an AWS CodeCommit Repository \(AWS CLI\)](#) (p. 100)

Manually Configure Permissions to Allow AWS CodeCommit to Run a Lambda Function

If you create a trigger in AWS CodeCommit that invokes a Lambda function, you must manually configure the permissions to allow AWS CodeCommit to run the Lambda function. To avoid this manual configuration, consider creating the trigger in the Lambda console for the function instead.

To allow AWS CodeCommit to run a Lambda function

1. Open a plain-text editor and create a JSON file that specifies the Lambda function name, the details of the AWS CodeCommit repository, and the actions you want to allow in Lambda, similar to the following:

```
{
  "FunctionName": "MyCodeCommitFunction",
  "StatementId": "1",
  "Action": "lambda:InvokeFunction",
  "Principal": "codecommit.amazonaws.com",
  "SourceArn": "arn:aws:codecommit:us-east-1:80398EXAMPLE:MyDemoRepo",
  "SourceAccount": "80398EXAMPLE"
}
```

2. Save the file as a JSON file with a name that is easy for you to remember (for example, `AllowAccessFromMyDemoRepo.json`).
3. At the terminal (Linux, OS X, or Unix) or command line (Windows), run the **aws lambda add-permissions** command to add a permission to the resource policy associated with your Lambda function, using the JSON file you just created:


```
aws lambda add-permission --cli-input-json
file://AllowAccessFromMyDemoRepo.json
```

This command returns the JSON of the policy statement you just added, similar to the following:

```
{
  "Statement": [
    {
      "Condition": {
        "StringEquals": {
          "AWS:SourceAccount": "80398EXAMPLE",
          "AWS:SourceArn": "arn:aws:codecommit:us-east-1:80398EXAMPLE:MyDemoRepo"
        }
      },
      "Action": [
        "lambda:InvokeFunction"
      ],
      "Resource": "arn:aws:lambda:us-east-1:80398EXAMPLE:function:MyCodeCommitFunction",
      "Effect": "Allow",
      "Principal": {
        "Service": "codecommit.amazonaws.com"
      },
      "Sid": "1"
    }
  ]
}
```

For more information about resource policies for Lambda functions, see [AddPermission](#) and [The Pull/Push Event Models](#) in the Lambda User Guide.

4. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
5. In the **Dashboard** navigation pane, choose **Roles**, and in the list of roles, select *lambda_basic_execution*.
6. On the summary page for the role, choose the **Permissions** tab, and in the **Inline Policies** section, choose **Create Role Policy**.
7. On the **Set Permissions** page, choose **Policy Generator**, and then choose **Select**.
8. On the **Edit Permissions** page, do the following:
 - In **Effect**, choose **Allow**.
 - In **AWS Service**, choose **AWS CodeCommit**.
 - In **Actions**, select **GetRepository**.
 - In **Amazon Resource Name (ARN)**, type the ARN for the repository (for example, `arn:aws:codecommit:us-east-1:80398EXAMPLE:MyDemoRepo`).

Choose **Add Statement**, and then choose **Next Step**.

9. On the **Review Policy** page, choose **Apply Policy**.

Your policy statement should look similar to the following example:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Stmt11111111",
      "Effect": "Allow",
      "Action": [
        "codecommit:GetRepository"
      ],
      "Resource": [
        "arn:aws:codecommit:us-east-1:80398EXAMPLE:MyDemoRepo"
      ]
    }
  ]
}
```

Create a Trigger for the Lambda Function in an AWS CodeCommit Repository (Console)

After you have created the Lambda function, you can create a trigger in AWS CodeCommit that will run the function in response to the repository events you specify.

Note

Before you can successfully test or run the trigger for the example, you must configure the policies that allow AWS CodeCommit to invoke the function and the Lambda function to get information about the repository. For more information, see [To allow AWS CodeCommit to run a Lambda function \(p. 97\)](#).

To create a trigger for a Lambda function in the AWS CodeCommit console

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. From the list of repositories, choose the repository where you want to create triggers for repository events.
3. In the **Dashboard** navigation pane for the repository, choose **Triggers**.
4. On the triggers page for the repository, choose **Create trigger**.
5. In the **Create trigger** pane, do the following:
 - In **Trigger name**, type a name for the trigger (for example, *MyLambdaFunctionTrigger*).
 - In **Events**, choose the repository events that will trigger the Lambda function.

If you choose **All repository events**, you cannot choose any other events. If you want to choose a subset of events, clear **All repository events**, and then choose the events you want from the list. For example, if you want the trigger to run only when a user creates a tag or a branch in the AWS CodeCommit repository, remove **All repository events**, and then choose **Create branch or tag**.
 - If you want the trigger to apply to all branches of the repository, in **Branches**, choose **All branches**. Otherwise, choose **Specific branches**. The default branch for the repository will be added by default. You can keep or delete this branch from the list. Choose up to ten branch names from the list of repository branches.
 - In **Send to**, choose **AWS Lambda**.
 - In **Lambda function ARN**, choose the function name from the list, or choose **Add an AWS Lambda function ARN** and then type the ARN for the function.
 - In **Custom data**, optionally provide information you want included in the Lambda function (for example, the name of the IRC channel used by developers to discuss development in the repository). This field is a string. It cannot be used to pass any dynamic parameters.
6. Optionally, choose **Test trigger**. This option will attempt to invoke the function with sample data about your repository, including the most recent commit ID for the repository. (If no commit history exists, sample values consisting of zeroes will be generated instead.) This will help you confirm you have correctly configured access between AWS CodeCommit and the Lambda function.
7. Choose **Create** to finish creating the trigger.
8. To verify the functionality of the trigger, make and push a commit to the repository where you configured the trigger. You should see a response from the Lambda function on the **Monitoring** tab for that function in the Lambda console.

Create a Trigger to a Lambda Function for an AWS CodeCommit Repository (AWS CLI)

You can also use the command line to create a trigger for a Lambda function in response to AWS CodeCommit repository events, such as when someone pushes a commit to your repository.

To create a trigger for an Lambda function

1. Open a plain-text editor and create a JSON file that specifies:
 - The Lambda function name.
 - The repository and branches you want to monitor with this trigger. (If you do not specify any branches, the trigger will apply to all branches in the repository.)
 - The events that will activate this trigger.

Save the file.

For example, if you want to create a trigger for a repository named *MyDemoRepo* that will publish all repository events to a Lambda function named *MyCodeCommitFunction* for two branches, *master* and *preprod*:

```
{
  "repositoryName": "MyDemoRepo",
  "triggers": [
    {
      "name": "MyLambdaFunctionTrigger",
      "destinationArn": "arn:aws:lambda:us-
east-1:80398EXAMPLE:function:MyCodeCommitFunction",
      "customData": "",
      "branches": [
        "master", "preprod"
      ],
      "events": [
        "all"
      ]
    }
  ]
}
```

There must be a trigger block in the JSON for each trigger for a repository. To create more than one trigger for a repository, include additional blocks in the JSON. Remember that all triggers created in this file are for the specified repository. You cannot create triggers for multiple repositories in a single JSON file. For example, if you wanted to create two triggers for a repository, you could create a JSON file with two trigger blocks. In the following example, no branches are specified in the second trigger block, so that trigger will apply to all branches:

```
{
  "repositoryName": "MyDemoRepo",
  "triggers": [
    {
      "name": "MyLambdaFunctionTrigger",
      "destinationArn": "arn:aws:lambda:us-
east-1:80398EXAMPLE:function:MyCodeCommitFunction",
      "customData": "",
      "branches": [
```

```
        "master", "preprod"
    ],
    "events": [
        "all"
    ]
  },
  {
    "name": "MyOtherLambdaFunctionTrigger",
    "destinationArn": "arn:aws:lambda:us-
east-1:80398EXAMPLE:function:MyOtherCodeCommitFunction",
    "customData": "",
    "branches": [],
    "events": [
        "updateReference", "deleteReference"
    ]
  }
]
```

You can create triggers for events you specify, such as when a commit is pushed to a repository. Event types include:

- `all` for all events in the specified repository and branches.
- `updateReference` for when commits are pushed to the specified repository and branches.
- `createReference` for when a new branch or tag is created in the specified repository.
- `deleteReference` for when a branch or tag is deleted in the specified repository.

Note

You can use more than one event type in a trigger. However, if you specify `all`, you cannot specify other events.

To see the full list of valid event types, at the terminal or command prompt, type **aws codecommit put-repository-triggers help**.

In addition, you can include a string in `customData` (for example, an IRC channel name developers use when discussing development in this repository). This field is a string. It cannot be used to pass any dynamic parameters. This string will be appended as an attribute to the AWS CodeCommit JSON returned in response to the trigger.

2. At a terminal or command prompt, optionally run the **test-repository-triggers** command. For example, the following is used to test that the JSON file named `trigger.json` is valid and that AWS CodeCommit can trigger the Lambda function. This test uses sample data to trigger the function if no real data is available.

```
aws codecommit test-repository-triggers --cli-input-json
file://trigger.json
```

If successful, this command returns information similar to the following:

```
{
  "successfulExecutions": [
    "MyLambdaFunctionTrigger"
  ],
  "failedExecutions": []
}
```

3. At a terminal or command prompt, run the **put-repository-triggers** command to create the trigger in AWS CodeCommit. For example, to use a JSON file named *trigger.json* to create the trigger:

```
aws codecommit put-repository-triggers - -cli-input-json  
file://trigger.json
```

This command returns a configuration ID, similar to the following:

```
{  
  "configurationId": "0123456-I-AM-AN-EXAMPLE"  
}
```

4. To view the configuration of the trigger, run the **get-repository-triggers** command, specifying the name of the repository:

```
aws codecommit get-repository-triggers - -repository-name MyDemoRepo
```

This command returns the structure of all triggers configured for the repository, similar to the following:

```
{  
  "configurationId": "0123456-I-AM-AN-EXAMPLE",  
  "triggers": [  
    {  
      "events": [  
        "all"  
      ],  
      "destinationArn": "arn:aws:lambda:us-  
east-1:80398EXAMPLE:MyCodeCommitFunction",  
      "branches": [  
        "master",  
        "preprod"  
      ],  
      "name": "MyLambdaFunctionTrigger",  
      "customData": "Project ID 12345"  
    }  
  ]  
}
```

5. To test the functionality of the trigger, make and push a commit to the repository where you configured the trigger. You should see a response from the Lambda function on the **Monitoring** tab for that function in the Lambda console.

Edit Triggers for an AWS CodeCommit Repository

You can edit the triggers that have been created for an AWS CodeCommit repository. You can change the events and branches for the trigger, the action taken in response to the event, and other settings.

Topics

- [Edit a Trigger for a Repository \(Console\) \(p. 103\)](#)
- [Edit a Trigger for a Repository \(AWS CLI\) \(p. 103\)](#)

Edit a Trigger for a Repository (Console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. From the list of repositories, choose the repository where you want to edit a trigger for repository events.
3. In the **Dashboard** navigation pane for the repository, choose **Triggers**.
4. From the list of triggers for the repository, select the trigger you want to edit, and then choose **Edit**.
5. Make the changes you want to the trigger, and then choose **Update** to save your changes.

Edit a Trigger for a Repository (AWS CLI)

1. At a terminal (Linux, OS X, or Unix) or command prompt (Windows), run the **get-repository-triggers** command to create a JSON file with the structure of all of the triggers configured for your repository. For example, to create a JSON file named *MyTriggers.json* with the structure of all of the triggers configured for a repository named *MyDemoRepo*:

```
aws codecommit get-repository-triggers --repository-name MyDemoRepo  
>MyTriggers.json
```

This command returns nothing, but a file named *MyTriggers.json* is created in the directory where you ran the command.

2. Edit the JSON file in a plain-text editor and make changes to the trigger block of the trigger you want to edit. Replace the `configurationId` pair with a `repositoryName` pair. Save the file.

For example, if you want to edit a trigger named *MyFirstTrigger* in the repository named *MyDemoRepo* so that it applies to all branches, you would replace `configurationId` with `repositoryName`, and remove the specified `master` and `preprod` branches in *red italic text*. By default, if no branches are specified, the trigger will apply to all branches in the repository:

```
{  
  "repositoryName": "MyDemoRepo",  
  "triggers": [  
    {  
      "destinationArn": "arn:aws:sns:us-  
east-2:80398EXAMPLE:MyCodeCommitTopic",  
      "branches": [  
        "master",  
        "preprod"  
      ],  
      "name": "MyFirstTrigger",  
      "customData": "",  
      "events": [  
        "all"  
      ]  
    }  
  ]  
}
```

3. At the terminal or command line, run the **put-repository-triggers** command. This will update all triggers for the repository, including the changes you made to the *MyFirstTrigger* trigger:

```
aws codecommit put-repository-triggers --repository-name MyDemoRepo  
file://MyTriggers.json
```

This command returns a configuration ID, similar to the following:

```
{  
  "configurationId": "0123456-I-AM-AN-EXAMPLE"  
}
```

Test Triggers for an AWS CodeCommit Repository

You can test the triggers that have been created for an AWS CodeCommit repository. Testing involves running the trigger with sample data from your repository, including the most recent commit ID. If no commit history exists for the repository, sample values consisting of zeroes will be generated instead. Testing triggers helps you confirm you have correctly configured access between AWS CodeCommit and the target of the trigger, whether that is an AWS Lambda function or an Amazon Simple Notification Service notification.

Topics

- [Test a Trigger for a Repository \(Console\) \(p. 104\)](#)
- [Test a Trigger for a Repository \(AWS CLI\) \(p. 104\)](#)

Test a Trigger for a Repository (Console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. From the list of repositories, choose the repository where you want to test a trigger for repository events.
3. In the **Dashboard** navigation pane for the repository, choose **Triggers**.
4. Choose the trigger you want to edit from the list of triggers, and then choose **Edit**.
5. In the **Edit trigger** dialog box, choose **Test trigger**. You will see a success or failure message. If successful, you will also see a corresponding action response from the Lambda function or the Amazon SNS topic.

Test a Trigger for a Repository (AWS CLI)

1. At a terminal (Linux, OS X, or Unix) or command prompt (Windows), run the **get-repository-triggers** command to create a JSON file with the structure of all of the triggers configured for your repository. For example, to create a JSON file named *TestTrigger.json* with the structure of all of the triggers configured for a repository named MyDemoRepo:

```
aws codecommit get-repository-triggers --repository-name MyDemoRepo  
>TestTrigger.json
```

This command creates a file named *TestTriggers.json* in the directory where you ran the command.

2. Edit the JSON file in a plain-text editor and make the changes to the trigger statement. Replace the `configurationId` pair with a `repositoryName` pair. Save the file.

For example, if you want to test a trigger named `MyFirstTrigger` in the repository named `MyDemoRepo` so that it applies to all branches, you would replace the `configurationId` with `repositoryName` and then save a file that looks similar to the following as `TestTrigger.json`:

```
{
  "repositoryName": "MyDemoRepo",
  "triggers": [
    {
      "destinationArn": "arn:aws:sns:us-
east-2:80398EXAMPLE:MyCodeCommitTopic",
      "branches": [
        "master",
        "preprod"
      ],
      "name": "MyFirstTrigger",
      "customData": "",
      "events": [
        "all"
      ]
    }
  ]
}
```

3. At the terminal or command line, run the `test-repository-triggers` command. This will update all triggers for the repository, including the changes you made to the `MyFirstTrigger` trigger:

```
aws codecommit test-repository-triggers --cli-input-json
file://TestTrigger.json
```

This command returns a response similar to the following:

```
{
  "successfulExecutions": [
    "MyFirstTrigger"
  ],
  "failedExecutions": []
}
```

Delete Triggers from an AWS CodeCommit Repository

You might want to delete triggers if they are no longer being used. You cannot undo the deletion of a trigger, but you can re-create one.

Note

If you configured one or more triggers for your repository, deleting the repository does not delete the Amazon SNS topics or Lambda functions you configured as the targets of those triggers. Be sure to delete those resources, too, if they are no longer needed.

Topics

- [Delete a Trigger from a Repository \(Console\) \(p. 106\)](#)

- [Delete a Trigger from a Repository \(AWS CLI\) \(p. 106\)](#)

Delete a Trigger from a Repository (Console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. From the list of repositories, choose the repository where you want to delete triggers for repository events.
3. In the **Dashboard** navigation pane for the repository, choose **Triggers**.
4. Select the triggers you want to delete from the list of triggers, and then choose **Delete**.
5. In the dialog box, choose **Delete** to confirm.

Delete a Trigger from a Repository (AWS CLI)

1. At a terminal (Linux, OS X, or Unix) or command prompt (Windows), run the **get-repository-triggers** command to create a JSON file with the structure of all of the triggers configured for your repository. For example, to create a JSON file named *MyTriggers.json* with the structure of all of the triggers configured for a repository named MyDemoRepo:

```
aws codecommit get-repository-triggers --repository-name MyDemoRepo  
>MyTriggers.json
```

This command creates a file named *MyTriggers.json* in the directory where you ran the command.

2. Edit the JSON file in a plain-text editor and remove the trigger block for the trigger you want to delete. Replace the `configurationId` pair with a `repositoryName` pair. Save the file.

For example, if you want to remove a trigger named *MyFirstTrigger* from the repository named *MyDemoRepo*, you would replace `configurationId` with `repositoryName`, and remove the statement in *red italic text*:

```
{  
  "repositoryName": "MyDemoRepo",  
  "triggers": [  
    {  
      "destinationArn": "arn:aws:sns:us-  
east-2:80398EXAMPLE:MyCodeCommitTopic",  
      "branches": [  
        "master",  
        "preprod"  
      ],  
      "name": "MyFirstTrigger",  
      "customData": "",  
      "events": [  
        "all"  
      ]  
    },  
    {  
      "destinationArn": "arn:aws:lambda:us-  
east-2:80398EXAMPLE:function:MyCodeCommitJSFunction",  
      "branches": [],  
      "name": "MyLambdaTrigger",  
      "events": [  
        "all"  
      ]  
    }  
  ]  
}
```

```
    ]  
  }  
]  
}
```

3. At the terminal or command line, run the **put-repository-triggers** command. This will update the triggers for the repository and delete the *MyFirstTrigger* trigger:

