
Amazon Corretto

Corretto 16 User Guide



Amazon Corretto: Corretto 16 User Guide

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What is Amazon Corretto 16?

Amazon Corretto is a no-cost, multiplatform, production-ready distribution of the Open Java Development Kit (OpenJDK). Corretto is certified as compatible with the Java SE standard and is used internally at Amazon for many production services.

With Corretto, you can develop and run Java applications on operating systems such as Amazon Linux 2, Windows, and macOS.

This guide includes a list of patches applied to the OpenJDK for this release of Amazon Corretto 16, and installation instructions for the platforms supported by this version.

Related information

In addition to this guide, see the following resources for developers:

- [Amazon Corretto 16 overview](#)
- GitHub:
 - [JDK Source](#)

Contributing to the SDK

Developers can contribute feedback in the following ways:

- Submit issues on GitHub:
 - [Report a bug or request a feature](#)
- Submit pull requests in the documentation or JDK source GitHub repositories to contribute to the JDK development

List of Patches for Amazon Corretto 16

This section lists all the patches applied to OpenJDK for Amazon Corretto 16. We also provide links to the issues in the OpenJDK project.

Updates to vendor-related metadata.

Identifies Amazon as the vendor of this OpenJDK distribution and adds hyperlinks for reporting issues.

Amazon Corretto 16 Guide for Linux

The topics in this section describe installation instructions for Amazon Corretto 16 on Linux platforms.

Topics

- [Amazon Corretto 16 Installation Instructions for Debian-Based, RPM-Based and Alpine Linux Distributions \(p. 3\)](#)

Amazon Corretto 16 Installation Instructions for Debian-Based, RPM-Based and Alpine Linux Distributions

This topic describes how to install Amazon Corretto 16 on Debian-based, RPM-based and Alpine Linux distributions.

Install Amazon Corretto 16 on Debian-Based Linux

This section describes how to install and uninstall Amazon Corretto 16 on a host or container running a Debian-based operating system.

Using apt

To use the Corretto Apt repositories on Debian-based systems, such as Ubuntu, import the Corretto public key and then add the repository to the system list by using the following commands:

Example

```
wget -O- https://apt.corretto.aws/corretto.key | sudo apt-key add -  
sudo add-apt-repository 'deb https://apt.corretto.aws stable main'
```

After the repo has been added, you can install Corretto 16 by running this command:

Example

```
sudo apt-get update; sudo apt-get install -y java-16-amazon-corretto-jdk
```

Download and Install the Debian Package Manually

1. Before you install the JDK, install the `java-common` package.

Example

```
sudo apt-get update && sudo apt-get install java-common
```

2. Download the Linux `.deb` file from the [Downloads \(p. 13\)](#) page.
3. Install the `.deb` file by using `sudo dpkg --install`.

Example

```
sudo dpkg --install java-16-amazon-corretto-jdk_16.0.0.36-1_amd64.deb
```

Verify Your Installation

In the terminal, run the following command to verify the installation.

Example

```
java -version
```

Expected output for 16.0.0:

```
openjdk version "16.0.0" 2021-03-16
OpenJDK Runtime Environment Corretto-16.0.0.36.1 (build 16+36)
OpenJDK 64-Bit Server VM Corretto-16.0.0.36.1 (build 16+36, mixed mode, sharing)
```

If you see a version string that doesn't mention Corretto, run the following command to change the default java or javac providers.

Example

```
sudo update-alternatives --config java
```

If you're using the JDK, you should also run the following.

```
sudo update-alternatives --config javac
```

Uninstall Amazon Corretto 16

You can uninstall Amazon Corretto 16 by using the following command.

Example

```
sudo dpkg --remove java-16-amazon-corretto-jdk
```

Install Amazon Corretto 16 on RPM-Based Linux

Using yum

To use Corretto RPM repositories with the yum package manager (such as Amazon Linux AMI), import the Corretto public key and then add the repository to the system list. For most systems, you must run the following commands:

Example

```
sudo rpm --import https://yum.corretto.aws/corretto.key
sudo curl -L -o /etc/yum.repos.d/corretto.repo https://yum.corretto.aws/corretto.repo
```

After the repository is added, you can install Corretto 16 by running this command:

Example

```
sudo yum install -y java-16-amazon-corretto-devel
```

Using zypper

To use Corretto RPM repositories with the zypper package manager (such as openSUSE), import the Corretto public key and then add the repository to the system list by running the following commands:

Example

```
sudo zypper addrepo https://yum.corretto.aws/corretto.repo; sudo zypper refresh
```

After the repository is added, you can install Corretto 16 by running this command:

Example

```
sudo zypper install java-16-amazon-corretto-devel
```

Download and install RPM package manually

1. Download the Linux .rpm file from the [Downloads \(p. 13\)](#) page.
2. Install the downloaded .rpm file using yum localinstall.

