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How to install Maven on macOS

By *mkyong* | Last updated: January 19, 2021
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This article shows how to install Maven (3.6.3) on macOS Big Sur (version 11.1).

Topics

1. *Homebrew install Maven*
2. *Manually install Maven*

Related Articles

- *How to install Java JDK on macOS*
- *How to set $JAVA_HOME environment variable on macOS*

1. Homebrew install Maven on macOS

1.1 Install *Homebrew*, a package manager on macOS.

1.2 The command `brew install maven` will install the latest Maven.

```
Terminal

% brew install maven
```

1.3 Done. The Maven is installed on macOS.

```
Terminal

% mvn -version

Apache Maven 3.6.3 (cecedd343002696d0abb50b32b541b8a6ba2883f)
Maven home: /usr/local/Cellar/maven/3.6.3_1/libexec
Java version: 15.0.1, vendor: N/A, runtime: /usr/local/Cellar/openjdk/15.0.1/libexec/openjdk.jdk/Cont
Default locale: en_MY, platform encoding: UTF-8
OS name: "mac os x", version: "10.16", arch: "x86_64", family: "mac"
```

P.S At the time of writing, the latest Maven version is 3.6.3

1.4 Where does Homebrew installed the Maven?
The `brew` will install the Maven packages at `/usr/local/Cellar/maven/${version}`

```
Terminal

% ls -lsa /usr/local/Cellar/maven/3.6.3_1
total 72
0 drwxr-xr-x  9 mkyong  admin    288 Jan 11 11:10 .
0 drwxr-xr-x  3 mkyong  admin     96 Jan 11 11:10 ..
0 drwxr-xr-x  3 mkyong  admin     96 Jan 11 11:10 .brew
8 -rw-r--r--  1 mkyong  admin    756 Jan 11 11:10 INSTALL_RECEIPT.json
40 -rw-r--r--  1 mkyong  admin  17504 Nov  7  2019 LICENSE
16 -rw-r--r--  1 mkyong  admin   5141 Nov  7  2019 NOTICE
8 -rw-r--r--  1 mkyong  admin   2612 Nov  7  2019 README.txt
0 drwxr-xr-x  5 mkyong  admin    160 Jan 11 11:10 bin
0 drwxr-xr-x  6 mkyong  admin    192 Jan 11 11:10 libexec
```

The `brew` also creates shortcut or symbolic links at `/usr/local/opt/maven/`

```
Terminal

% ls -lsa /usr/local/opt/ | grep maven
```

```
0 lrwxr-xr-x  1 mkyong  admin    23 Jan 11 11:10 maven -> ../Cellar/maven/3.6.3_1
```

1.5 Where does Homebrew put the Maven configuration file, `settings.xml`?
The `settings.xml` is available at `/usr/local/opt/maven/libexec/conf`

```
Terminal

# real path
/usr/local/Cellar/maven/3.6.3_1/libexec/conf

# symbolic links to the above path
/usr/local/opt/maven/libexec/conf
```

```
Terminal

% ls -lsa /usr/local/opt/maven/libexec/conf
total 32
 0 drwxr-xr-x  5 mkyong  admin    160 Jan 14 07:02 .
 0 drwxr-xr-x  6 mkyong  admin    192 Jan 11 11:10 ..
 0 drwxr-xr-x  3 mkyong  admin     96 Nov  7  2019 logging
24 -rw-r--r--  1 mkyong  admin  10468 Nov  7  2019 settings.xml
 8 -rw-r--r--  1 mkyong  admin   3747 Nov  7  2019 toolchains.xml
```

1.6 Where does Homebrew put the core `mvn` executable file?
The `mvn` is at `/usr/local/bin/`

```
Terminal

% ls -lsah /usr/local/bin/mvn

0 lrwxr-xr-x  1 mkyong  admin    31B Jan 11 11:10 /usr/local/bin/mvn -> ../Cellar/maven/3.6.3_1/bin/m
```

1.7 `brew info maven` to show the detail of the Maven package.

```
Terminal

% brew info maven

maven: stable 3.6.3
Java-based project management
https://maven.apache.org/
Conflicts with:
  mvnvm (because also installs a 'mvn' executable)
/usr/local/Cellar/maven/3.6.3_1 (87 files, 10.7MB) *
  Built from source on 2021-01-11 at 11:10:48
From: https://github.com/Homebrew/homebrew-core/blob/HEAD/Formula/maven.rb
License: Apache-2.0
==> Dependencies
Required: openjdk ✔
```

1.8 `brew list maven`

```
Terminal

% brew list maven
/usr/local/Cellar/maven/3.6.3_1/bin/mvn
/usr/local/Cellar/maven/3.6.3_1/bin/mvnDebug
/usr/local/Cellar/maven/3.6.3_1/bin/mvnyjp
/usr/local/Cellar/maven/3.6.3_1/libexec/bin/ (4 files)
/usr/local/Cellar/maven/3.6.3_1/libexec/boot/ (2 files)
/usr/local/Cellar/maven/3.6.3_1/libexec/conf/ (3 files)
/usr/local/Cellar/maven/3.6.3_1/libexec/lib/ (70 files)
```

1.9 Useful commands:

- `brew upgrade maven` to upgrade Maven.
- `brew uninstall maven` to uninstall Maven.