```
aws codecommit put-repository-triggers --repository-name MyDemoRepo  
file://MyTriggers.json
```

This command returns a configuration ID, similar to the following:

```
{  
  "configurationId": "0123456-I-AM-AN-EXAMPLE"  
}
```

Note

To delete all triggers for a repository named *MyDemoRepo*, your JSON file would look similar to this:

```
{  
  "repositoryName": "MyDemoRepo",  
  "triggers": []  
}
```

View Commit Details in AWS CodeCommit

You can use the AWS CodeCommit console to browse the history of commits in a repository. This can help you identify changes made in a repository, including when and by whom they were made, and when specific commits were merged into a particular branch. Viewing the history of commits for a branch might also help you understand the difference between branches. If you use tagging, you can also quickly view the commits that were labelled with a specific tag. At the command line, you can use Git to view details about the commits in a local repo or an AWS CodeCommit repository.

Browse Commits in a Repository

You can use the AWS CodeCommit console to browse the history of commits to a repository. You can also view a graph of the commits in the repository and its branches over time. This can help you understand the history of the repository, including when changes were made.

Note

Using the **git rebase** command to rebase a repository will change the history of a repository, which might cause commits to appear out of order. For more information about how rebasing works and its effects on commit history, see [Git Branching-Rebasing](#) or your Git documentation.

Topics

- [Browse the Commit History of a Repository \(p. 108\)](#)
- [View a Graph of the Commit History of a Repository \(p. 109\)](#)

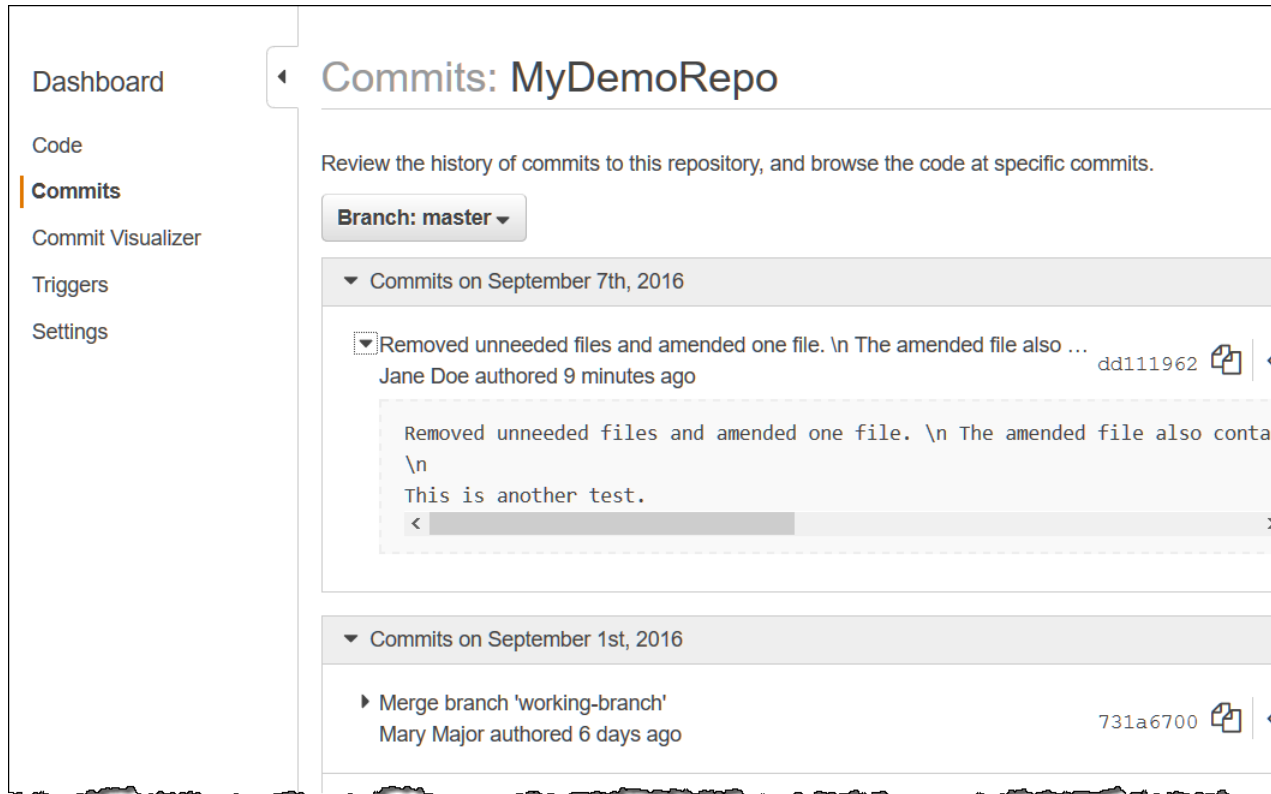
Browse the Commit History of a Repository

You can browse the commit history for a specific branch or tag of the repository, including information about the commiter and the commit message. You can also view the code for a specific commit.

To browse the history of commits (console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.

2. On the **Dashboard** page, from the list of repositories, choose the repository for which you want to review the commit history.
3. In the navigation pane, choose **Commits**. In the commit history view, a history of commits for the repository in the default branch will be displayed, in reverse chronological order of the commit date. Date and time are in coordinated universal time (UTC). You can view the commit history of a different branch by choosing the view selector button and then choosing a different branch from the list. You can also view commits that have a specific tag, if you are using tags in your repository.



4. Do one or more of the following:
 - To view the email associated with the author of the commit, hover over the user name.
 - To view the full commit ID, hover over the abbreviated commit ID. To copy it, choose the copy icon. You can use either the abbreviated or full commit ID at the command line to [compare commits](#) (p. 112), [show the changes included in these commits](#) (p. 112), and more.
 - To view the code as it was at the time of a commit, choose the code icon for that commit (</>). The contents of the repository as they were at the time of that commit will be displayed in the **Code** view. The view selector button will display the abbreviated commit ID instead of a branch or tag.
 - If the full commit subject is too long to fit in the initial view, choose the arrow next to the message. The commit message box expands to display up to 5,000 characters of the subject and message.
 - To collapse the list of commits for a particular date, choose the arrow next to that date.

View a Graph of the Commit History of a Repository

You can view a graph of the commits made to a repository. The **Commit Visualizer** view is a directed acyclic graph (DAG) representation of all the commits made to a branch of the repository. This

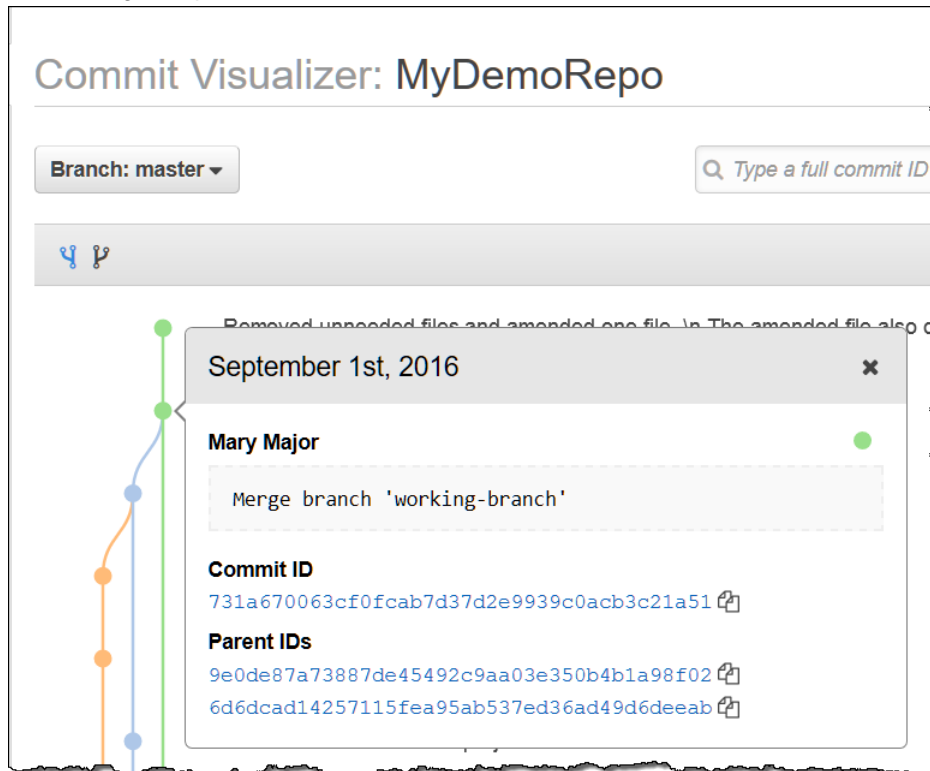
graphical representation can help you understand when particular commits and associated features were added or merged. It can also help you pinpoint when a particular change was made in relation to other changes.

Note

Commits that are merged using the fast-forward method will not appear as separate lines in the graph of commits.

To view a graph of commits (console)

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. On the **Dashboard** page, from the list of repositories, choose the repository for which you want to view a commit graph.
3. In the navigation pane, choose **Commit Visualizer**.

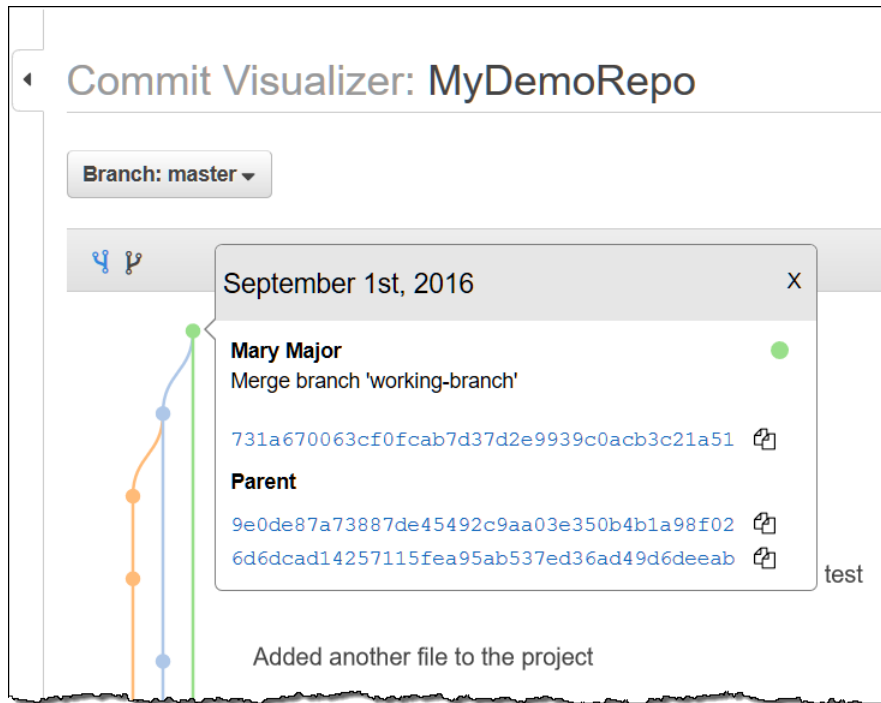


The commit graph is displayed, with the subject for each commit message shown next to that point in the graph. You can use the direction buttons to change which side of the graph shows branches.

Note

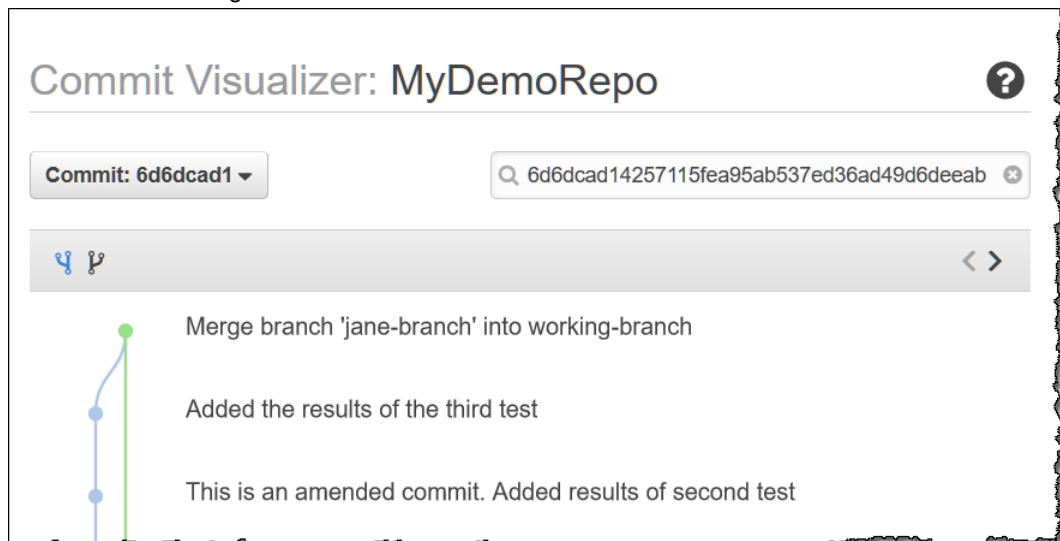
The graph can display up to 35 branches on a page. If there are more than 35 branches, the graph will be too complex to display. You can simplify the view in two ways: by using the view selector button to instead show the graph for a specific branch, or by pasting a full commit ID into the search box to render the graph from that commit.

4. To see more details about a particular commit point, choose the point in the graph.



The detail view shows the date of the commit, the name of the committer, the subject and contents of the commit message (up to 200 characters), the full commit ID, and the commit IDs of any parents of the commit. If the commit is a merge made by any method other than fast-forward, multiple parent IDs will be shown. To copy a commit ID, choose the copy icon next to that ID.

5. To render a new graph from a particular commit, choose the commit ID in the detail view. The view selector button changes to the abbreviated commit ID.



Use Git to View Commit Details

Before you follow these steps, you should have already connected the local repo to the AWS CodeCommit repository and committed changes. For instructions, see [Connect to a Repository \(p. 80\)](#).

To show the changes for the most recent commit to a repository, run the **git show** command.

```
git show
```

The command produces output similar to the following:

```
commit 4f8c6f9d
Author: Mary Major <mary.major@example.com>
Date:   Mon May 23 15:56:48 2016 -0700

    Added bumblebee.txt

diff --git a/bumblebee.txt b/bumblebee.txt
new file mode 100644
index 0000000..443b974
--- /dev/null
+++ b/bumblebee.txt
@@ -0,0 +1 @@
+A bumblebee, also written bumble bee, is a member of the bee genus Bombus,
  in the family Apidae.
\ No newline at end of file
```

Note

In this and the following examples, commit IDs have been abbreviated. The full commit IDs are not shown.

You can also use the **git show** command with the commit ID to view the changes that occurred for a commit:

```
git show 94bale60

commit 94bale60
Author: John Doe <johndoe@example.com>
Date:   Mon May 23 15:39:14 2016 -0700

    Added horse.txt

diff --git a/horse.txt b/horse.txt
new file mode 100644
index 0000000..080f68f
--- /dev/null
+++ b/horse.txt
@@ -0,0 +1 @@
+The horse (Equus ferus caballus) is one of two extant subspecies of Equus
  ferus.
```

To see the differences between two commits, run the **git diff** command and include the two commit IDs.

```
git diff ce22850d 4f8c6f9d
```

In this example, the difference between the two commits is that two files were added. The command produces output similar to the following:

```
diff --git a/bees.txt b/bees.txt
```

```
new file mode 100644
index 0000000..cf57550
--- /dev/null
+++ b/bees.txt
@@ -0,0 +1 @@
+Bees are flying insects closely related to wasps and ants, and are known for
  their role in pollination and for producing honey and beeswax.
diff --git a/bumblebee.txt b/bumblebee.txt
new file mode 100644
index 0000000..443b974
--- /dev/null
+++ b/bumblebee.txt
@@ -0,0 +1 @@
+A bumblebee, also written bumble bee, is a member of the bee genus Bombus,
  in the family Apidae.
\ No newline at end of file
```

To use Git to view details about the commits in a local repo, run the **git log** command:

```
git log
```

If successful, this command produces output similar to the following:

```
commit 317f8570
Author: John Doe <johndoe@example.com>
Date:   Tue Sep 23 13:49:51 2014 -0700

    Added horse.txt

commit 4c925148
Author: Jane Doe <janedoe@example.com>
Date:   Mon Sep 22 14:54:55 2014 -0700

    Added cat.txt and dog.txt
```

To show only commit IDs and messages, run the **git log --pretty=oneline** command:

```
git log --pretty=oneline
```

If successful, this command produces output similar to the following:

```
317f8570 Added horse.txt
4c925148 Added cat.txt and dog.txt
```

For more options, see your Git documentation.

Advanced Tasks in AWS CodeCommit

After you are comfortable with the basic operations, you can complete the following advanced tasks.

Topics

- [View Repository Details \(p. 114\)](#)
- [View Branch Details \(p. 119\)](#)
- [View Tag Details \(p. 121\)](#)
- [Create a Branch \(p. 123\)](#)
- [Create a Tag \(p. 124\)](#)
- [Create a Commit \(p. 125\)](#)
- [Change Branch Settings \(p. 127\)](#)
- [Change Repository Settings \(p. 129\)](#)
- [Sync Changes Between Repositories \(p. 132\)](#)
- [Delete a Branch \(p. 132\)](#)
- [Delete a Tag \(p. 133\)](#)
- [Delete a Repository \(p. 134\)](#)
- [Push Commits to Two Repositories \(p. 135\)](#)

View AWS CodeCommit Repository Details

To view information about available repositories, you can use:

- Git from a local repo connected to the AWS CodeCommit repository.
- the AWS CLI.

- the AWS CodeCommit console.

These instructions assume you have already completed the steps in [Setting Up](#) (p. 4).

Topics

- [Use the AWS CodeCommit Console to View Repository Details](#) (p. 115)
- [Use Git to View AWS CodeCommit Repository Details](#) (p. 115)
- [Use the AWS CLI to View AWS CodeCommit Repository Details](#) (p. 116)

Use the AWS CodeCommit Console to View Repository Details

Use the AWS CodeCommit console to quickly view all repositories created with your AWS account.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. Choose the name of the repository from the list.
3. Do one of the following:
 - To view the URL for cloning the repository, in the navigation pane, choose **Code**, choose **Clone URL**, and then choose the protocol you want to use when cloning the repository.
 - To view configurable details for the repository, in the navigation pane, choose **Settings**. This page displays details about the repository.

Use Git to View AWS CodeCommit Repository Details

To use Git from a local repo to view details about AWS CodeCommit repositories, run the **git remote show** command.

The following steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository](#) (p. 80).

1. Run the **git remote show *remote-name*** command, where *remote-name* is the alias of the AWS CodeCommit repository (by default, `origin`).

Tip

To get a list of AWS CodeCommit repository names along with their URLs, run the **git remote -v** command.

For example, to view details about the AWS CodeCommit repository with the alias `origin`:

```
git remote show origin
```

2. For HTTPS:

```
* remote origin
  Fetch URL: https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
  Push URL: https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
  HEAD branch: (unknown)
```

```
Remote branches:  
  MyNewBranch tracked  
  master tracked  
Local ref configured for 'git pull':  
  MyNewBranch merges with remote MyNewBranch (up to date)  
Local refs configured for 'git push':  
  MyNewBranch pushes to MyNewBranch (up to date)  
  master pushes to master (up to date)
```

For SSH:

```
* remote origin  
Fetch URL: ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/  
MyDemoRepo  
Push URL: ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/  
MyDemoRepo  
HEAD branch: (unknown)  
Remote branches:  
  MyNewBranch tracked  
  master tracked  
Local ref configured for 'git pull':  
  MyNewBranch merges with remote MyNewBranch (up to date)  
Local refs configured for 'git push':  
  MyNewBranch pushes to MyNewBranch (up to date)  
  master pushes to master (up to date)
```

Tip

To look up the SSH key ID for your IAM user, open the IAM console and expand **Security Credentials** on the IAM user details page. The SSH key ID can be found in **SSH Keys for AWS CodeCommit**.

For more options, see your Git documentation.

Use the AWS CLI to View AWS CodeCommit Repository Details

To use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference \(p. 150\)](#).

To use the AWS CLI to view repository details, run the following commands:

- [list-repositories \(p. 116\)](#) to view a list of AWS CodeCommit repository names and their corresponding IDs.
- [get-repository \(p. 117\)](#) to view information about a single AWS CodeCommit repository.
- [batch-get-repositories \(p. 118\)](#) to view information about multiple repositories in AWS CodeCommit.

To view a list of AWS CodeCommit repositories

1. Run the **list-repositories** command, for example:

```
aws codecommit list-repositories
```

You can use the optional `--sort-by` or `--order` options to change the order of returned information.

2. If successful, this command outputs a `repositories` object containing the names and IDs of all existing repositories in AWS CodeCommit associated with the AWS account.

Here is some example output based on the preceding command:

```
{
  "repositories": [
    {
      "repositoryName": "MyDemoRepo"
      "repositoryId": "f7579e13-b83e-4027-aaef-650c0EXAMPLE",
    },
    {
      "repositoryName": "MyOtherDemoRepo"
      "repositoryId": "cfc29ac4-b0cb-44dc-9990-f6f51EXAMPLE"
    }
  ]
}
```

To view details about a single AWS CodeCommit repository

1. Run the **get-repository** command, specifying the name of the AWS CodeCommit repository with the `--repository-name` option.

Tip

To get the AWS CodeCommit repository's name, run the [list-repositories \(p. 116\)](#) command.

For example, to view details about an AWS CodeCommit repository named `MyDemoRepo`:

```
aws codecommit get-repository --repository-name MyDemoRepo
```

2. If successful, this command outputs a `repositoryMetadata` object with the following information:

- The repository's name (`repositoryName`).
- The repository's description (`repositoryDescription`).
- The repository's unique, system-generated ID (`repositoryId`).
- The ID of the AWS account associated with the repository (`accountId`).

Here is some example output, based on the preceding example command:

```
{
  "repositoryMetadata": {
    "creationDate": 1429203623.625,
    "defaultBranch": "master",
    "repositoryName": "MyDemoRepo",
    "cloneUrlSsh": "ssh://ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/v1/repos/MyDemoRepo",
    "lastModifiedDate": 1430783812.0869999,
    "repositoryDescription": "My demonstration repository",
    "cloneUrlHttp": "https://codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo",
  }
}
```

```
    "repositoryId": "f7579e13-b83e-4027-aaef-650c0EXAMPLE",  
    "Arn": "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo"  
    "accountId": "111111111111"  
  }  
}
```

To view details about multiple AWS CodeCommit repositories

1. Run the **batch-get-repositories** command with the `--repository-names` option. Add a space between each AWS CodeCommit repository name.

Tip

To get the names of the repositories in AWS CodeCommit, run the [list-repositories](#) (p. 116) command.

For example, to view details about two AWS CodeCommit repositories named `MyDemoRepo` and `MyOtherDemoRepo`:

```
aws codecommit batch-get-repositories --repository-names MyDemoRepo  
MyOtherDemoRepo
```

2. If successful, this command outputs an object with the following information:
 - A list of any AWS CodeCommit repositories that could not be found (`repositoriesNotFound`).
 - A list of AWS CodeCommit repositories (`repositories`). Each AWS CodeCommit repository's name is followed by:
 - The repository's description (`repositoryDescription`).
 - The repository's unique, system-generated ID (`repositoryId`).
 - The ID of the AWS account associated with the repository (`accountId`).

Here is some example output, based on the preceding example command:

```
{  
  "repositoriesNotFound": [],  
  "repositories": [  
    {  
      "creationDate": 1429203623.625,  
      "defaultBranch": "master",  
      "repositoryName": "MyDemoRepo",  
      "cloneUrlSsh": "ssh://git-codecommit.us-  
east-2.amazonaws.com/v1/repos//v1/repos/MyDemoRepo",  
      "lastModifiedDate": 1430783812.0869999,  
      "repositoryDescription": "My demonstration repository",  
      "cloneUrlHttp": "https://codecommit.us-  
east-2.amazonaws.com/v1/repos/MyDemoRepo",  
      "repositoryId": "f7579e13-b83e-4027-aaef-650c0EXAMPLE",  
      "Arn": "arn:aws:codecommit:us-  
east-2:80398EXAMPLE:MyDemoRepo"  
      "accountId": "111111111111"  
    },  
    {  
      "creationDate": 1429203623.627,  
      "defaultBranch": "master",  
      "repositoryName": "MyOtherDemoRepo",
```

```
        "cloneUrlSsh": "ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/v1/repos/MyOtherDemoRepo",
        "lastModifiedDate": 1430783812.0889999,
        "repositoryDescription": "My other demonstration repository",
        "cloneUrlHttp": "https://codecommit.us-east-2.amazonaws.com/v1/repos/MyOtherDemoRepo",
        "repositoryId": "cfc29ac4-b0cb-44dc-9990-f6f51EXAMPLE",
        "Arn": "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyOtherDemoRepo",
        "accountId": "111111111111"
    },
    "repositoriesNotFound": []
}
```

View Branch Details in AWS CodeCommit

To view details about the branches in an AWS CodeCommit repository, you can use Git from a local repo connected to the AWS CodeCommit repository. You can also use AWS CLI and the AWS CodeCommit console.

Topics

- [Use Git to View Branch Details \(p. 119\)](#)
- [Use the AWS CLI to View Branch Details \(p. 120\)](#)
- [Use the AWS CodeCommit Console to View Branch Details \(p. 121\)](#)

Use Git to View Branch Details

To use Git from a local repo to view details about both the local and remote tracking branches for an AWS CodeCommit repository, run the **git branch** command.

The following steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository \(p. 80\)](#).

1. Run the **git branch** command, specifying the **--all** option:

```
git branch --all
```

2. If successful, this command returns output similar to the following:

```
MyNewBranch
* master
remotes/origin/MyNewBranch
remotes/origin/master
```

The asterisk (*) appears next to the currently open branch. The entries after that are remote tracking references.

Tip

git branch shows just your local branches.

git branch -r shows just your remote branches.

git checkout *existing-branch-name* switches to the specified branch name and, if **git branch** is run immediately afterward, displays it with an asterisk (*).

git remote update *remote-name* updates your local repo with the list of available AWS CodeCommit repository branches. (To get a list of AWS CodeCommit repository names, along with their URLs, run the **git remote -v** command.)

For more options, see your Git documentation.

Use the AWS CLI to View Branch Details

To use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference \(p. 150\)](#).

To use the AWS CLI to view details about the branches in an AWS CodeCommit repository, run one or more of the following commands:

- [list-branches \(p. 120\)](#) to view a list of branch names.
- [get-branch \(p. 120\)](#) to view information about a specific branch.

To view a list of branch names

1. Run the **list-branches** command, specifying the name of the AWS CodeCommit repository (with the `--repository-name` option).

Tip

To get the name of the AWS CodeCommit repository, run the [list-repositories \(p. 116\)](#) command.

For example, to view details about the branches in an AWS CodeCommit repository named `MyDemoRepo`:

```
aws codecommit list-branches --repository-name MyDemoRepo
```

2. If successful, this command outputs a `branchNameList` object, with an entry for each branch.

Here is some example output based on the preceding example command:

```
{
  "branches": [
    "MyNewBranch",
    "master"
  ]
}
```

To view information about a branch

1. Run the **get-branch** command, specifying:
 - The repository name (with the `--repository-name` option).
 - The branch name (with the `--branch-name` option).

For example, to view information about a branch named `MyNewBranch` in an AWS CodeCommit repository named `MyDemoRepo`:

```
aws codecommit get-branch --repository-name MyDemoRepo --branch-name  
MyNewBranch
```

2. If successful, this command outputs the name of the branch and the ID of the last commit made to the branch.

Here is some example output based on the preceding example command:

```
{  
  "branch": {  
    "branchName": "MyNewBranch",  
    "commitID": "317f8570EXAMPLE"  
  }  
}
```

Use the AWS CodeCommit Console to View Branch Details

Use the AWS CodeCommit console to quickly view the name of the default branch for your repository.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the list of repositories, choose the name of the repository.
3. In the navigation pane, choose **Settings**.
4. The name of the branch used as the default for the repository is displayed next to **Default branch**. To view a list of all branches, review the list in the **Default branch** drop-down list.

View Tag Details in AWS CodeCommit

Use Git to view details about tags in a local repo.

Use Git to View Tag Details

To use Git to view details about tags in a local repo, run one of the following commands:

- **git tag** (p. 121) to view a list of tag names.
- **git show** (p. 122) to view information about a specific tag.
- **git ls-remote** (p. 122) to view information about tags in an AWS CodeCommit repository.

Tip

To ensure that your local repo is updated with all of the tags in the AWS CodeCommit repository, run **git fetch** followed by **git fetch --tags**.

The following steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository](#) (p. 80).

To view a list of tags in a local repo

1. Run the **git tag** command:


```
git tag
```

2. If successful, this command outputs information similar to the following:

```
beta  
release
```

Note

If no tags have been defined, **git tag** returns nothing.

For more options, see your Git documentation.

To view information about a tag in a local repo

1. Run the **git show *tag-name*** command. For example, to view information about a tag named beta, run:

```
git show beta
```

2. If successful, this command outputs information similar to the following:

```
commit 317f8570...ad9e3c09  
Author: John Doe <johndoe@example.com>  
Date: Tue Sep 23 13:49:51 2014 -0700  
  
    Added horse.txt  
  
diff --git a/horse.txt b/horse.txt  
new file mode 100644  
index 0000000..df42ff1  
--- /dev/null  
+++ b/horse.txt  
@@ -0,0 +1 @@  
+The horse (Equus ferus caballus) is one of two extant subspecies of Equus  
  ferus  
 \ No newline at end of file
```

Note

To exit the output of the tag information, type **:q**.

For more options, see your Git documentation.

To view information about tags in an AWS CodeCommit repository

1. Run the **git ls-remote --tags** command.

```
git ls-remote --tags
```

2. If successful, this command outputs a list of the tags in the AWS CodeCommit repository similar to the following:

```
129ce87a...70fbffba    refs/tags/beta
785de9bd...59b402d8    refs/tags/release
```

If no tags have been defined, **git ls-remote --tags** returns a blank line.

For more options, see your Git documentation.

Create a Branch in AWS CodeCommit

To create a branch in an AWS CodeCommit repository, you can use Git from a local repo connected to the AWS CodeCommit repository. You can also use the AWS CLI.

Topics

- [Use Git to Create a Branch \(p. 123\)](#)
- [Use the AWS CLI to Create a Branch \(p. 124\)](#)

Use Git to Create a Branch

To use Git from a local repo to create a branch in an AWS CodeCommit repository and then push that branch to the AWS CodeCommit repository, follow these steps.

These steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository \(p. 80\)](#).

1. Create a new branch in your local repo by running the **git checkout -b *new-branch-name*** command, where *new-branch-name* is the name of the new branch.

For example, the following command creates a new branch named `MyNewBranch` in the local repo:

```
git checkout -b MyNewBranch
```

2. To push the new branch from the local repo to the AWS CodeCommit repository, run the **git push *remote-name new-branch-name*** command, where *remote-name* is the nickname the local repo uses for the AWS CodeCommit repository and *new-branch-name* is the name of the new branch.

For example, to push a new branch in the local repo named `MyNewBranch` to the AWS CodeCommit repository with the nickname `origin`:

```
git push origin MyNewBranch
```

Tip

If you add the `-u` option to **git push** (for example, **git push -u origin master**), then in the future you can run **git push** without *remote-name branch-name*. Upstream tracking information will be set. To get upstream tracking information, run **git remote show *remote-name*** (for example, **git remote show origin**).

To see a list of all of your local and remote tracking branches, run **git branch --all**.

To set up a branch in the local repo that is connected to an existing branch in the AWS CodeCommit repository, run **git checkout *remote-branch-name***.

For more options, see your Git documentation.

Use the AWS CLI to Create a Branch

To use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference \(p. 150\)](#).

To use the AWS CLI to create a branch in an AWS CodeCommit repository and then push that branch to the AWS CodeCommit repository, follow these steps.

1. Run the **create-branch** command, specifying:
 - The name of the AWS CodeCommit repository where the branch will be created (with the `--repository-name` option).

Tip
To get the name of the AWS CodeCommit repository, run the [list-repositories \(p. 116\)](#) command.

 - The name of the new branch (with the `--branch-name` option).
 - The ID of the commit to which the new branch will point (with the `--commit-id` option).

For example, to create a new branch named `MyNewBranch` that points to commit ID `99132ab0...9f31c968` in an AWS CodeCommit repository named `MyDemoRepo`:

```
aws codecommit create-branch --repository-name MyDemoRepo --branch-name MyNewBranch --commit-id 99132ab0...9f31c968
```

This command produces output only if there are errors.

2. To update your local repo's list of available AWS CodeCommit repository branches with the new remote branch name, run **git remote update *remote-name***.

For example, to update your local repo's list of available branches for the AWS CodeCommit repository with the nickname `origin`:

```
git remote update origin
```

Tip

You can view all remote branches by running **git branch --all**, but until you update your local repo's list, the remote branch you created will not appear in the list.

3. To set up a branch in the local repo that is connected to the new branch in the AWS CodeCommit repository, run **git checkout *remote-branch-name***.

Tip

To get a list of AWS CodeCommit repository names, along with their URLs, run the **git remote -v** command.

Create a Tag in AWS CodeCommit

To create a tag in an AWS CodeCommit repository, you can use Git from a local repo connected to the AWS CodeCommit repository.

Use Git to Create a Tag

To use Git from a local repo to create a tag in an AWS CodeCommit repository, follow these steps.

These steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository](#) (p. 80).

1. Run the **git tag *new-tag-name* *commit-id*** command, where *new-tag-name* is the new tag's name and *commit-id* is the ID of the commit to associate with the tag.

For example, the following command creates a new tag named `beta` and associates it with the commit ID `dc082f9a...af873b88`:

```
git tag beta dc082f9a...af873b88
```

2. To push the new tag from the local repo to the AWS CodeCommit repository, run the **git push *remote-name* *new-tag-name*** command, where *remote-name* is the name of the AWS CodeCommit repository and *new-tag-name* is the name of the new tag.

For example, to push a new tag named `beta` to an AWS CodeCommit repository named `origin`:

```
git push origin beta
```

Tip

To push all new tags from your local repo to the AWS CodeCommit repository, run **git push --tags**.

To ensure your local repo is updated with all of the tags in the AWS CodeCommit repository, run **git fetch** followed by **git fetch --tags**.

For more options, see your Git documentation.

Create a Commit in AWS CodeCommit

Follow these steps to use Git to create a commit in a local repo. If the local repo is connected to an AWS CodeCommit repository, you use Git to push the commit from the local repo to the AWS CodeCommit repository.

1. Complete the prerequisites, including [Setting Up](#) (p. 4).

Important

If you have not completed setup, you will not be able to connect or commit to the repository.

2. Make sure you are creating a commit in the desired branch. To see a list of available branches and find out which branch you are currently set to use, run **git branch**. All branches will be displayed. An asterisk (*) will appear next to your current branch. To switch to a different branch, run **git checkout *branch-name***.
3. Make a change to the branch (such as adding, modifying, or deleting a file).

For example, in the local repo, create a file named `bird.txt` with the following text:

```
bird.txt
-----
Birds (class Aves or clade Avialae) are feathered, winged, two-legged,
warm-blooded, egg-laying vertebrates.
```

4. Run **git status**, which should indicate that `bird.txt` has not yet been included in any pending commit:

```
...
Untracked files:
  (use "git add <file>..." to include in what will be committed)

       bird.txt
```

5. Run **git add bird.txt** to include the new file in the pending commit.
6. If you run **git status** again, you should see output similar to the following. It indicates that `bird.txt` is now part of the pending commit or staged for commit:

```
...
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

       new file:   bird.txt
```

7. To finalize the commit, run **git commit** with the `-m` option (for example, **git commit -m "Adding bird.txt to the repository."**) The `-m` option creates the commit message.
8. If you run **git status** again, you should see output similar to the following. It indicates that the commit is ready to be pushed from the local repo to the AWS CodeCommit repository:

```
...
nothing to commit, working directory clean
```

9. Before you push the finalized commit from the local repo to the AWS CodeCommit repository, you can see what will be pushed by running **git diff --stat remote-name/branch-name**, where `remote-name` is the nickname the local repo uses for the AWS CodeCommit repository and `branch-name` is the name of the branch to compare.

Tip

To get the nickname, run **git remote**. To get a list of branch names, run **git branch**. An asterisk (*) will appear next to the current branch. You can also run **git status** to get the current branch name.

Note

If you cloned the repository, from the local repo's perspective, `remote-name` is not the name of the AWS CodeCommit repository. When you clone a repository, `remote-name` is set automatically to `origin`.

For example, **git diff --stat origin/master** would show output similar to the following:

```
bird.txt | 1 +
1 file changed, 1 insertion(+)
```

Of course, the output assumes you have already connected the local repo to the AWS CodeCommit repository. (For instructions, see [Connect to a Repository \(p. 80\)](#).)

10. When you're ready to push the commit from the local repo to the AWS CodeCommit repository, run **git push remote-name branch-name**, where `remote-name` is the nickname the local repo uses for the AWS CodeCommit repository and `branch-name` is the name of the branch to push to the AWS CodeCommit repository.

For example, running **git push origin master** would show output similar to the following:

For HTTPS:

```
Counting objects: 7, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 516 bytes | 0 bytes/s, done.
Total 5 (delta 2), reused 0 (delta 0)
remote:
To https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
   b9e7aa6..3dbf4dd master -> master
```

For SSH:

```
Counting objects: 7, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 516 bytes | 0 bytes/s, done.
Total 5 (delta 2), reused 0 (delta 0)
remote:
To ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
   b9e7aa6..3dbf4dd master -> master
```

Tip

If you add the `-u` option to **git push** (for example, **git push -u origin master**), then you only need to run **git push** in the future because upstream tracking information has been set. To get upstream tracking information, run **git remote show *remote-name*** (for example, **git remote show origin**).

For more options, see your Git documentation.

Change Branch Settings in AWS CodeCommit

To change a repository's branch settings in an AWS CodeCommit repository, you can use Git from a local repo connected to the AWS CodeCommit repository. You can also use the AWS CLI and the AWS CodeCommit console.

Topics

- [Use the AWS CodeCommit Console to Change Branch Settings \(p. 127\)](#)
- [Use Git to Change Branch Settings \(p. 128\)](#)
- [Use the AWS CLI to Change Branch Settings \(p. 128\)](#)

Use the AWS CodeCommit Console to Change Branch Settings

To use the AWS CodeCommit console to change the default branch in an AWS CodeCommit repository, follow these steps.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the list of repositories, choose the name of the repository where you want to change settings.
3. In the navigation pane, choose **Settings**.
4. To change the default branch, from the **Default branch** drop-down list, choose a different branch, choose **Save changes**, and then choose **Change default**.

Use Git to Change Branch Settings

To use Git from a local repo to change a branch's settings in an AWS CodeCommit repository, run the following command:

- [git reset \(p. 128\)](#) to change the commit to which a branch points.

To use Git to change the commit to which a branch points

To use Git from a local repo to change the commit to which a branch points, follow these steps.

These steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository \(p. 80\)](#).

1. Run **git checkout *branch-name*** where *branch-name* is the name of the branch.

Tip

To get a list of branch names, run **git branch --all**.

2. Run **git reset --hard *new-commit-id*** or **git reset --soft *new-commit-id*** where *new-commit-id* is the new commit where the branch will point.

The `--hard` option resets the index and the working tree; any changes to tracked files in the working tree before *new-commit-id* are discarded.

The `--soft` option does not touch the index file or the working tree; this leaves all your changed files to be committed.

For example, to point the branch named `MyNewBranch` to the commit ID `dc082f9a...af873b88` while resetting the index and working tree and discarding any changes to tracked files in the working tree before commit ID `dc082f9a...af873b88`:

```
git checkout MyNewBranch
git reset --hard dc082f9a...af873b88
```

3. To push the changed branch from the local repo to the AWS CodeCommit repository, run the **git push *remote-name changed-branch-name*** command, where *remote-name* is the nickname the local repo uses for the AWS CodeCommit repository and *changed-branch-name* is the name of the changed branch.

For example, to push a changed branch named `MyNewBranch` to an AWS CodeCommit repository with the nickname `origin`:

```
git push origin MyNewBranch
```

For more options, see your Git documentation.

Use the AWS CLI to Change Branch Settings

To use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference \(p. 150\)](#).

To use the AWS CLI to change a repository's branch settings in an AWS CodeCommit repository, run the following command:

- [update-default-branch \(p. 129\)](#) to change the default branch.

To change the default branch

1. Run the **update-default-branch** command, specifying:
 - The name of the AWS CodeCommit repository where the default branch will be updated (with the **--repository-name** option).

Tip
To get the name of the AWS CodeCommit repository, run the [list-repositories](#) (p. 116) command.
 - The name of the new default branch (with the **--default-branch-name** option).

Tip
To get the name of the branch, run the [list-branches](#) (p. 120) command.
2. For example, to change the default branch to `MyNewBranch` in an AWS CodeCommit repository named `MyDemoRepo`:

```
aws codecommit update-default-branch --repository-name MyDemoRepo --  
default-branch-name MyNewBranch
```

This command produces output only if there are errors.

For more options, see your Git documentation.

Change AWS CodeCommit Repository Settings

To change the settings of an AWS CodeCommit repository, such as its description or name, you can use the AWS CLI and the AWS CodeCommit console.

Important

Changing a repository's name may break any local repos that use the old name in their remote URL. Run the **git remote set-url** command to update the remote URL to use the new repository's name.

Topics

- [Use the AWS CodeCommit Console to Change Repository Settings](#) (p. 129)
- [Use the AWS CLI to Change AWS CodeCommit Repository Settings](#) (p. 130)

Use the AWS CodeCommit Console to Change Repository Settings

To use the AWS CodeCommit console to change an AWS CodeCommit repository's settings in AWS CodeCommit, follow these steps.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the list of repositories, choose the name of the repository where you want to change settings.
3. In the navigation pane, choose **Settings**.
4. To change the name of the repository, type a new name in the **Name** text box, choose **Change name**, and then choose **Change name** again.

Important

Changing the name of the AWS CodeCommit repository will change the SSH and HTTPS URLs that users need to connect to the repository. Users will not be able to connect to

this repository until they update their connection settings. Also, because the repository's ARN will change, changing the repository name will invalidate any IAM user policies that rely on this repository's ARN.

To connect to the repository after the name is changed, each user must use the **git remote set-url** command and specify the new URL to use. For example, if you changed the name of the repository from MyDemoRepo to MyRenamedDemoRepo, users who use HTTPS to connect to the repository would run the following Git command:

```
git remote set-url origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyRenamedDemoRepo
```

Users who use SSH to connect to the repository would run the following Git command:

```
git remote set-url origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyRenamedDemoRepo
```

For more options, see your Git documentation.

5. To change the repository's description, modify the text in the **Description** text box, and then choose **Save changes**.

Note

The description field for a repository accepts all HTML characters and all valid Unicode characters. If you are an application developer using the `GetRepository` or `BatchGetRepositories` APIs and plan to display the repository description field in a web browser, see the [AWS CodeCommit API Reference](#) for additional guidance.

6. To change the default branch, choose a different branch from the **Default branch** drop-down list, choose **Save changes**, and then choose **Change default**.
7. To delete the repository, choose **Delete repository**. In the box next to **Type the name of the repository to confirm deletion**, type the repository's name, and then choose **Delete**.

Important

After you delete this repository in AWS CodeCommit, you will no longer be able to clone it to any local repo or shared repo. You will also no longer be able to pull data from it, or push data to it, from any local repo or shared repo. This action cannot be undone.

Use the AWS CLI to Change AWS CodeCommit Repository Settings

To use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference](#) (p. 150).

To use AWS CLI to change an AWS CodeCommit repository's settings in AWS CodeCommit, run one or more of the following commands:

- [update-repository-description](#) (p. 130) to change an AWS CodeCommit repository's description.
- [update-repository-name](#) (p. 131) to change an AWS CodeCommit repository's name.

To change an AWS CodeCommit repository's description

1. Run the **update-repository-description** command, specifying:
 - The name of the AWS CodeCommit repository (with the `--repository-name` option).

Tip

To get the name of the AWS CodeCommit repository, run the [list-repositories \(p. 116\)](#) command.

- The new repository description (with the `--repository-description` option).

Note

The description field for a repository accepts all HTML characters and all valid Unicode characters. If you are an application developer using the `GetRepository` or `BatchGetRepositories` APIs and plan to display the repository description field in a web browser, see the [AWS CodeCommit API Reference](#) for additional guidance.

For example, to change the description for the AWS CodeCommit repository named `MyDemoRepo` to `This description was changed`:

```
aws codecommit update-repository-description --repository-name MyDemoRepo
--repository-description "This description was changed"
```

This command produces output only if there are errors.

2. To verify the changed description, run the **get-repository** command, specifying the name of the AWS CodeCommit repository whose description you changed with the `--repository-name` option.

The output of the command will show the changed text in `repositoryDescription`.

To change an AWS CodeCommit repository's name

1. Run the **update-repository-name** command, specifying:
 - The current name of the AWS CodeCommit repository (with the `--old-name` option).

Tip

To get the AWS CodeCommit repository's name, run the [list-repositories \(p. 116\)](#) command.

- The new name of the AWS CodeCommit repository (with the `--new-name` option).

For example, to change the repository named `MyDemoRepo` to `MyRenamedDemoRepo`:

```
aws codecommit update-repository-name --old-name MyDemoRepo --new-name
MyRenamedDemoRepo
```

This command produces output only if there are errors.

Important

Changing the name of the AWS CodeCommit repository will change the SSH and HTTPS URLs that users need to connect to the repository. Users will not be able to connect to this repository until they update their connection settings. Also, because the repository's ARN will change, changing the repository name will invalidate any IAM user policies that rely on this repository's ARN.

2. To verify the changed name, run the **list-repositories** command and review the list of repository names.

Synchronize Changes Between a Local Repo and an AWS CodeCommit Repository

You use Git to synchronize changes between a local repo and the AWS CodeCommit repository connected to the local repo.

To push changes from the local repo to the AWS CodeCommit repository, run **git push** *remote-name* *branch-name*.

To pull changes to the local repo from the AWS CodeCommit repository, run **git pull** *remote-name* *branch-name*.

For both pushing and pulling, *remote-name* is the nickname the local repo uses for the AWS CodeCommit repository; *branch-name* is the name of the branch on the AWS CodeCommit repository to push to or pull from.

Tip

To get the nickname the local repo uses for the AWS CodeCommit repository, run **git remote**. To get a list of branch names, run **git branch**. An asterisk (*) appears next to the name of the current branch. (Alternatively, run **git status** to show the current branch name.)

Note

If you cloned the repository, from the local repo's perspective, *remote-name* is not the name of the AWS CodeCommit repository. When you clone a repository, *remote-name* is set automatically to `origin`.

For example, to push changes from the local repo to the `master` branch in the AWS CodeCommit repository with the nickname `origin`:

```
git push origin master
```

Similarly, to pull changes to the local repo from the `master` branch in the AWS CodeCommit repository with the nickname `origin`:

```
git pull origin master
```

Tip

If you add the `-u` option to **git push**, you will set upstream tracking information. For example, if you run **git push -u origin master**, in the future you can run **git push** and **git pull** without *remote-name* *branch-name*. To get upstream tracking information, run **git remote show** *remote-name* (for example, **git remote show origin**).

For more options, see your Git documentation.

Delete a Branch in AWS CodeCommit

To delete a branch in an AWS CodeCommit repository, use Git from a local repo connected to the AWS CodeCommit repository.

Note

You cannot use these instructions to delete a repository's default branch. If you want to delete the default branch, you must create a new branch, make the new branch the default branch, and then delete the old branch. To learn how to create a new branch, see [Create a](#)

[Branch \(p. 123\)](#). To learn how to make a branch the default branch, see [Change Branch Settings \(p. 127\)](#).

Use Git to Delete a Branch

To use Git from a local repo to delete a branch in an AWS CodeCommit repository, follow these steps.

These steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository \(p. 80\)](#).

1. To delete the branch from the local repo, run the **git branch -d *branch-name*** command where *branch-name* is the name of the branch you want to delete.

Tip

To get a list of branch names, run **git branch --all**.

For example, to delete a branch in the local repo named `MyNewBranch`:

```
git branch -d MyNewBranch
```

2. To delete the branch from the AWS CodeCommit repository, run the **git push *remote-name* --delete *branch-name*** command where *remote-name* is the nickname the local repo uses for the AWS CodeCommit repository and *branch-name* is the name of the branch you want to delete from the AWS CodeCommit repository.

Tip

To get a list of AWS CodeCommit repository names along with their URLs, run the **git remote -v** command.

For example, to delete a branch named `MyNewBranch` in the AWS CodeCommit repository named `origin`:

```
git push origin --delete MyNewBranch
```

Tip

This command will not delete a branch if it is the default branch.

For more options, see your Git documentation.

Delete a Tag in AWS CodeCommit

To delete a tag in an AWS CodeCommit repository, use Git from a local repo connected to the AWS CodeCommit repository. .

Use Git to Delete a Tag

To use Git from a local repo to delete a tag in an AWS CodeCommit repository, follow these steps.

These steps assume you have already connected the local repo to the AWS CodeCommit repository. For instructions, see [Connect to a Repository \(p. 80\)](#).

1. To delete the tag from the local repo, run the **git tag -d *tag-name*** command where *tag-name* is the name of the tag you want to delete.

Tip

To get a list of tag names, run **git tag**.

For example, to delete a tag in the local repo named `beta`:

```
git tag -d beta
```

2. To delete the tag from the AWS CodeCommit repository, run the `git push remote-name --delete tag-name` command where *remote-name* is the nickname the local repo uses for the AWS CodeCommit repository and *tag-name* is the name of the tag you want to delete from the AWS CodeCommit repository.

Tip

To get a list of AWS CodeCommit repository names along with their URLs, run the `git remote -v` command.

For example, to delete a tag named `beta` in the AWS CodeCommit repository named `origin`:

```
git push origin --delete beta
```

Delete an AWS CodeCommit Repository

To delete a local repo, use your local machine's directory and file management tools. To delete an AWS CodeCommit repository, use the AWS CLI or the AWS CodeCommit console.

Topics

- [Use the AWS CodeCommit Console to Delete a Repository \(p. 134\)](#)
- [Delete a Local Repo \(p. 134\)](#)
- [Use the AWS CLI to Delete an AWS CodeCommit Repository \(p. 135\)](#)

Use the AWS CodeCommit Console to Delete a Repository

To use the AWS CodeCommit console to delete an AWS CodeCommit repository, follow these steps.

Important

After you delete an AWS CodeCommit repository, you will no longer be able to clone it to any local repo or shared repo. You will also no longer be able to pull data from it, or push data to it, from any local repo or shared repo. This action cannot be undone.

1. Open the AWS CodeCommit console at <https://console.aws.amazon.com/codecommit>.
2. In the list of repositories, choose the name of the repository you want to delete.
3. In the navigation pane, choose **Settings**.
4. Choose **Delete repository**. In the box next to **Type the name of the repository to confirm deletion**, type the repository's name, and then choose **Delete**. The repository is permanently deleted.

Delete a Local Repo

Use your local machine's directory and file management tools to delete the directory that contains the local repo.

Deleting a local repo does not delete any AWS CodeCommit repository to which it might be connected.

Use the AWS CLI to Delete an AWS CodeCommit Repository

To use AWS CLI commands with AWS CodeCommit, install the AWS CLI. For more information, see [Command Line Reference \(p. 150\)](#).

To use the AWS CLI to delete an AWS CodeCommit repository, run the **delete-repository** command, specifying the name of the AWS CodeCommit repository to delete (with the `--repository-name` option).

Important

After you delete an AWS CodeCommit repository, you will no longer be able to clone it to any local repo or shared repo. You will also no longer be able to pull data from it, or push data to it, from any local repo or shared repo. This action cannot be undone.

Tip

To get the AWS CodeCommit repository's name, run the [list-repositories \(p. 116\)](#) command.

For example, to delete a repository named `MyDemoRepo`:

For Linux, OS X, or Unix:

```
aws codecommit delete-repository \  
  --repository-name MyDemoRepo
```

For Windows:

```
aws codecommit delete-repository --repository-name MyDemoRepo
```

If successful, the ID of the AWS CodeCommit repository that was permanently deleted will appear in the output:

```
{  
  "repositoryId": "f7579e13-b83e-4027-aaef-650c0EXAMPLE"  
}
```

Deleting an AWS CodeCommit repository does not delete any local repos that may be connected to it.

Push Commits to an Additional Git Repository

You can configure your local repo to push changes to two remote repositories. For example, you might want to continue using your existing Git repository solution while you try out AWS CodeCommit. Follow these basic steps to push changes in your local repo to both AWS CodeCommit and a separate Git repository.

Tip

If you do not have a current Git repository, you can create an empty one on a service other than AWS CodeCommit and then migrate your AWS CodeCommit repository to it. You should follow steps similar to the ones in [Migrate to AWS CodeCommit \(p. 56\)](#).

1. From the command prompt or terminal, switch to your local repo directory and run the **git remote -v** command. You should see output similar to the following:

For HTTPS:

```
origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
(fetch)
origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
(push)
```

For SSH:

```
origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
(fetch)
origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
(push)
```

2. Run the **git remote set-url --add --push origin *git-repository-name*** command where *git-repository-name* is the URL and name of the Git repository where you want to host your code. This changes the push destination of `origin` to that Git repository.

Note

git remote set-url --add --push overrides the default URL for pushes, so you will have to run this command twice, as demonstrated in later steps.

For example, the following command changes the push of `origin` to *some-URL/MyDestinationRepo*:

```
git remote set-url --add --push origin some-URL/MyDestinationRepo
```

This command returns nothing.

Tip

If you are pushing to a Git repository that requires credentials, make sure you configure those credentials in a credential helper or in the configuration of the *some-URL* string; otherwise, your pushes to that repository will fail.

3. Run the **git remote -v** command again, which should create output similar to the following:

For HTTPS:

```
origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
(fetch)
origin some-URL/MyDestinationRepo (push)
```

For SSH:

```
origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
(fetch)
origin some-URL/MyDestinationRepo (push)
```

4. Now add the AWS CodeCommit repository. Run **git remote set-url --add --push origin** again, this time with the URL and repository name of your AWS CodeCommit repository.

For example, the following command adds the push of **origin** to `https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo`:

For HTTPS:

```
git remote set-url --add --push origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
```

For SSH:

```
git remote set-url --add --push origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
```

This command returns nothing.

5. Run the **git remote -v** command again, which should create output similar to the following:

For HTTPS:

```
origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo (fetch)
origin some-URL/MyDestinationRepo (push)
origin https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo (push)
```

For SSH:

```
origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo (fetch)
origin some-URL/MyDestinationRepo (push)
origin ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo (push)
```

You now have two Git repositories as the destination for your pushes, but your pushes will go to *some-URL*/MyDestinationRepo first. If the push to that repository fails, your commits will not be pushed to either repository.

Tip

If the other repository requires credentials you want to enter manually, consider changing the order of the pushes so that you push to AWS CodeCommit first. Run **git remote set-url --delete** to delete the repository that is pushed to first, and then run **git remote set-url --add** to add it again so that it becomes the second push destination in the list.

For more options, see your Git documentation.

6. To verify you are now pushing to both remote repositories, use a text editor to create the following text file in your local repo:

```
bees.txt
-----
Bees are flying insects closely related to wasps and ants, and are known for their role in pollination and for producing honey and beeswax.
```

7. Run **git add** to stage the change in your local repo:

```
git add bees.txt
```

8. Run **git commit** to commit the change in your local repo:

```
git commit -m "Added bees.txt"
```


- To push the commit from the local repo to your remote repositories, run **git push -u *remote-name branch-name*** where *remote-name* is the nickname the local repo uses for the remote repositories and *branch-name* is the name of the branch to push to the repository.

Tip

You only have to use the `-u` option the first time you push. The upstream tracking information will be set.

For example, running **git push -u origin master** would show the push went to both remote repositories in the expected branches, with output similar to the following:

For HTTPS:

```
Counting objects: 5, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 5.61 KiB | 0 bytes/s, done.
Total 3 (delta 1), reused 0 (delta 0)
To some-URL/MyDestinationRepo
   a5ba4ed..250f6c3  master -> master
Counting objects: 5, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 5.61 KiB | 0 bytes/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote:
To https://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
   a5ba4ed..250f6c3  master -> master
```

For SSH:

```
Counting objects: 5, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 5.61 KiB | 0 bytes/s, done.
Total 3 (delta 1), reused 0 (delta 0)
To some-URL/MyDestinationRepo
   a5ba4ed..250f6c3  master -> master
Counting objects: 5, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 5.61 KiB | 0 bytes/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote:
To ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo
   a5ba4ed..250f6c3  master -> master
```

For more options, see your Git documentation.

Troubleshooting AWS CodeCommit

The following information might help you troubleshoot common issues in AWS CodeCommit.

Topics

- [Access Error: Prompted for AWS User Name When Connecting to an AWS CodeCommit Repository \(p. 140\)](#)
- [Access Error: Prompted for User Name and Password When Connecting to an AWS CodeCommit Repository from Windows \(p. 140\)](#)
- [Access Error: Public Key Denied When Connecting to an AWS CodeCommit Repository \(p. 140\)](#)
- [Access Error: Public Key Is Uploaded Successfully to IAM but Connection Fails on Linux, OS X, or Unix Systems \(p. 141\)](#)
- [Access Error: Public Key Is Uploaded Successfully to IAM and SSH Tested Successfully but Connection Fails on Windows Systems \(p. 141\)](#)
- [Access Error: Encryption Key Access Denied for an AWS CodeCommit Repository from the Console or the AWS CLI \(p. 142\)](#)
- [Authentication Challenge: Authenticity of Host Can't Be Established When Connecting to an AWS CodeCommit Repository \(p. 142\)](#)
- [Configuration Error: Cannot Configure AWS CLI Credentials on macOS \(p. 143\)](#)
- [Console Error: Cannot Browse the Code in an AWS CodeCommit Repository from the Console \(p. 143\)](#)
- [Git Error: error: RPC failed; result=56, HTTP code = 200 fatal: The remote end hung up unexpectedly \(p. 143\)](#)
- [Git Error: Too many reference update commands \(p. 143\)](#)
- [Git Error: push via HTTPS is broken in some versions of Git \(p. 144\)](#)
- [Git Error: 'gnutls_handshake\(\) failed' \(p. 144\)](#)
- [Git Error: Git cannot find the AWS CodeCommit repository or does not have permission to access the repository \(p. 144\)](#)
- [Git on Windows: No Supported Authentication Methods Available \(publickey\) \(p. 144\)](#)
- [Git on Windows: Bash Emulator or Command Line Freezes When Attempting to Connect Using SSH \(p. 145\)](#)
- [IAM Error: 'Invalid format' when attempting to add a public key to IAM \(p. 145\)](#)

- [Git for macOS: I Configured the Credential Helper Successfully, but Now I Am Denied Access to My Repository \(403\) \(p. 145\)](#)
- [Git for Windows: I Installed Git for Windows, but I Am Denied Access to My Repository \(403\) \(p. 147\)](#)
- [Trigger Error: A Repository Trigger Does Not Run When Expected \(p. 148\)](#)
- [Turn on Debugging \(p. 148\)](#)

Access Error: Prompted for AWS User Name When Connecting to an AWS CodeCommit Repository

Problem: When you try to use Git to communicate with an AWS CodeCommit repository, a message appears prompting you for your AWS user name.

Possible fixes: Configure your AWS profile or make sure the profile you are using is the one you configured for working with AWS CodeCommit. For more information about setting up, see [Setting Up \(p. 4\)](#). For more information about IAM, access keys, and secret keys, see [Managing Access Keys for IAM Users](#) and [How Do I Get Credentials?](#).

Access Error: Prompted for User Name and Password When Connecting to an AWS CodeCommit Repository from Windows

Problem: When you try to use Git to communicate with an AWS CodeCommit repository, you see a pop-up dialog box asking for your user name and password.

Possible fixes: This might be the built-in credential management system for Windows. It is not compatible with the credential helper for AWS CodeCommit. Choose **Cancel**.

This might also be an indication that you installed the Git Credential Manager as part of installing Git for Windows. The Git Credential Manager is not compatible with AWS CodeCommit. Consider uninstalling it.

For more information, see [For HTTPS Connections on Windows \(p. 11\)](#) and [Git for Windows: I Installed Git for Windows, but I Am Denied Access to My Repository \(403\) \(p. 147\)](#).

Access Error: Public Key Denied When Connecting to an AWS CodeCommit Repository

Problem: When you try to use an SSH endpoint to communicate with an AWS CodeCommit repository, an error message appears containing the phrase `Error: public key denied`.

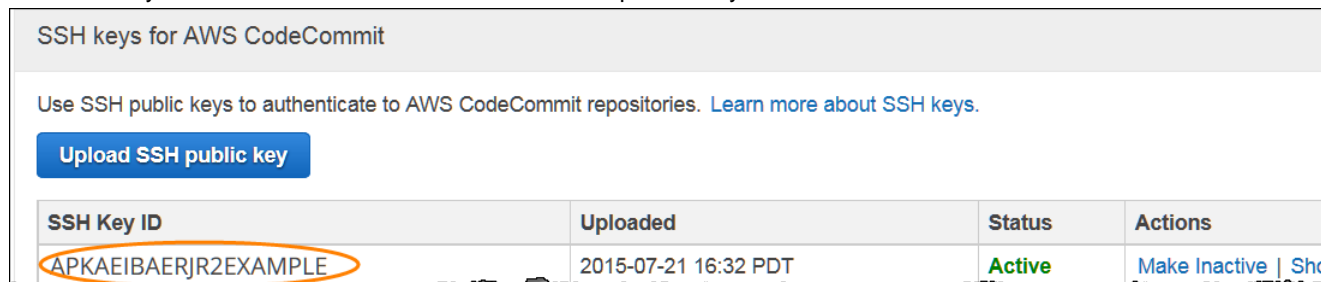
Possible fixes: Configure a public and private SSH key pair, and then associate the public key with your IAM user. For more information about configuring SSH, see [For SSH Connections on Linux, OS X, or Unix \(p. 16\)](#) and [For SSH Connections on Windows \(p. 21\)](#).

Access Error: Public Key Is Uploaded Successfully to IAM but Connection Fails on Linux, OS X, or Unix Systems

Problem: When you try to connect to an SSH endpoint to communicate with an AWS CodeCommit repository, either when testing the connection or cloning a repository, the connection fails or is refused.

Possible fixes: The SSH Key ID assigned to your public key in IAM might not be associated with your connection attempt. You might not have configured a config file (p. 19), or you might have provided the ID of the IAM user instead of the key ID.

The SSH Key ID can be found in the IAM console in the profile for your IAM user:



SSH keys for AWS CodeCommit

Use SSH public keys to authenticate to AWS CodeCommit repositories. [Learn more about SSH keys.](#)

[Upload SSH public key](#)

SSH Key ID	Uploaded	Status	Actions
APKAEIBAERJR2EXAMPLE	2015-07-21 16:32 PDT	Active	Make Inactive Share

Try testing the connection with the following command:

```
ssh Your-SSH-Key-ID@git-codecommit.us-east-2.amazonaws.com
```

If you see a success message after confirming the connection, your SSH Key ID is valid. Edit your config file to associate your connection attempts with your public key in IAM. If you do not want to edit your config file for some reason, you can preface all connection attempts to your repository with your SSH Key ID. For example, if you wanted to clone a repository named *MyDemoRepo* without modifying your config file to associate your connection attempts, you would type the following command:

```
git clone ssh://Your-SSH-Key-ID@git-codecommit.us-east-2.amazonaws.com/v1/  
repos/MyDemoRepo my-demo-repo
```

For more information, see [For SSH Connections on Linux, OS X, or Unix \(p. 16\)](#).

Access Error: Public Key Is Uploaded Successfully to IAM and SSH Tested Successfully but Connection Fails on Windows Systems

Problem: When you try to use an SSH endpoint to clone or communicate with an AWS CodeCommit repository, an error message appears containing the phrase `No supported authentication methods available`.

Possible fixes: The most common reason for this error is that you have a Windows system environment variable set that directs Windows to use another program when you attempt to use

SSH. For example, you might have set a `GIT_SSH` variable to point to one of the PuTTY set of tools (plink.exe). This might be a legacy configuration, or it might be necessary for one or more other programs installed on your computer. If you are sure that this environment variable is not needed, you can remove it by opening your system properties and deleting the environment variable.

To work around this issue, open a Bash emulator and then try your SSH connection again, but include `GIT_SSH_COMMAND="ssh"` as a prefix. For example, to clone a repository using SSH:

```
GIT_SSH_COMMAND="ssh" git clone ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

A similar problem might occur if your version of Windows requires that you include the SSH Key ID as part of the connection string when connecting using SSH at the Windows command line. Try your connection again, this time including the SSH Key ID copied from IAM as part of the command. For example:

```
git clone ssh://Your-SSH-Key-ID@git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

Access Error: Encryption Key Access Denied for an AWS CodeCommit Repository from the Console or the AWS CLI

Problem: When you try to access AWS CodeCommit from the console or the AWS CLI, an error message appears containing the phrase `EncryptionKeyAccessDeniedException` or `User is not authorized for the KMS default master key for CodeCommit 'aws/codecommit'` in your account.

Possible fixes: The most common cause for this error is that your AWS account is not subscribed to AWS Key Management Service, which is required for AWS CodeCommit. Open the IAM console, choose **Encryption Keys**, and then choose **Get Started Now**. If you see a message that you are not currently subscribed to the AWS Key Management Service service, follow the instructions on that page to subscribe. For more information about AWS CodeCommit and AWS Key Management Service, see [Encryption](#) (p. 173).

Authentication Challenge: Authenticity of Host Can't Be Established When Connecting to an AWS CodeCommit Repository

Problem: When you try to use an SSH endpoint to communicate with an AWS CodeCommit repository, a warning message appears containing the phrase `The authenticity of host 'host-name' can't be established.`

Possible fixes: Your credentials might not be set up correctly. Follow the instructions in [For SSH Connections on Linux, OS X, or Unix](#) (p. 16) or [For SSH Connections on Windows](#) (p. 21).

If you have followed those steps and the problem persists, someone might be attempting a man-in-the-middle attack. When you see the following message, type `no`, and press Enter.

```
Are you sure you want to continue connecting (yes/no)?
```

Make sure the fingerprint and public key for AWS CodeCommit connections match those documented in the SSH setup topics before you continue with the connection.

Configuration Error: Cannot Configure AWS CLI Credentials on macOS

Problem: When you run `aws configure` to configure the AWS CLI, you see a `ConfigParseError` message.

Possible fixes: The most common cause for this error is that a credentials file already exists. Browse to `~/.aws` and look for a file named `credentials`. Rename or delete that file, and then run **aws configure** again.

Console Error: Cannot Browse the Code in an AWS CodeCommit Repository from the Console

Problem: When you try to browse the contents of a repository from the console, an error message appears denying access.

Possible fixes: The most common cause for this error is that an IAM policy applied to your AWS account denies one or more of the permissions required for browsing code from the AWS CodeCommit console. For more information about AWS CodeCommit access permissions and browsing, see [Access Permissions Reference \(p. 159\)](#).

Git Error: error: RPC failed; result=56, HTTP code = 200 fatal: The remote end hung up unexpectedly

Problem: When pushing a large change, a large number of changes, or a large repository, long-running HTTPS connections are often terminated prematurely due to networking issues or firewall settings.

Possible fixes: Push with SSH instead, or when migrating a large repository, follow the steps in [Migrate a Repository in Increments \(p. 71\)](#).

Git Error: Too many reference update commands

Problem: The maximum number of reference updates per push is 2,000. This error appears when the push contains more than 2,000 reference updates.

Possible fixes: Try pushing branches and tags individually with `git push --all` and `git push --tags`. If you have too many tags, split the tags into multiple pushes. For more information, see [Limits \(p. 175\)](#).

Git Error: push via HTTPS is broken in some versions of Git

Problem: An issue with the curl update to 7.41.0 causes SSPI-based digest authentication to fail. Known affected versions of Git include 1.9.5.msysgit.1.

Possible fixes: Check your version of Git for known issues or use an earlier or later version. For more information about msysgit, see [Push to HTTPS Is Broken](#) in the GitHub forums.

Git Error: 'gnutls_handshake() failed'

Problem: In Linux, when you try to use Git to communicate with an AWS CodeCommit repository, an error message appears containing the phrase `error: gnutls_handshake() failed`.

Possible fixes: Compile Git against OpenSSL. For one approach, see ["Error: gnutls_handshake\(\) failed" When Connecting to HTTPS Servers](#) in the Ask Ubuntu forums.

Alternatively, use SSH instead of HTTPS to communicate with AWS CodeCommit repositories.

Git Error: Git cannot find the AWS CodeCommit repository or does not have permission to access the repository

Problem: A trailing slash in the connection string can cause connection attempts to fail.

Possible fixes: Make sure that you have provided the correct name and connection string for the repository, and that there are no trailing slashes. For more information, see [Connect to a Repository \(p. 80\)](#).

Git on Windows: No Supported Authentication Methods Available (publickey)

Problem: After you configure SSH access for Windows, you see an access denied error when you attempt to use commands such as `git pull`, `git push`, or `git clone`.

Possible fixes: The most common cause for this error is that a `GIT_SSH` environment variable exists on your computer and is configured to support another connection utility, such as PuTTY. To fix this problem, try one of the following:

- Open a Bash emulator and add the `GIT_SSH_COMMAND="ssh"` parameter before the Git command. For example, if you are attempting to clone a repository, instead of typing `git clone ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo`, type:

```
GIT_SSH_COMMAND="ssh" git clone ssh://git-codecommit.us-east-2.amazonaws.com/v1/repos/MyDemoRepo my-demo-repo
```

- Rename or delete the `GIT_SSH` environment variable if you are no longer using it. Then open a new command prompt or Bash emulator session, and try your command again.

Git on Windows: Bash Emulator or Command Line Freezes When Attempting to Connect Using SSH

Problem: After you configure SSH access for Windows and confirm connectivity at the command line or terminal, you see a message that the server's host key is not cached in the registry, and the prompt to store the key in the cache is frozen (does not accept y/n/return input) when you attempt to use commands such as **git pull**, **git push**, or **git clone** at the command prompt or Bash emulator.

Possible fixes: The most common cause for this error is that your Git environment is configured to use something other than OpenSSH for authentication (probably PuTTY). This is known to cause problems with the caching of keys in some configurations. To fix this problem, try one of the following:

- Open a Bash emulator and add the `GIT_SSH_COMMAND="ssh"` parameter before the Git command. For example, if you are attempting to push to a repository, instead of typing **git push**, type:

```
GIT_SSH_COMMAND="ssh" git push
```

- If you have PuTTY installed, open PuTTY, and in **Host Name (or IP address)**, type the AWS CodeCommit endpoint you want to reach (for example, `git-codecommit.us-east-2.amazonaws.com`). Choose **Open**. When prompted by the PuTTY Security Alert, choose **Yes** to permanently cache the key.
- Rename or delete the `GIT_SSH` environment variable if you are no longer using it. Then open a new command prompt or Bash emulator session, and try your command again.

For other solutions, see [Git clone/pull continually freezing at Store key in cache](#) on Stack Overflow.

IAM Error: 'Invalid format' when attempting to add a public key to IAM

Problem: In IAM, when attempting to set up to use SSH with AWS CodeCommit, an error message appears containing the phrase `Invalid format` when you attempt to add your public key.

Possible fixes: IAM accepts public keys in the OpenSSH format only. If you provide your public key in another format, or if the key does not contain the required number of bits, you will see this error. This problem most commonly occurs when the public/private key pairs are generated on Windows computers. To generate a key pair and copy the OpenSSH format required by IAM, see [the section called "SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit"](#) (p. 22).

Git for macOS: I Configured the Credential Helper Successfully, but Now I Am Denied Access to My Repository (403)

Problem: On macOS, the credential helper does not seem to access or use your credentials as expected. This can be caused by two different problems:

- The AWS CLI is configured for a different AWS region than the one where the repository exists.
- The Keychain Access utility has saved credentials which have since expired.

Possible fixes: To verify whether the AWS CLI is configured for the correct region, run the **aws configure** command, and review the displayed information. If the AWS CodeCommit repository is in a different region than the one shown for the AWS CLI, you must run the **aws configure** command and change the values to the appropriate ones for that region. For more information, see [Step 1: Initial Configuration for AWS CodeCommit \(p. 8\)](#).

The default version of Git released on OS X and macOS uses the Keychain Access utility to save generated credentials. For security reasons, the password generated for access to your AWS CodeCommit repository is temporary, so the credentials stored in the keychain will stop working after about 15 minutes. If you are only accessing Git with AWS CodeCommit, try the following:

1. Using Terminal, determine where Git is installed on the local machine:

```
$ which git

/usr/local/git/bin/git
```

2. Find your Git configuration file. You can use the Finder utility or you can use the **find** command with superuser permissions (for example, **\$ sudo find ~ -name ".gitconfig"**). Edit the Git config file:

```
$ nano /usr/local/git/etc/gitconfig
```

3. Comment out the following line of text:

```
# helper = osxkeychain
```

If, however, you are accessing other repositories with Git, you can configure the Keychain Access utility so that it does not supply credentials for your AWS CodeCommit repositories. To configure the Keychain Access utility:

1. Open the Keychain Access utility. (You can use Finder to locate it.)
2. Search for `git-codecommit.us-east-2.amazonaws.com`. Highlight the row, open the context (right-click) menu, and then choose **Get Info**.
3. Choose the **Access Control** tab.
4. In **Confirm before allowing access**, choose `git-credential-osxkeychain`, and then choose the minus sign to remove it from the list.

Note

After removing `git-credential-osxkeychain` from the list, you will see a pop-up dialog box whenever you run a Git command. Choose **Deny** to continue. If you find the pop-ups too disruptive, here are some alternatives:

- Connect to AWS CodeCommit using SSH instead of HTTPS. For more information, see [For SSH Connections on Linux, OS X, or Unix \(p. 16\)](#).
- In the Keychain Access utility, on the **Access Control** tab for `git-codecommit.us-east-2.amazonaws.com`, choose the **Allow all applications to access this item (access to this item is not restricted)** option. This will prevent the pop-ups, but the credentials will eventually expire (on average, this takes about 15 minutes) and you will see a 403 error message. When this happens, you must delete the keychain item in order to restore functionality.
- Install a version of Git that does not use the keychain by default.

- Consider a scripting solution for deleting the keychain item. To view a community-generated sample of a scripted solution, see [Mac OS X Script to Periodically Delete Cached Credentials in the OS X Certificate Store](#) (p. 47) in [Product and Service Integrations](#) (p. 45).

Git for Windows: I Installed Git for Windows, but I Am Denied Access to My Repository (403)

Problem: On Windows, the credential helper does not seem to access or use your credentials as expected. This can be caused by two different problems:

- The AWS CLI is configured for a different AWS region than the one where the repository exists.
- By default, Git for Windows installs a Git Credential Manager utility that is not compatible with AWS CodeCommit. When installed, it will cause HTTPS connections to AWS CodeCommit to fail even if the credential helper has been installed with the AWS CLI and configured for connections to AWS CodeCommit.

Possible fixes: To verify whether the AWS CLI is configured for the correct region, run the **aws configure** command, and review the displayed information. If the AWS CodeCommit repository is in a different region than the one shown for the AWS CLI, you must run the **aws configure** command and change the values to the appropriate ones for that region. For more information, see [Step 1: Initial Configuration for AWS CodeCommit](#) (p. 12).

If possible, uninstall and reinstall Git for Windows. When installing Git for Windows, clear the check box for the option for installing the Git Credential Manager utility. If you installed the Git Credential Manager or another credential management utility and you do not want to uninstall it, you can modify your `.gitconfig` file and add specific credential management for AWS CodeCommit:

1. Open **Control Panel**, choose **Credential Manager**, and remove any stored credentials for AWS CodeCommit.
2. Open your `.gitconfig` file in any plain-text editor, such as Notepad.

Note

If you work with multiple Git profiles, you might have both local and global `.gitconfig` files. Be sure to edit the appropriate file.

3. Add the following section to your `.gitconfig` file:

```
[credential "https://git-codecommit.*.amazonaws.com"]
  helper = !aws codecommit credential-helper %@
  UseHttpPath = true
```

4. Save the file, and then open a new command line session before you attempt to connect again.

You can also use this approach if you want to use the credential helper for AWS CodeCommit when connecting to AWS CodeCommit repositories and another credential management system when connecting to other hosted repositories, such as GitHub repositories.

To reset which credential helper is used as the default, you can use the **--system** option instead of **--global** or **--local** when running the **git config** command.

Trigger Error: A Repository Trigger Does Not Run When Expected

Problem: One or more triggers configured for a repository does not appear to run or does not run as expected.

Possible fixes: If the target of the trigger is a AWS Lambda function, make sure you have configured the function's resource policy for access by AWS CodeCommit. For more information, see [Create a Policy for AWS Lambda Integration](#) (p. 164).

Alternatively, edit the trigger and make sure the events for which you want to trigger actions have been selected and that the branches for the trigger include the branch where you want to see responses to actions. Try changing the settings for the trigger to **All repository events** and **All branches** and then testing the trigger. For more information, see [Edit Triggers for a Repository](#) (p. 102).

Turn on Debugging

Problem: I want to turn on debugging to get more information about my repository and how Git is executing commands.

Possible fixes: Try the following:

1. At the terminal or command prompt, run the following commands on your local machine before running Git commands:

On Linux, OS X, or Unix:

```
export GIT_TRACE_PACKET=1
export GIT_TRACE=1
export GIT_CURL_VERBOSE=1
```

On Windows:

```
set GIT_TRACE_PACKET=1
set GIT_TRACE=1
set GIT_CURL_VERBOSE=1
```

Note

Setting `GIT_CURL_VERBOSE` is useful for HTTPS connections only. SSH does not use the `libcurl` library.

2. To get more information about your Git repository, create a shell script similar to the following, and then run the script:

```
#!/bin/sh

gc_output=`script -q -c 'git gc' | grep Total`
object_count=$(echo $gc_output | awk -F ' |\\(|\\)' '{print $2}')
delta_count=$(echo $gc_output | awk -F ' |\\(|\\)' '{print $5}')

verify_pack_output=`git verify-pack -v objects/pack/pack-*.pack .git/
objects/pack/pack-*.pack 2>/dev/null`
largest_object=$(echo "$verify_pack_output" | grep blob | sort -k3nr |
head -n 1 | awk '{print $3/1024" KiB"}')
```

```
largest_commit=$(echo "$verify_pack_output" | grep 'tree\|commit\|tag' |
  sort -k3nr | head -n 1 | awk '{print $3/1024" KiB}')
```

```
longest_delta_chain=$(echo "$verify_pack_output" | grep chain | tail -n 1
  | awk -F ' |:' '{print $4}')
```

```
branch_count=`git branch -a | grep remotes/origin | grep -v HEAD | wc -l`
if [ $branch_count -eq 0 ]; then
  branch_count=`git branch -l | wc -l`
fi
```

```
echo "Size: `git count-objects -v | grep size-pack | awk '{print $2}'`
  KiB"
echo "Branches: $branch_count"
echo "Tags: `git show-ref --tags | wc -l`"
echo "Commits: `git rev-list --all | wc -l`"
echo "Objects: $object_count"
echo "Delta objects: $delta_count"
echo "Largest blob: $largest_object"
echo "Largest commit/tag/tree: $largest_commit"
echo "Longest delta chain: $longest_delta_chain"
```

3. If these steps do not provide enough information for you to resolve the issue on your own, ask for help on [the AWS CodeCommit forum](#). Be sure to include relevant output from these steps in your post.

AWS CodeCommit Command Line Reference

This reference will help you learn how to use AWS CLI.

To install and configure the AWS CLI

1. On your local machine, download and install the AWS CLI. This is a prerequisite for interacting with AWS CodeCommit from the command line. For more information, see [Getting Set Up with the AWS Command Line Interface](#).

Note

AWS CodeCommit works only with AWS CLI versions 1.7.38 and later. To determine which version of the AWS CLI you have installed, run the `aws --version` command. To upgrade an older version of the AWS CLI to the latest version, follow the instructions in [Uninstalling the AWS CLI](#), and then follow the instructions in [Installing the AWS Command Line Interface](#).

2. Run this command to verify the AWS CodeCommit commands for the AWS CLI are installed:

```
aws codecommit help
```

This command should return a list of AWS CodeCommit commands.

3. Configure the AWS CLI with the **configure** command, as follows:

```
aws configure
```

When prompted, specify the AWS access key and AWS secret access key of the IAM user you will use with AWS CodeCommit. Also, be sure to specify the region where the repository exists, such as `us-east-2`. When prompted for the default output format, specify `json`. For example:

```
AWS Access Key ID [None]: Type your target AWS access key ID here, and then press Enter
AWS Secret Access Key [None]: Type your target AWS secret access key here, and then press Enter
Default region name [None]: Type a supported region for AWS CodeCommit here, and then press Enter
Default output format [None]: Type json here, and then press Enter
```

To connect to a repository or a resource in another region, you must re-configure the AWS CLI with the default region name for that region. Supported default region names for AWS CodeCommit include:

- us-east-1
- us-east-2
- eu-west-1
- us-west-2

For more information about AWS CodeCommit and regions, see [Regions and Git Connection Endpoints \(p. 157\)](#). For more information about IAM, access keys, and secret keys, see [How Do I Get Credentials?](#) and [Managing Access Keys for IAM Users](#).

To view a list of all available AWS CodeCommit commands, run the following command:

```
aws codecommit help
```

To view information about a specific AWS CodeCommit command, run the following command, where *command-name* is the name of the command (for example, **create-repository**):

```
aws codecommit command-name help
```

To learn how to use the commands in AWS CLI, go to one or more of the following sections:

- [batch-get-repositories \(p. 118\)](#)
- [create-branch \(p. 124\)](#)
- [create-repository \(p. 50\)](#)
- [delete-repository \(p. 135\)](#)
- [get-branch \(p. 120\)](#)
- [get-repository \(p. 117\)](#)
- [get-repository-triggers \(p. 103\)](#)
- [list-branches \(p. 120\)](#)
- [list-repositories \(p. 116\)](#)
- [put-repository-triggers \(p. 103\)](#)
- [test-repository-triggers \(p. 104\)](#)
- [update-default-branch \(p. 129\)](#)
- [update-repository-description \(p. 130\)](#)
- [update-repository-name \(p. 131\)](#)

Basic Git Commands

You can use Git to work with a local repo and the AWS CodeCommit repository to which you've connected the local repo.

The following are some basic examples of frequently used Git commands.

For more options, see your Git documentation.

Topics

- [Configuration Variables \(p. 152\)](#)
- [Remote Repositories \(p. 153\)](#)
- [Commits \(p. 154\)](#)
- [Branches \(p. 154\)](#)
- [Tags \(p. 155\)](#)

Configuration Variables

Lists all configuration variables.	<code>git config --list</code>
Lists only local configuration variables.	<code>git config --local -l</code>
Lists only system configuration variables.	<code>git config --system -l</code>
Lists only global configuration variables.	<code>git config --global -l</code>
Sets a configuration variable in the specified configuration file.	<code>git config [--local --global --system] <i>variable-name</i> <i>variable-value</i></code>
Edits a configuration file directly. Can also be used to discover the location of a specific configuration file. To exit edit mode, typically you type <code>:q</code> (to exit without saving changes) or <code>:wq</code>	<code>git config [--local --global --system] --edit</code>

(to save changes and then exit), and then press Enter.

Remote Repositories

Initializes a local repo in preparation for connecting it to an AWS CodeCommit repository.	<code>git init</code>
Can be used to set up a connection between a local repo and a remote repository (such as an AWS CodeCommit repository) using the specified nickname the local repo has for the AWS CodeCommit repository and the specified URL to the AWS CodeCommit repository.	<code>git remote add <i>remote-name</i> <i>remote-url</i></code>
Creates a local repo by making a copy of an AWS CodeCommit repository at the specified URL, in the specified subfolder of the current folder on the local machine. This command also creates a remote tracking branch for each branch in the cloned AWS CodeCommit repository and creates and checks out an initial branch that is forked from the current default branch in the cloned AWS CodeCommit repository.	<code>git clone <i>remote-url</i> <i>local-subfolder-name</i></code>
Shows the nickname the local repo uses for the AWS CodeCommit repository.	<code>git remote</code>
Shows the nickname and the URL the local repo uses for fetches and pushes to the AWS CodeCommit repository.	<code>git remote -v</code>
Pushes finalized commits from the local repo to the AWS CodeCommit repository, using the specified nickname the local repo has for the AWS CodeCommit repository and the specified branch. Also sets up upstream tracking information for the local repo during the push.	<code>git push -u <i>remote-name</i> <i>branch-name</i></code>
Pushes finalized commits from the local repo to the AWS CodeCommit repository after upstream tracking information is set.	<code>git push</code>
Pulls finalized commits to the local repo from the AWS CodeCommit repository, using the specified nickname the local repo has for the AWS CodeCommit repository and the specified branch	<code>git pull <i>remote-name</i> <i>branch-name</i></code>
Pulls finalized commits to the local repo from the AWS CodeCommit repository after upstream tracking information is set.	<code>git pull</code>
Disconnects the local repo from the AWS CodeCommit repository, using the specified nickname the local repo has for the AWS CodeCommit repository.	<code>git remote rm <i>remote-name</i></code>

Commits

Shows what has or hasn't been added to the pending commit in the local repo.	<code>git status</code>
Shows what has or hasn't been added to the pending commit in the local repo in a concise format. (M = modified, A = added, D = deleted, and so on)	<code>git status -sb</code>
Shows changes between the pending commit and the latest commit in the local repo.	<code>git diff HEAD</code>
Adds specific files to the pending commit in the local repo.	<code>git add [file-name-1 file-name-2 file-name-N file-pattern]</code>
Adds all new, modified, and deleted files to the pending commit in the local repo.	<code>git add</code>
Begins finalizing the pending commit in the local repo, which displays an editor to provide a commit message. After the message is entered, the pending commit is finalized.	<code>git commit</code>
Finalizes the pending commit in the local repo, including specifying a commit message at the same time.	<code>git commit -m "Some meaningful commit comment"</code>
Lists recent commits in the local repo.	<code>git log</code>
Lists recent commits in the local repo in a graph format.	<code>git log --graph</code>
Lists recent commits in the local repo in a predefined condensed format.	<code>git log --pretty=oneline</code>
Lists recent commits in the local repo in a predefined condensed format, with a graph.	<code>git log --graph --pretty=oneline</code>
Lists recent commits in the local repo in a custom format, with a graph. (For more options, see Git Basics - Viewing the Commit History)	<code>git log --graph --pretty=format:"%H (%h) : %cn : %ar : %s"</code>

Branches

Lists all branches in the local repo with an asterisk (*) displayed next to your current branch.	<code>git branch</code>
Pulls information about all existing branches in the AWS CodeCommit repository to the local repo.	<code>git fetch</code>

Lists all branches in the local repo and remote tracking branches in the local repo.	<code>git branch -a</code>
Lists only remote tracking branches in the local repo.	<code>git branch -r</code>
Creates a new branch in the local repo using the specified branch name.	<code>git branch <i>new-branch-name</i></code>
Switches to another branch in the local repo using the specified branch name.	<code>git checkout <i>other-branch-name</i></code>
Creates a new branch in the local repo using the specified branch name, and then switches to it.	<code>git checkout -b <i>new-branch-name</i></code>
Pushes a new branch from the local repo to the AWS CodeCommit repository using the specified nickname the local repo has for the AWS CodeCommit repository and the specified branch name. Also sets up upstream tracking information for the branch in the local repo during the push.	<code>git push -u <i>remote-name new-branch-name</i></code>
Creates a new branch in the local repo using the specified branch name. Then connects the new branch in the local repo to an existing branch in the AWS CodeCommit repository, using the specified nickname the local repo has for the AWS CodeCommit repository and the specified branch name.	<code>git branch --track <i>new-branch-name remote-name/remote-branch-name</i></code>
Merges changes from another branch in the local repo to the current branch in the local repo.	<code>git merge <i>from-other-branch-name</i></code>
Deletes a branch in the local repo unless it contains work that has not been merged.	<code>git branch -d <i>branch-name</i></code>
Deletes a branch in the AWS CodeCommit repository using the specified nickname the local repo has for the AWS CodeCommit repository and the specified branch name. (Note the use of the colon (:).)	<code>git push <i>remote-name :branch-name</i></code>

Tags

Lists all tags in the local repo.	<code>git tag</code>
Pulls all tags from the AWS CodeCommit repository to the local repo.	<code>git fetch --tags</code>
Shows information about a specific tag in the local repo.	<code>git show <i>tag-name</i></code>
Creates a "lightweight" tag in the local repo.	<code>git tag <i>tag-name commit-id-to-point-tag-at</i></code>
Pushes a specific tag from the local repo to the AWS CodeCommit repository using the	<code>git push <i>remote-name tag-name</i></code>

specified nickname the local repo has for the AWS CodeCommit repository and the specified tag name.	
Pushes all tags from the local repo to the AWS CodeCommit repository using the specified nickname the local repo has for the AWS CodeCommit repository.	<code>git push <i>remote-name</i> --tags</code>
Deletes a tag in the local repo.	<code>git tag -d <i>tag-name</i></code>
Deletes a tag in the AWS CodeCommit repository using the specified nickname the local repo has for the AWS CodeCommit repository and the specified tag name. (Note the use of the colon (:).)	<code>git push <i>remote-name</i> :<i>tag-name</i></code>

Regions and Git Connection Endpoints for AWS CodeCommit

To reduce data latency to your repositories, AWS CodeCommit offers regional endpoints to make your requests to the service. In addition, AWS CodeCommit provides Git connection endpoints for both SSH and HTTPS protocol connections in every region where AWS CodeCommit is available. AWS CodeCommit repositories are specific to an AWS region.

The examples in the AWS CodeCommit User Guide all use the same Git base URL: `git-codecommit.us-east-2.amazonaws.com`. However, when using Git and configuring your connections, make sure that you choose the Git connection endpoint that matches the region that hosts your AWS CodeCommit repository. For example, if you want to make a connection to a repository in US East (N. Virginia), you would use the base URL of `git-codecommit.us-east-1.amazonaws.com`. This is also true for API calls. When making connections to an AWS CodeCommit repository with the AWS CLI or the AWS CodeCommit API, make sure that you use the correct regional endpoint for the repository.

Topics

- [Supported Regions for AWS CodeCommit \(p. 157\)](#)
- [Git Connection Endpoints \(p. 158\)](#)

Supported Regions for AWS CodeCommit

You can create and use AWS CodeCommit repositories in the following AWS regions:

- US East (N. Virginia)
- US East (Ohio)
- US West (Oregon)
- EU (Ireland)

For more information about regional endpoints for AWS CLI, service, and API calls to AWS CodeCommit, see [AWS Regions and Endpoints](#).

Git Connection Endpoints

Use the following URLs when configuring your Git connections to AWS CodeCommit repositories:

Region Name	Region	Endpoint	Protocol
US East (N. Virginia)	us-east-1	https://git-codecommit.us-east-1.amazonaws.com	HTTPS
US East (N. Virginia)	us-east-1	ssh://git-codecommit.us-east-1.amazonaws.com	SSH
US East (Ohio)	us-east-2	https://git-codecommit.us-east-2.amazonaws.com	HTTPS
US East (Ohio)	us-east-2	ssh://git-codecommit.us-east-2.amazonaws.com	SSH
US West (Oregon)	us-west-2	https://git-codecommit.us-west-2.amazonaws.com	HTTPS
US West (Oregon)	us-west-2	ssh://git-codecommit.us-west-2.amazonaws.com	SSH
EU (Ireland)	eu-west-1	https://git-codecommit.eu-west-1.amazonaws.com	HTTPS
EU (Ireland)	eu-west-1	ssh://git-codecommit.eu-west-1.amazonaws.com	SSH

AWS CodeCommit User Access Permissions Reference

You can use IAM to allow users to work with only certain AWS CodeCommit resources and perform only certain actions against those resources. For example, you might want to do this if you have a set of users to whom you want to give read-only access to certain information in AWS CodeCommit; you may have another set of users to whom you want to give the ability to only pull from AWS CodeCommit repositories, and so on.

In the [Setting Up](#) (p. 4) instructions, you attached the `AWSCodeCommitFullAccess` managed policy to an IAM user. That policy statement looked similar to this:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "codecommit:*"
      ],
      "Resource" : "*"
    }
  ]
}
```