Example

```
sudo yum localinstall java-16-amazon-corretto-devel-16.0.0.36-1.x86_64.rpm
```

Verify Your Installation

In the terminal, run the following command to verify the installation.

Example

```
java -version
```

Expected output for 16.0.0:

```
openjdk version "16" 2021-03-16
OpenJDK Runtime Environment Corretto-16.0.0.36.1 (build 16+36)
OpenJDK 64-Bit Server VM Corretto-16.0.0.36.1 (build 16+36, mixed mode, sharing)
```

If you see a version string that doesn't mention Corretto, run the following command to change the default java or javac providers.

Example

```
sudo alternatives --config java
```


If you're using the JDK, you should also run the following.

```
sudo alternatives --config javac
```

Uninstall Amazon Corretto 16

You can uninstall Amazon Corretto 16 by using the following command:

Example

```
sudo yum remove java-16-amazon-corretto-devel
```

Install Amazon Corretto 16 on Alpine Linux

Using Alpine Package Manager

To use Corretto Alpine repositories with the Alpine package manager import the Corretto public key and then add the repository to the system list. For most systems, you must run the following commands:

Example

```
wget -O /etc/apk/keys/amazoncorretto.rsa.pub https://apk.corretto.aws/  
amazoncorretto.rsa.pub  
echo "https://apk.corretto.aws/" >> /etc/apk/repositories  
apk update
```

After the repository is added, you can install Corretto 16 by running this command:

Example

```
apk add amazon-corretto-16
```

Uninstall Amazon Corretto 16

You can uninstall Amazon Corretto 16 by using the following

Uninstall JDK:

Example

```
apk del amazon-corretto-16
```

Amazon Corretto 16 Guide on Windows

The topics in this section describe installation instructions for Amazon Corretto 16 on the Windows operating system. Windows builds are supported on versions 7, 10, Server 2008, Server 2012, and Server 2016.

Topics

- [Amazon Corretto 16 Installation Instructions for Windows 7 or Later \(p. 7\)](#)

Amazon Corretto 16 Installation Instructions for Windows 7 or Later

This topic describes how to install and uninstall Amazon Corretto 16 on a host or container running the Windows 7 or later Windows operating system.

Install Amazon Corretto 16

1. Download a Windows `.msi` file from the [Downloads \(p. 13\)](#) page.
2. Double-click the `.msi` file to start the installation wizard.
3. Follow the steps in the wizard.

You have the option of setting a custom installation path. By default, Amazon Corretto 16 is installed at `C:\Program Files\Amazon Corretto\`. If you set a custom path, make a note of it for the next step.

4. Once the install wizard is finished, set the `JAVA_HOME` and `PATH` environment variables.

Set `JAVA_HOME` to the installation location, noting that the directory contains the currently-installed version. For example, if the default directory is used for 16.0.0, then set `JAVA_HOME` as `C:\Program Files\Amazon Corretto\jdk16.0.0_36`.

Add `%JAVA_HOME%\bin` to the current `PATH` variable.

5. Verify the installation by running `java -version` in a command prompt. You should see the following output.

Example

```
openjdk 16 2021-03-16
OpenJDK Runtime Environment Corretto-16.0.0.36.1 (build 16+36)
OpenJDK 64-Bit Server VM Corretto-16.0.0.36.1 (build 16+36, mixed mode, sharing)
```

Uninstall Amazon Corretto 16

You can uninstall Amazon Corretto 16 by following the standard steps to uninstall an application from Windows.

1. Open **Programs and Features**.
2. Search for **Amazon Corretto 16** and then select it.
3. Choose **uninstall**.

Amazon Corretto 16 Guide for macOS

The topics in this section describe installation instructions for Amazon Corretto 16 on macOS.