2. Install Maven Manually

If Homebrew failed you or you don't want the black-box magic, try to install the Maven manually.

2.1 Download the *Maven*, for example `apache-maven-3.6.3-bin.tar.gz`

2.2 The below command extracts the downloaded `.tar.gz` file to the current user's home directory `~`

```
Terminal

% pwd

# In this example, the ${username} is mkyong
/Users/${username}/Downloads

% tar -xvzf apache-maven-3.6.3-bin.tar.gz -C ~

x apache-maven-3.6.3/README.txt
x apache-maven-3.6.3/LICENSE
x apache-maven-3.6.3/NOTICE
x apache-maven-3.6.3/lib/
#...
```

2.3 Now, the Maven folder is at this path `/Users/mkyong/apache-maven-3.6.3`

```
Terminal

% ls -lsa ~/apache-maven-3.6.3

total 64
0 drwxr-xr-x   9 mkyong  staff    288 Jan 14 11:08 .
0 drwxr-xr-x+ 29 mkyong  staff    928 Jan 14 11:08 ..
40 -rw-r--r--   1 mkyong  staff  17504 Nov  7  2019 LICENSE
16 -rw-r--r--   1 mkyong  staff   5141 Nov  7  2019 NOTICE
8 -rw-r--r--   1 mkyong  staff   2612 Nov  7  2019 README.txt
0 drwxr-xr-x   8 mkyong  staff    256 Jan 14 11:08 bin
0 drwxr-xr-x   4 mkyong  staff    128 Nov  7  2019 boot
0 drwxr-xr-x   5 mkyong  staff    160 Nov  7  2019 conf
0 drwxr-xr-x  65 mkyong  staff   2080 Nov  7  2019 lib

% cd ~/apache-maven-3.6.3
% pwd
/Users/mkyong/apache-maven-3.6.3
```

2.4 On macOS 10.5 Catalina or later, the *default shell is zsh*, and we can create the environment variables `MAVEN_HOME` and update the `PATH` in `~/.zshenv`.

Open the `~/.zshenv` and append the following content.

```
~/.zshenv
```

```
export MAVEN_HOME=~/apache-maven-3.6.3
export PATH=$PATH:$MAVEN_HOME/bin
```

Note

For macOS 10.14 Mojave and before, the default Terminal shell is `bash`, and we can create the environment variables in `~/.bash_profile`.

Open the `~/.bash_profile` and append the following content.

```
~/.bash_profile

export MAVEN_HOME=~/apache-maven-3.6.3
export PATH=$PATH:$MAVEN_HOME/bin
```

P.S Read this Zsh Startup Files.

2.5 Source the `~/.zshenv` to reflect the changes.

```
Terminal

% source ~/.zshenv
```

2.6 Verification.

```
Terminal

% mvn -version

Apache Maven 3.6.3 (cecedd343002696d0abb50b32b541b8a6ba2883f)
Maven home: /Users/mkyong/apache-maven-3.6.3
Java version: 14, vendor: Oracle Corporation, runtime: /Library/Java/JavaVirtualMachines/jdk-14.jdk/C
Default locale: en_MY, platform encoding: UTF-8
OS name: "mac os x", version: "10.16", arch: "x86_64", family: "mac"
```

Done.

References

- *Apache Maven*
- *Zsh Startup Files*
- *Apple replaces bash with zsh as the default shell in macOS Catalina*
- *Set environment variables on Mac OS X Lion*
- *Where does Homebrew install packages on Mac*

mkyong

Founder of *Mkyong.com*, love Java and open source stuff. Follow him on *Twitter*. If you like my tutorials, consider make a donation to *these charities*.

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B *I* </> 🔗 {}

18 COMMENTS   Most Voted

Milena Angelova 4 years ago

Perhaps, you have to add 'source ~/.bash_profile'. Otherwise is a good article.

👍 **4** 👎   ➤ Reply

    mkyong 3 months ago

    Reply to *Milena Angelova*
    Author

    Article is updated with `source ~/.zshenv`

    Now the macOS default shell is zsh.

    👍 **0** 👎   ➤ Reply

Jono 5 years ago

I would recommend Homebrew for installing maven – it should almost always be the install method of choice. '$ brew install maven'

👍 **2** 👎   ➤ Reply

    mkyong 3 months ago

    Reply to *Jono*
    Author

    Article is updated with `brew install`

    👍 **0** 👎   ➤ Reply

    Jono 2 1 year ago

    Reply to *Jono*

    I came here because Homebrew install failed. Agreed that Homebrew should be added as first choice but rest of this article was incredibly useful. Also good if you want to install a previous version of Maven.