The statement allows the IAM user to perform all available actions in AWS CodeCommit with all available AWS CodeCommit resources associated with the AWS account. In practice, you might not want to give all IAM users this much access.

Topics

- [Managed Policies for AWS CodeCommit](#) (p. 160)
- [Additional Policies and Permissions for AWS CodeCommit](#) (p. 161)
- [Attach a Policy to an IAM User](#) (p. 162)
- [Create a Policy That Enables Cross-Account Access to an Amazon SNS Topic](#) (p. 163)

- [Create a Policy for AWS Lambda Integration \(p. 164\)](#)
- [Action and Resource Syntax \(p. 164\)](#)

Managed Policies for AWS CodeCommit

IAM includes three different managed policies to help you manage access to AWS CodeCommit repositories:

- `AWSCodeCommitFullAccess`
- `AWSCodeCommitPowerUser`
- `AWSCodeCommitReadOnly`

You can apply the managed policies to IAM users or groups. You can also use these policies as templates for your own policies to restrict permissions to a single repository, instead of all repositories in AWS CodeCommit, which is the default setting.

- For an example of creating a customer managed policy for a specific AWS CodeCommit repository, see [Create IAM Policies for Your Repository \(p. 53\)](#).
- For information about assuming roles, see [Assuming a Role](#).
- For information about providing temporary access to AWS CodeCommit repositories, see [Temporary Access \(p. 170\)](#).

The `AWSCodeCommitFullAccess` managed policy allows a user to perform all actions in AWS CodeCommit with no restrictions. It contains the following policy statement:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "codecommit:*"
      ],
      "Resource": "*"
    }
  ]
}
```

The `AWSCodeCommitPowerUser` managed policy allows users access to most of the functionality of AWS CodeCommit, but does not allow users to delete AWS CodeCommit repositories. It contains the following policy statement:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "codecommit:BatchGetRepositories",
        "codecommit:Get*",
        "codecommit:List*",
        "codecommit:CreateRepository",

```

```
"codecommit:CreateBranch",
"codecommit:Put*",
"codecommit:Test*",
"codecommit:Update*",
"codecommit:GitPull",
"codecommit:GitPush"
],
"Resource": "*"
}
]
```

You might want to modify this policy to apply to a specific AWS CodeCommit repository, instead of all resources (*). You can then attach a modified version of this policy to IAM users or groups for more precise control of your AWS CodeCommit resources. For examples, see [Action and Resource Syntax \(p. 164\)](#) later in this topic.

The `AWSCodeCommitReadOnly` managed policy allows users to list all available repositories and pull content from, but not push changes to, the AWS CodeCommit repositories. It contains the following policy statement:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "codecommit:BatchGetRepositories",
        "codecommit:Get*",
        "codecommit:List*",
        "codecommit:GitPull"
      ],
      "Resource": "*"
    }
  ]
}
```

Additional Policies and Permissions for AWS CodeCommit

In addition to permissions granted to the user by managed policies or inline policies, AWS CodeCommit requires permissions for AWS KMS actions the first time a repository is created. An IAM user does not need explicit `Allow` permissions for these actions, but when creating the first repository, the user must not have any policies attached that set the following permissions to `Deny`:

```
"kms:Encrypt",
"kms:Decrypt",
"kms:ReEncrypt",
"kms:GenerateDataKey",
"kms:GenerateDataKeyWithoutPlaintext",
"kms:DescribeKey"
```

For more information about encryption and AWS CodeCommit, see [Encryption \(p. 173\)](#).

In addition to permissions granted by managed policies for AWS CodeCommit, the following managed policies or the equivalent permissions are needed for IAM users who will use SSH public/private key pairs to access AWS CodeCommit repositories:

- **IAMUserSSHKeys**: This managed policy or its equivalent permissions allows an IAM user to upload and manage SSH public keys associated with the IAM user. This policy is also required for users to manage their SSH keys in IAM using the AWS CLI and the **aws iam upload-ssh-public-key** command.
- **IAMReadOnlyAccess**: This managed policy or its equivalent permissions enables an IAM user to view the IAM console, which is required for uploading and managing SSH keys for the IAM user. Without this policy, the user must use the AWS CLI and the **aws iam upload-ssh-public-key** command instead of the console. For more information, see [the AWS CLI reference](#).

Attach a Policy to an IAM User

To attach a policy that restricts an IAM user to certain actions and resources in AWS CodeCommit, do the following:

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the IAM console, in the navigation pane, choose **Policies**, and then choose **Create Policy**. (If a **Get Started** button appears, choose it, and then choose **Create Policy**.)
3. Next to **Create Your Own Policy**, choose **Select**.
4. In the **Policy Name** box, type any value that will be easy to refer to later, if necessary.
5. In the **Policy Document** box, type a policy that follows this format, and then choose **Create Policy**:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "action-statement"
      ],
      "Resource" : [
        "resource-statement"
      ]
    },
    {
      "Effect" : "Allow",
      "Action" : [
        "action-statement"
      ],
      "Resource" : [
        "resource-statement"
      ]
    }
  ]
}
```

In the preceding statement, for *action-statement* and *resource-statement*, specify the AWS CodeCommit actions and resources the IAM user is allowed to perform or access. (By default, the IAM user will not have permissions unless a corresponding `Allow` statement is explicitly stated.) You can add additional statements, as needed. The following sections describe

the format of allowed actions and resources for AWS CodeCommit. Syntax examples are provided in these sections.

6. In the navigation pane, choose **Users**.
7. Choose the name of the IAM user to whom you want to attach the policy.
8. Choose the **Permissions** tab.
9. In **Managed Policies**, choose **Attach Policy**.
10. Select the policy that you just created, and then choose **Attach Policy**.

Create a Policy That Enables Cross-Account Access to an Amazon SNS Topic

You can configure an AWS CodeCommit repository so that code pushes or other events trigger actions, such as sending a notification from Amazon Simple Notification Service (Amazon SNS). You do not need to configure additional IAM policies or permissions if you create the Amazon SNS topic with the same account used to create the AWS CodeCommit repository. You can create the topic, and then create the trigger for the repository. For more information, see [Create a Trigger for an Amazon SNS Topic \(p. 87\)](#).

However, if you want to configure your trigger to use an Amazon SNS topic in another AWS account, you must first configure that topic with a policy that allows AWS CodeCommit to publish to that topic. From that other account, open the Amazon SNS console, choose the topic from the list, and in **Other topic actions**, choose **Edit topic policy**. From the **Advanced** tab, modify the policy for the topic to allow AWS CodeCommit to publish to that topic. For example, if the policy is the default policy, you would modify the policy as follows, changing the items in *red italic text* to match the values for your repository, Amazon SNS topic, and account:

```
{
  "Version": "2008-10-17",
  "Id": "__default_policy_ID",
  "Statement": [
    {
      "Sid": "__default_statement_ID",
      "Effect": "Allow",
      "Principal": {
        "AWS": "*"
      },
      "Action": [
        "SNS:Subscribe",
        "SNS:ListSubscriptionsByTopic",
        "SNS:DeleteTopic",
        "SNS:GetTopicAttributes",
        "SNS:Publish",
        "SNS:RemovePermission",
        "SNS:AddPermission",
        "SNS:Receive",
        "SNS:SetTopicAttributes"
      ],
      "Resource": "arn:aws:sns:us-east-2:111111111111:NotMySNSTopic",
      "Condition": {
        "StringEquals": {
          "AWS:SourceOwner": "111111111111"
        }
      }
    }
  ]
}
```

```
    },  
    {  
      "Sid": "CodeCommit-Policy_ID",  
      "Effect": "Allow",  
      "Principal": {  
        "Service": "codecommit.amazonaws.com"  
      },  
      "Action": "SNS:Publish",  
      "Resource": "arn:aws:sns:us-east-2:111111111111:NotMySNSTopic",  
      "Condition": {  
        "StringEquals": {  
          "AWS:SourceArn": "arn:aws:codecommit:us-  
east-2:80398EXAMPLE:MyDemoRepo",  
          "AWS:SourceAccount": "80398EXAMPLE"  
        }  
      }  
    }  
  ]  
}
```

Create a Policy for AWS Lambda Integration

You can configure an AWS CodeCommit repository so that code pushes or other events trigger actions, such as invoking a function in AWS Lambda. For more information, see [Create a Trigger for a Lambda Function \(p. 93\)](#).

If you want your trigger to run a Lambda function directly (instead of using an Amazon SNS topic to invoke the Lambda function), and you do not configure the trigger in the Lambda console, you must include a policy similar to the following in the function's resource policy:

```
{  
  "Statement": {  
    "StatementId": "Id-1",  
    "Action": "lambda:InvokeFunction",  
    "Principal": "codecommit.amazonaws.com",  
    "SourceArn": "arn:aws:codecommit:us-east-2:80398EXAMPLE:MyDemoRepo",  
    "SourceAccount": "80398EXAMPLE"  
  }  
}
```

When manually configuring an AWS CodeCommit trigger that invokes a Lambda function, you must also use the Lambda [AddPermission](#) command to grant permission for AWS CodeCommit to invoke the function. For an example, see the [To allow AWS CodeCommit to run a Lambda function \(p. 97\)](#) section of [Create a Trigger for an Existing Lambda Function \(p. 97\)](#).

For more information about resource policies for Lambda functions, see [AddPermission](#) and [The Pull/Push Event Models](#) in the Lambda User Guide.

Action and Resource Syntax

The following sections describe the format for specifying actions and resources.

Actions follow this general format:

```
codecommit:action
```

Where *action* is an available AWS CodeCommit operation, such as `ListRepositories` or `CreateBranch`. To allow an action, use the "Effect" : "Allow" clause. To explicitly deny an action, use the "Effect" : "Deny" clause. By default, all actions are denied, unless specified otherwise in any other attached policy.

Currently, only AWS CodeCommit repositories are allowed as resources. Specified resources are allowed (or denied) for the specified action.

Resources follow this general format:

```
arn:aws:codecommit:region:account:resource-specifier
```

Where *region* is a target region (such as `us-east-2`), *account* is the AWS account ID, and *resource-specifier* is the repository name. Wildcard (*) characters can be used to specify a partial repository name.

For example, the following specifies the AWS CodeCommit repository named `MyDemoRepo` registered to the AWS account `111111111111` in the region `us-east-2`:

```
arn:aws:codecommit:us-east-2:111111111111:MyDemoRepo
```

The following specifies any AWS CodeCommit repository that begins with the name `MyDemo` registered to the AWS account `111111111111` in the region `us-east-2`:

```
arn:aws:codecommit:us-east-2:111111111111:MyDemo*
```

Topics

- [Branches \(p. 165\)](#)
- [Git Pull and Push \(p. 166\)](#)
- [Information About Committed Code \(p. 166\)](#)
- [Repositories \(p. 167\)](#)
- [Triggers \(p. 168\)](#)
- [AWS CodePipeline Integration \(p. 169\)](#)

Branches

Allowed actions include:

- **CreateBranch** to create a branch in an AWS CodeCommit repository.
- **GetBranch** to get details about a branch in an AWS CodeCommit repository.
- **ListBranches** to get a list of branches in an AWS CodeCommit repository.
- **UpdateDefaultBranch** to change the default branch in an AWS CodeCommit repository.

The following example allows the specified user to get details about branches in the AWS CodeCommit repository named `MyDemoRepo`:

```
{
  "Version": "2012-10-17",
  "Statement" : [
```

```
{
  {
    "Effect" : "Allow",
    "Action" : [
      "codecommit:GetBranch"
    ],
    "Resource" : "arn:aws:codecommit:us-east-2:111111111111:MyDemoRepo"
  }
}
```

Git Pull and Push

In AWS CodeCommit, `GitPull` affects any Git client command where data is retrieved from the server, including `git fetch`, `git clone`, and so on. Similarly, `GitPush` affects any Git client command where data is sent to the server. Allowed actions include:

- `GitPull` to pull information from an AWS CodeCommit repository to a local repo.
- `GitPush` to push information from a local repo to an AWS CodeCommit repository.

The following example allows the specified user to pull from, and push to, the AWS CodeCommit repository named `MyDemoRepo`:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "codecommit:GitPull",
        "codecommit:GitPush"
      ],
      "Resource" : "arn:aws:codecommit:us-east-2:111111111111:MyDemoRepo"
    }
  ]
}
```

Information About Committed Code

Allowed actions include:

- `GetBlob` to view the encoded content of an individual file in an AWS CodeCommit repository from the AWS CodeCommit console.
- `GetCommit` to return information about a commit.
- `GetCommitHistory` to return information about the history of commits in a repository.
- `GetObjectIdentifier` to resolve blobs, trees, and commits to their identifier.
- `GetReferences` to return all references, such as branches and tags.
- `GetTree` to view the contents of a specified tree in an AWS CodeCommit repository from the AWS CodeCommit console.

Note

Setting `GetTree` to `Deny` will prevent users from navigating the contents of a repository in the console, but will not block users from viewing the contents of a file in the repository (for example, if they are sent a link to the file in email). Setting `GetBlob` to `Deny` will prevent

users from viewing the contents of files, but will not block users from browsing the structure of a repository. Setting `GetCommit` to `Deny` will prevent users from retrieving details about commits. Setting `GetObjectIdentifier` to `Deny` will block most of the functionality of code browsing.

If you set all three of these actions to `Deny` in a policy, a user with that policy will not be able to browse code in the AWS CodeCommit console.

The following example allows the specified user to use the AWS CodeCommit console to view the contents of files in the AWS CodeCommit repository named `MyDemoRepo`, but will not allow that user to browse the contents of the repository or navigate its structure:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "codecommit:GetBlob",
        "codecommit:GetObjectIdentifier"
      ],
      "Resource" : "arn:aws:codecommit:us-east-2:111111111111:MyDemoRepo"
    }
  ]
}
```

Repositories

Allowed actions include:

- **BatchGetRepositories** to get information about multiple repositories in AWS CodeCommit in an AWS account. In `Resource`, you must specify the names of all of the AWS CodeCommit repositories for which a user is allowed (or denied) information.
- **CreateRepository** to create an AWS CodeCommit repository.
- **DeleteRepository** to delete an AWS CodeCommit repository.
- **GetRepository** to get information about a single AWS CodeCommit repository.
- **ListRepositories** to get a list of the names and system IDs of multiple AWS CodeCommit repositories for an AWS account. The only allowed value for `Resource` for this action is all repositories (*).
- **UpdateRepositoryDescription** to change the description of an AWS CodeCommit repository.
- **UpdateRepositoryName** to change the name of an AWS CodeCommit repository. In `Resource`, you must specify both the AWS CodeCommit repositories that are allowed to be changed and the new repository names.