Topics

- [Amazon Corretto 16 Installation Instructions for macOS 10.13 or later \(p. 9\)](#)

Amazon Corretto 16 Installation Instructions for macOS 10.13 or later

This topic describes how to install and uninstall Amazon Corretto 16 on a host running the Mac OS version 10.13 or later. You must have administrator permissions to install and uninstall Amazon Corretto 16.

Install Amazon Corretto 16

1. Download the Mac .pkg file from the [Downloads \(p. 13\)](#) page.
2. Double-click the downloaded file to begin the installation wizard and follow the steps in the wizard.
3. Once the wizard completes, Amazon Corretto 16 is installed in `/Library/Java/JavaVirtualMachines/`.

You can run the following command in a terminal to get the complete installation path.

Example

```
/usr/libexec/java_home --verbose
```

4. Run the following command in the terminal to set the `JAVA_HOME` variable to the Amazon Corretto 16 version of the JDK. If this was set to another version previously, it is overridden.

Example

```
export JAVA_HOME=/Library/Java/JavaVirtualMachines/amazon-corretto-16.jdk/Contents/Home
```

Uninstall Amazon Corretto 16

You can uninstall Amazon Corretto 16 by running the following commands in a terminal.

Example

```
cd /Library/Java/JavaVirtualMachines/  
sudo rm -rf amazon-corretto-16.jdk
```

Amazon Corretto 16 Guide for Docker

This section describes simple use cases for using Amazon Corretto 16 in Docker containers.

Topics

- [Getting Started with Amazon Corretto 16 on Docker Images \(p. 10\)](#)

Getting Started with Amazon Corretto 16 on Docker Images

This topic describes how to build and launch a Docker image that uses Amazon Corretto 16. You must have the latest version of Docker installed.

Using the official image for Amazon Corretto 16.

Amazon Corretto 16 is available as an [official image on Docker Hub](#). The following example runs a container and displays Corretto's version.

Example

```
docker run amazoncorretto:16 java -version
```

Output:

Example

```
openjdk version "16" 2021-03-16
OpenJDK Runtime Environment Corretto-16.0.0.36.1 (build 16+36)
OpenJDK 64-Bit Server VM Corretto-16.0.0.36.1 (build 16+36, mixed mode, sharing)
```

Using the Corretto ECR Instance

To use the Corretto ECR instance, first authenticate the docker client to the Corretto registry (registry id : 489478819445) with the help of the instructions in this [page](#). Once you have logged in, Corretto 16 images can be pulled or run using one of the following commands:

Example

```
docker pull 489478819445.dkr.ecr.us-west-2.amazonaws.com/amazoncorretto:16
docker run -it 489478819445.dkr.ecr.us-west-2.amazonaws.com/amazoncorretto:16 /bin/bash
```

You can see the list of available images using:

Example

```
aws ecr list-images --region us-west-2 --registry-id 489478819445 --repository-name  
amazoncorretto
```

Amazon Corretto on Alpine

Amazon Corretto on Alpine Linux images are available in ECR and [Dockerhub](#)

Using ECR

Example

```
docker pull 489478819445.dkr.ecr.us-west-2.amazonaws.com/amazoncorretto:16-alpine-jdk  
docker run -it 489478819445.dkr.ecr.us-west-2.amazonaws.com/amazoncorretto:16-alpine-jdk /  
bin/sh
```

Using dockerhub

Example

```
docker pull amazoncorretto/amazoncorretto:16-alpine-jdk  
docker run -it amazoncorretto/amazoncorretto:16-alpine-jdk /bin/sh
```

Build a Docker Image with Amazon Corretto 16

Run the following command to build an image that uses Amazon Corretto 16.

Example

```
docker build -t amazon-corretto-16 github.com/corretto/corretto-docker#master:16/jdk/al2
```

After the command completes, you have an image called *amazon-corretto-16*.

To launch this image locally, run the following command.

Example

```
docker run -it amazon-corretto-16
```

You can also push this image to Amazon ECR. See the [Pushing an Image](#) topic in the *Amazon Elastic Container Registry User Guide* for details.

Create an Image

You can create a new Docker image using [Corretto's official Docker Hub image](#).