    👍 **0** 👎   ➤ Reply

Sai 1 year ago

How to set environment variables for Maven when maven installed using "brew install maven" ?

My Default folder path on mac for mvn is —> /usr/local/bin/mvn

Please help!

👍 **1** 👎   ➤ Reply

    mkyong 3 months ago

    Reply to *Sai*
    Author

    Refer to *https://mkyong.com/maven/install-maven-on-mac-osx/#install-maven-manually*

    macOS 10.5 **Catalina** and later
    for the `zsh` shell, puts the environment variables at `~/.zshenv`

    macOS 14 **Mojave** and before
    for the `bash` shell, puts the environment variables at `~/.bash_profile`

    Last edited 3 months ago by mkyong

    👍 **0** 👎   ➤ Reply

Flavio 7 years ago

Hi My Friend,

MAVEN came pre installed since version 10.6.8 MacOSx Snow Leopard.

Cheers,

Flavio

👍 **1** 👎   ➤ Reply

    mkyong 3 months ago

    Reply to *Flavio*

Author Not anymore, latest macOS doesn't come with Maven pre-installed.

👍 0 👎 ↪ Reply

Kuldeep Yadav 16 minutes ago

How do you do it for fish shell?

👍 0 👎 ↪ Reply

Tobe 2 months ago

Thank you. This was very helpful.

👍 0 👎 ↪ Reply

Ben 9 months ago

Thank you, as always, clear and concise!

👍 0 👎 ↪ Reply

Churro 4 years ago

Thank you, it worked!

👍 0 👎 ↪ Reply

Anuj Nagpal 5 years ago
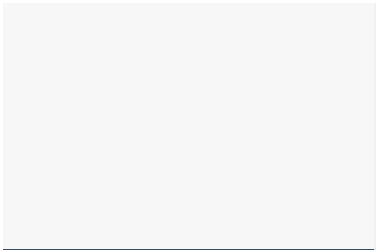
I tried the same getting this

mvn -v

Exception in thread "main" java.lang.UnsupportedClassVersionError: org/apache/maven/cli/MavenCli : Unsupported major.minor version 51.0

at java.lang.ClassLoader.defineClass1(Native Method)

at java.lang.ClassLoader.defineClassCond(ClassLoader.java:637)

at java.lang.ClassLoader.defineClass(ClassLoader.java:621)

at java.security.SecureClassLoader.defineClass(SecureClassLoader.java:141)

at java.net.URLClassLoader.defineClass(URLClassLoader.java:283)

at java.net.URLClassLoader.access$000(URLClassLoader.java:58)

at java.net.URLClassLoader$1.run(URLClassLoader.java:197)

at java.security.AccessController.doPrivileged(Native Method)

at java.net.URLClassLoader.findClass(URLClassLoader.java:190)

at org.codehaus.plexus.classworlds.realm.ClassRealm.loadClassFromSelf(ClassRealm.java:401)

at org.codehaus.plexus.classworlds.strategy.SelfFirstStrategy.loadClass(SelfFirstStrategy.java:42)

at org.codehaus.plexus.classworlds.realm.ClassRealm.unsynchronizedLoadClass(ClassRealm.java:271)

at org.codehaus.plexus.classworlds.realm.ClassRealm.loadClass(ClassRealm.java:254)

at org.codehaus.plexus.classworlds.realm.ClassRealm.loadClass(ClassRealm.java:239)

at org.codehaus.plexus.classworlds.launcher.Launcher.getMainClass(Launcher.java:144)

at org.codehaus.plexus.classworlds.launcher.Launcher.launchEnhanced(Launcher.java:266)

at org.codehaus.plexus.classworlds.launcher.Launcher.launch(Launcher.java:229)

at org.codehaus.plexus.classworlds.launcher.Launcher.mainWithExitCode(Launcher.java:415)

at org.codehaus.plexus.classworlds.launcher.Launcher.main(Launcher.java:356)

👍 0 👎 ↪ Reply

Humberto Moura 5 years ago

| *Reply to* _Anuj Nagpal_

Just configure the $JAVA_HOME variable.

👍 0 👎 ↪ Reply

Richard Clayton 7 years ago

Strangely, Maven was removed in OSX Mavericks (at least after the upgrade it's nowhere to be found). I'm having to install manually (thank you for the original path locations!).

👍 0 👎 ↪ Reply

mkyong 7 years ago

| *Reply to* _Richard Clayton_

Author Yes, after upgraded my Mac to OSX Mavericks, Maven was gone. I have to install the Maven manually, article is updated accordingly. Thanks for your comment.

👍 1 👎 ↪ Reply

Hagai 6 years ago

Reply to *mkyong*

perhaps it's worth mentioning brew install: `brew install maven`

👍 4 👎　　→ Reply