The following example allows the specified user to get information about the AWS CodeCommit repository named `MyDestinationRepo` and all AWS CodeCommit repositories that start with the name `MyDemo`:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "codecommit:BatchGetRepositories"
      ],

```

```
    "Resource" : [
      "arn:aws:codecommit:us-east-2:111111111111:MyDestinationRepo",
      "arn:aws:codecommit:us-east-2:111111111111:MyDemo*"
    ]
  }
]
```

The following example allows the specified user to get a list of the names and repository IDs of all AWS CodeCommit repositories to which the user has access:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "codecommit:ListRepositories"
      ],
      "Resource" : "*"
    }
  ]
}
```

The following example allows the specified user to change the name of an AWS CodeCommit repository from `MyDemoRepo` to `MyRenamedDemoRepo` or from `MyRenamedDemoRepo` to `MyDemoRepo`:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "codecommit:UpdateRepositoryName"
      ],
      "Resource" : [
        "arn:aws:codecommit:us-east-2:111111111111:MyDemoRepo",
        "arn:aws:codecommit:us-east-2:111111111111:MyRenamedDemoRepo"
      ]
    }
  ]
}
```

Triggers

Allowed actions include:

- **GetRepositoryTriggers** to return information about triggers configured for a repository.
- **PutRepositoryTriggers** to create, edit, or delete triggers for a repository.
- **TestRepositoryTriggers** to test the functionality of a repository trigger by sending data to the topic or function configured for the trigger.

The following example allows the specified user to use the AWS CodeCommit console to view information about triggers configured in the AWS CodeCommit repository named `MyDemoRepo`, but would not allow that user to create, edit, delete, or test them:

```
{
  "Version": "2012-10-17",
  "Statement" : [
    {
      "Effect" : "Allow",
      "Action" : [
        "codecommit:GetRepositoryTriggers",
      ],
      "Resource" : "arn:aws:codecommit:us-east-2:111111111111:MyDemoRepo"
    }
  ]
}
```

AWS CodePipeline Integration

Some permissions are required in order for AWS CodePipeline to use an AWS CodeCommit repository in a source action for a pipeline. All of these permissions must be granted to the service role for AWS CodePipeline for integration to work as expected. If these permissions are not set in the service role or are set to **Deny**, the pipeline will not run automatically when a change is made to the repository, and changes cannot be released manually. Allowed actions include:

- **GetBranch** to get details about a branch in an AWS CodeCommit repository.
- **GetCommit** to return information about a commit to the service role for AWS CodePipeline.
- **UploadArchive** to allow the service role for AWS CodePipeline to upload repository changes into a pipeline.
- **GetUploadArchiveStatus** to determine the status of the upload of the archive: whether it is in progress, complete, cancelled, or if an error occurred.
- **CancelUploadArchive** to cancel the upload of an archive to a pipeline.

The following example shows the portion of a policy for the AWS CodePipeline service role that must be included or added in order for AWS CodePipeline to be able to use an AWS CodeCommit repository in a source action for a pipeline:

```
{
  "Action": [
    "codecommit:CancelUploadArchive",
    "codecommit:GetBranch",
    "codecommit:GetCommit",
    "codecommit:GetUploadArchiveStatus",
    "codecommit:UploadArchive"
  ],
  "Resource": "*",
  "Effect": "Allow"
}
```


Temporary Access to AWS CodeCommit Repositories

You can allow users temporary access your AWS CodeCommit repositories. Typically, you do this to allow IAM users to access AWS CodeCommit repositories in separate AWS accounts (a technique known as *cross-account access*). You can also do this for users who want to (or must) authenticate through methods such as:

- Security Assertion Markup Language (SAML)
- Multi-factor authentication (MFA)
- Federation
- Login with Amazon
- Amazon Cognito
- Facebook
- Google
- OpenID Connect (OIDC)-compatible identity provider

Note

The following information applies only to the use of HTTPS to connect to AWS CodeCommit repositories. You cannot use SSH to connect to AWS CodeCommit repositories with temporary access credentials.

Tip

You don't need to complete the following instructions if all of the following requirements are true:

- You are signed in to an Amazon EC2 instance.
- You are using Git and HTTPS to connect from the Amazon EC2 instance to AWS CodeCommit repositories.
- The Amazon EC2 instance has an attached IAM instance profile that contains the access permissions described in [Setting Up](#).
- You have correctly installed and configured the Git credential helper on the Amazon EC2 instance as described in [Setting Up](#).

Amazon EC2 instances that meet the preceding requirements are already set up to communicate temporary access credentials to AWS CodeCommit on your behalf.

To give users temporarily access to your AWS CodeCommit repositories, complete the following steps.

Step 1: Complete the Prerequisites

Complete the appropriate setup steps to provide a user with temporary access to your AWS CodeCommit repositories:

- For cross-account access, see [Walkthrough: Delegating Access Across AWS Accounts Using IAM Roles](#).
- For SAML and federation, see [Using Your Organization's Authentication System to Grant Access to AWS Resources](#) and [About AWS STS SAML 2.0-based Federation](#).
- For MFA, see [Using Multi-Factor Authentication \(MFA\) Devices with AWS](#) and [Creating Temporary Security Credentials to Enable Access for IAM Users](#).
- For Login with Amazon, Amazon Cognito, Facebook, Google, or any OIDC-compatible identity provider, see [About AWS STS Web Identity Federation](#).

Regardless of the setup steps you follow, use the information in [Access Permissions Reference \(p. 159\)](#) to specify the AWS CodeCommit permissions you want to temporarily grant the user.

Step 2: Get Temporary Access Credentials

Depending on the way you set up temporary access, instruct the user to get temporary access credentials through one of the following approaches:

- For cross-account access, call the AWS CLI [assume-role](#) command or call the AWS STS [AssumeRole](#) API.
- For SAML, call the AWS CLI [assume-role-with-saml](#) command or the AWS STS [AssumeRoleWithSAML](#) API.
- For federation, call the AWS CLI [assume-role](#) or [get-federation-token](#) commands or the AWS STS [AssumeRole](#) or [GetFederationToken](#) APIs.
- For MFA, call the AWS CLI [get-session-token](#) command or the AWS STS [GetSessionToken](#) API.
- For Login with Amazon, Amazon Cognito, Facebook, Google, or any OIDC-compatible identity provider, call the AWS CLI [assume-role-with-web-identity](#) command or the AWS STS [AssumeRoleWithWebIdentity](#) API.

Regardless of the AWS CLI command or API the user calls, the user should receive back a set of temporary access credentials, which include an AWS access key ID, a secret access key, and a session token. The user must note these three values because they will be used in the next step.

Step 3: Configure the AWS CLI with Your Temporary Access Credentials

The user must configure his or her development machine to use those credentials to access the AWS CodeCommit repositories:

1. Follow the instructions in [Setting Up \(p. 4\)](#) to set up the AWS CLI. Use the **aws configure** command to configure a profile.

Note

Before you continue, make sure the git config file is configured to use the AWS profile you configured in the AWS CLI.

2. Use one of the following approaches to associate the temporary access credentials with the user's AWS CLI named profile. Do not use the **aws configure** command.

- In the `~/.aws/credentials` file (for Linux) or the `%UserProfile%.aws\credentials` file (for Windows), add to the user's AWS CLI named profile the `aws_access_key_id`, `aws_secret_access_key`, and `aws_session_token` setting values, for example:

```
[CodeCommitProfileName]
aws_access_key_id=TheAccessKeyID
aws_secret_access_key=TheSecretAccessKey
aws_session_token=TheSessionToken
```

Or:

- Set the **AWS_ACCESS_KEY_ID**, **AWS_SECRET_ACCESS_KEY**, and **AWS_SESSION_TOKEN** environment variables, for example:

For Linux, OS X, or Unix:

```
export AWS_ACCESS_KEY_ID=TheAccessKey
export AWS_SECRET_ACCESS_KEY=TheSecretAccessKey
export AWS_SESSION_TOKEN=TheSessionToken
```

For Windows:

```
set AWS_ACCESS_KEY_ID=TheAccessKey
set AWS_SECRET_ACCESS_KEY=TheSecretAccessKey
set AWS_SESSION_TOKEN=TheSessionToken
```

For more information about either approach, see [Configuring the AWS Command Line Interface](#) in the *AWS Command Line Interface User Guide*.

3. Set up the Git credential helper for [Linux, OS X, or Unix \(p. 7\)](#) or for [Windows \(p. 11\)](#) with the user's AWS CLI named profile that is associated with the temporary access credentials. As you follow these directions, do not call the **aws configure** command. You already specified temporary access credentials through the credentials file or the environment variables. Also, if you use environment variables instead of the credentials file to store temporary access credentials, in the Git credential helper, specify `default` as the profile name.

Step 4: Access the AWS CodeCommit Repositories

Assuming the user has followed the instructions in [Connect to a Repository \(p. 80\)](#) to connect to the AWS CodeCommit repositories, the user then uses Git to call **git clone**, **git push**, and **git pull** to clone, push to, and pull from, the AWS CodeCommit repositories to which he or she has temporary access.

When the user uses AWS CLI and specifies the AWS CLI named profile associated with the temporary access credentials, then results scoped to that AWS CLI named profile will be returned.

If the user receives the 403: `Forbidden` error in response to calling a Git command or a command in AWS CLI, it's likely the temporary access credentials have expired. The user must go back to [Step 2 \(p. 171\)](#) and get a new set of temporary access credentials.

Encryption for AWS CodeCommit Repositories

Data in AWS CodeCommit repositories is encrypted in transit and at rest. When data is pushed into an AWS CodeCommit repository (for example, by calling **git push**), AWS CodeCommit encrypts the received data as it is stored in the repository. When data is pulled from an AWS CodeCommit repository (for example, by calling **git pull**), AWS CodeCommit decrypts the data and then sends it to the caller. This assumes the IAM user associated with the push or pull request has been authenticated by AWS. Data sent or received is transmitted using the HTTPS or SSH encrypted network protocols.

The first time you create an AWS CodeCommit repository in a new region in your AWS account, AWS CodeCommit creates an AWS-managed key in that same region in AWS Key Management Service (AWS KMS) that is used only by AWS CodeCommit (the `aws/codecommit` key). This key is created and stored in your AWS account. AWS CodeCommit uses this AWS-managed key to encrypt and decrypt the data in this and all other AWS CodeCommit repositories within that region in your AWS account.

Important

AWS CodeCommit performs the following AWS KMS actions against the default key `aws/codecommit`. An IAM user does not need explicit permissions for these actions, but the user must not have any attached policies that deny these actions for the `aws/codecommit` key. Specifically, your AWS account must not have any of the following permissions set to deny when creating your first repository:

- `"kms:Encrypt"`
- `"kms:Decrypt"`
- `"kms:ReEncrypt"`
- `"kms:GenerateDataKey"`
- `"kms:GenerateDataKeyWithoutPlaintext"`
- `"kms:DescribeKey"`

To see information about the AWS-managed key generated by AWS CodeCommit, do the following:

1. Sign in to the Identity and Access Management (IAM) console at <https://console.aws.amazon.com/iam/>.
2. In the service navigation pane, choose **Encryption Keys**. (If a welcome page appears, choose **Get Started Now**.)

3. In **Filter**, choose the region for your repository. For example, if the repository was created in us-east-2, make sure the filter is set to US East (Ohio).
4. In the list of encryption keys, choose the AWS-managed key with the alias **aws/codecommit**. Basic information about the AWS-managed key will be displayed.

You cannot change or delete this AWS-managed key. You cannot use a customer-managed key in AWS KMS to encrypt or decrypt data in AWS CodeCommit repositories.

Encryption Context

Each service integrated with AWS KMS specifies an encryption context for both the encryption and decryption operations. The encryption context is additional authenticated information AWS KMS uses to check for data integrity. When specified for the encryption operation, it must also be specified in the decryption operation or decryption will fail. AWS CodeCommit uses the AWS CodeCommit repository ID for the encryption context. You can find the repository ID by using the **get-repository** command or by viewing repository details in the AWS CodeCommit console. Search for the AWS CodeCommit repository ID in AWS CloudTrail logs to understand which encryption operations were taken on which key in AWS KMS to encrypt or decrypt data in the AWS CodeCommit repository.

For more information about AWS KMS, see the [AWS Key Management Service Developer Guide](#).

Limits in AWS CodeCommit

The following table describes limits in AWS CodeCommit. For information about limits that can be changed, see [AWS Service Limits](#).

Number of repositories	No more than 1,000 per AWS account.
Regions	<p>AWS CodeCommit is available in the following regions:</p> <ul style="list-style-type: none"> • US East (N. Virginia) • US East (Ohio) • US West (Oregon) • EU (Ireland) <p>For more information, see Regions and Git Connection Endpoints (p. 157).</p>
Number of references in a single push	Maximum of 4,000, including create, delete, and update. There is no limit on the overall number of references in the repository.
Number of triggers in a repository	No more than 10.
Repository names	Any combination of letters, numbers, periods, underscores, and dashes between 1 and 100 characters in length. Repository names cannot end in .git and cannot contain any of the following characters: ! ? @ # \$ % ^ & * () + = { } [] \ / > < ~ ` " ; :
Trigger names	Any combination of letters, numbers, periods, underscores, and dashes between 1 and 100 characters in length. Trigger names cannot contain spaces or commas.
Repository descriptions	Any combination of characters between 0 and 1,000 characters in length. Repository descriptions are optional.

Metadata for a commit	<p>No more than 6 MB for the combined metadata for a commit (for example, the combination of author information, date, parent commit list, and commit messages).</p> <p>Note There is no limit on the number of files or the total size of all files in a single commit, as long as the metadata does not exceed 6 MB and a single blob does not exceed 2 GB.</p>
Git blob size	<p>No more than 2 GB.</p> <p>Note There is no limit on the number of files or the total size of all files in a single commit, as long as the metadata does not exceed 6 MB and a single blob does not exceed 2 GB.</p>
Custom data for triggers	<p>This is a string field limited to 1,000 characters. It cannot be used to pass any dynamic parameters.</p>
Graph display of branches in the Commit Visualizer	<p>35 per page. If there are more than 35 branches on a single page, the graph will not display.</p>

AWS CodeCommit User Guide

Document History

The following table describes the important changes to the documentation since the last release of the *AWS CodeCommit User Guide*.

- **API version:** 2015-04-13
- **Latest documentation update:** November 16, 2016

Change	Description	Date Changed
Updated topic	AWS CodeCommit is now available in another region, EU (Ireland). The Regions and Git Connection Endpoints (p. 157) topic has been updated to provide information about Git connection endpoints and supported regions for AWS CodeCommit.	November 16, 2016
Updated topic	AWS CodeCommit is now available in another region, US West (Oregon). The Regions and Git Connection Endpoints (p. 157) topic has been updated to provide information about Git connection endpoints and supported regions for AWS CodeCommit.	November 14, 2016
New topic	The Create a Trigger for a Lambda Function (p. 93) topic has been updated to reflect the ability to create AWS CodeCommit triggers as part of creating the Lambda function. This simplified process streamlines trigger creation and automatically configures the trigger with the permissions required for AWS CodeCommit to invoke the Lambda function. The Create a Trigger for an Existing Lambda Function (p. 97) topic has been added to include information about creating triggers for existing Lambda functions in the AWS CodeCommit console.	October 19, 2016
New topic	AWS CodeCommit is now available in another region, US East (Ohio). The Regions and Git Connection Endpoints (p. 157) topic has been added to provide	October 17, 2016

Change	Description	Date Changed
	information about Git connection endpoints and supported regions for AWS CodeCommit.	
Topic update	The Product and Service Integrations (p. 45) topic has been updated to include information about integration with AWS Elastic Beanstalk.	October 13, 2016
Topic update	The Product and Service Integrations (p. 45) topic has been updated to include information about integration with AWS CloudFormation.	October 6, 2016
Topic update	The For SSH Connections on Windows (p. 21) topic has been revised to provide guidance for using a Bash emulator for SSH connections on Windows instead of the PuTTY suite of tools.	September 29, 2016
Topic update	The View Commit Details (p. 108) and AWS CodeCommit Tutorial (p. 27) topics have been updated to include information about the Commit Visualizer in the AWS CodeCommit console. The Limits (p. 175) topic has been updated with the increase to the number of references allowed in a single push.	September 14, 2016
Topic update	The View Commit Details (p. 108) and AWS CodeCommit Tutorial (p. 27) topics have been updated to include information about viewing the history of commits in the AWS CodeCommit console.	July 28, 2016
New topics	The Migrate a Git Repository to AWS CodeCommit (p. 56) and Migrate Local or Unversioned Content to AWS CodeCommit (p. 64) topics have been added.	June 29, 2016
Topic update	Minor updates have been made to the Troubleshooting (p. 139) and For HTTPS Connections on Windows (p. 11) topics.	June 22, 2016
Topic update	The Product and Service Integrations (p. 45) and Access Permissions Reference (p. 159) topics have been updated to include information about integration with AWS CodePipeline.	April 18, 2016
New topics	The Manage Triggers for a Repository (p. 86) section has been added. New topics include examples, including policy and code samples, of how to create, edit, and delete triggers.	March 7, 2016
New topic	The Product and Service Integrations (p. 45) topic has been added. Minor updates have been made to Troubleshooting (p. 139) .	March 7, 2016
Topic update	In addition to the MD5 server fingerprint, the SHA256 server fingerprint for AWS CodeCommit has been added to For SSH Connections on Linux, OS X, or Unix (p. 16) and For SSH Connections on Windows (p. 21) .	December 9, 2015

Change	Description	Date Changed
New topic	The Browse the Contents of a Repository (p. 84) topic has been added. New issues have been added to Troubleshooting (p. 139) . Minor improvements and fixes have been made throughout the user guide.	October 5, 2015
New topic	The For SSH Users Not Using the AWS CLI (p. 5) topic has been added. The topics in the Setting Up (p. 4) section have been streamlined. Guidance to help users determine which steps to follow for their operating systems and preferred protocols has been provided.	August 5, 2015
Topic update	Clarification and examples have been added to the SSH key ID steps in SSH and Linux, OS X, or Unix: Set Up the Public and Private Keys for Git and AWS CodeCommit (p. 17) and SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit (p. 22) .	July 24, 2015
Topic update	Steps in SSH and Windows: Set Up the Public and Private Keys for Git and AWS CodeCommit (p. 22) have been updated to address an issue with IAM and saving the public key file.	July 22, 2015
Topic update	Troubleshooting (p. 139) has been updated with navigation aids. More troubleshooting information for credential keychain issues has been added.	July 20, 2015
Topic update	More information about AWS Key Management Service permissions has been added to Encryption (p. 173) and Access Permissions Reference (p. 159) .	July 17, 2015
Topic update	Another section has been added to Troubleshooting (p. 139) with information about troubleshooting issues with AWS Key Management Service.	July 10, 2015
Initial release	This is the initial release of the <i>AWS CodeCommit User Guide</i> .	July 9, 2015

AWS Glossary

For the latest AWS terminology, see the [AWS Glossary](#) in the *AWS General Reference*.