1. Create a Dockerfile with the following content.

Example

```
FROM amazoncorretto:16
```

```
RUN echo $' \
public class Hello { \
public static void main(String[] args) { \
System.out.println("Welcome to Amazon Corretto!"); \
} \
}' > Hello.java
RUN javac Hello.java
CMD ["java", "Hello"]
```

2. Build the new image.

Example

```
docker build -t hello-app .
```

3. Run the new image.

Example

```
docker run hello-app
```

You get the following output.

```
Welcome to Amazon Corretto!
```

Downloads for Amazon Corretto 16

This topic lists all the downloads available for Amazon Corretto 16. You can choose Permanent URLs pointing to the latest version, or use Version Specific URLs which point to a specific version.

Amazon Corretto 16 Permanent URLs

Permanent URLs always point to the most recent release of a package. For example, to retrieve the latest Linux Corretto 16 .tgz package by using a Permanent URL, run the following command from the CLI:

Example

```
wget https://corretto.aws/downloads/latest/amazon-corretto-16-x64-linux-jdk.tar.gz
```

You can also run the following curl command.

Example

```
curl -IO https://corretto.aws/downloads/latest/amazon-corretto-16-x64-linux-jdk.tar.gz
```

Note: Permanent URL's are redirected (HTTP 302) to actual artifact's URL.

These links can be used in scripts to pull the latest version of Amazon Corretto 16.

Platform	Type	Download Link	Checksum (MD5)	Sig File	Pub
Linux x64 (p. 3)	JDK	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-linux-jdk.deb	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-linux-jdk.deb		
		https://corretto.aws/downloads/latest/amazon-corretto-16-x64-linux-jdk.rpm	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-linux-jdk.rpm		
		https://corretto.aws/downloads/latest/amazon-corretto-16-x64-linux-jdk.tar.gz	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-linux-jdk.tar.gz	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-linux-jdk.tar.gz.sig	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-linux-jdk.tar.gz.pub

Platform	Type	Download Link	Checksum (MD5)	Sig File	Pub
Linux aarch64 (p. 3)	JDK	https://corretto.aws/downloads/latest/amazon-corretto-16-aarch64-linux-jdk.deb	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-aarch64-linux-jdk.deb		
		https://corretto.aws/downloads/latest/amazon-corretto-16-aarch64-linux-jdk.rpm	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-aarch64-linux-jdk.rpm		
		https://corretto.aws/downloads/latest/amazon-corretto-16-aarch64-linux-jdk.tar.gz	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-aarch64-linux-jdk.tar.gz	https://corretto.aws/downloads/latest/amazon-corretto-16-aarch64-linux-jdk.tar.gz.sig	https://corretto.aws/downloads/latest/amazon-corretto-16-aarch64-linux-jdk.tar.gz.pub
Windows x64 (p. 7)	JDK	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-windows-jdk.msi	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-windows-jdk.msi		
		https://corretto.aws/downloads/latest/amazon-corretto-16-x64-windows-jdk.zip	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-windows-jdk.zip	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-windows-jdk.zip.sig	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-windows-jdk.zip.pub
macOS x64 (p. 9)	JDK	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-macos-jdk.pkg	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-macos-jdk.pkg		

Platform	Type	Download Link	Checksum (MD5)	Sig File	Pub
		https://corretto.aws/downloads/latest/amazon-corretto-16-x64-macos-jdk.tar.gz	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-macos-jdk.tar.gz	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-macos-jdk.tar.gz.sig	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-macos-jdk.tar.gz.pub
Alpine Linux (p. 3)	JDK	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-alpine-jdk.tar.gz	https://corretto.aws/downloads/latest_checksum/amazon-corretto-16-x64-alpine-jdk.tar.gz	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-alpine-jdk.tar.gz.sig	https://corretto.aws/downloads/latest/amazon-corretto-16-x64-alpine-jdk.tar.gz.pub

Note: Notice that the above links follow this format:

```
https://corretto.aws/[latest/latest_checksum]/amazon-corretto-[corretto_version]-[cpu_arch]-[os]-[package_type].[file_extension]
```

Signature Verification

The public key to verify the SIGNATURE file can be downloaded [here](#)

Versioned Downloads

For versioned downloads and earlier versions, see [Corretto-16 Releases](#) on GitHub.

Change Logs

For change logs, see [Corretto-16 Change logs](#) on Github.

Document History for User Guide

The following table describes the documentation for this release of Amazon Corretto 16. To be notified of new releases, please subscribe to this RSS feed.

update-history-change	update-history-description	update-history-date
Initial Release (16.0.0.36.1) (p. 16)	Initial release of Amazon Corretto 16 Developer Preview.	March 16, 2021