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// Tutorial //

A Complete Guide to Install Tomcat on Linux

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Ubuntu UNIX/Linux

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While we believe that this content benefits our community, we have not yet thoroughly reviewed it. If you have any suggestions for improvements, please let us know by clicking the “report an issue“ button at the bottom of the tutorial.

Let’s cover the steps to install Tomcat on Linux today. We have already covered the steps for installation on CentOS here. In this tutorial, we’ll use Ubuntu to demonstrate the installation.

You can follow this tutorial even if you’re on a different distribution. To do so, make sure you use the package manager depending on the distribution that you’re using.

Quick Overview of Tomcat

Tomcat is a Java application server designed to deploy Java Servlets and JSPs on your system. Developed by the Apache Software Foundation, it is one of the most widely used Java applications and web servers.

Tomcat was created in an effort towards making an HTTP server which was purely built on Java and allowed Java code operations.

Its open-source nature has greatly contributed to Tomcat's popularity. In this tutorial, we attempt to guide you to install Tomcat on Linux.

Starting with Tomcat

To properly install Tomcat on Linux, we need Java to be installed on our system. If it isn't already on your system, we install the OpenJDK which is the default Java development package.

For this, we need to first update our default repositories using the apt package management service. To do this, you need to open the terminal on your Ubuntu system and type the following.

```
sudo apt update
```

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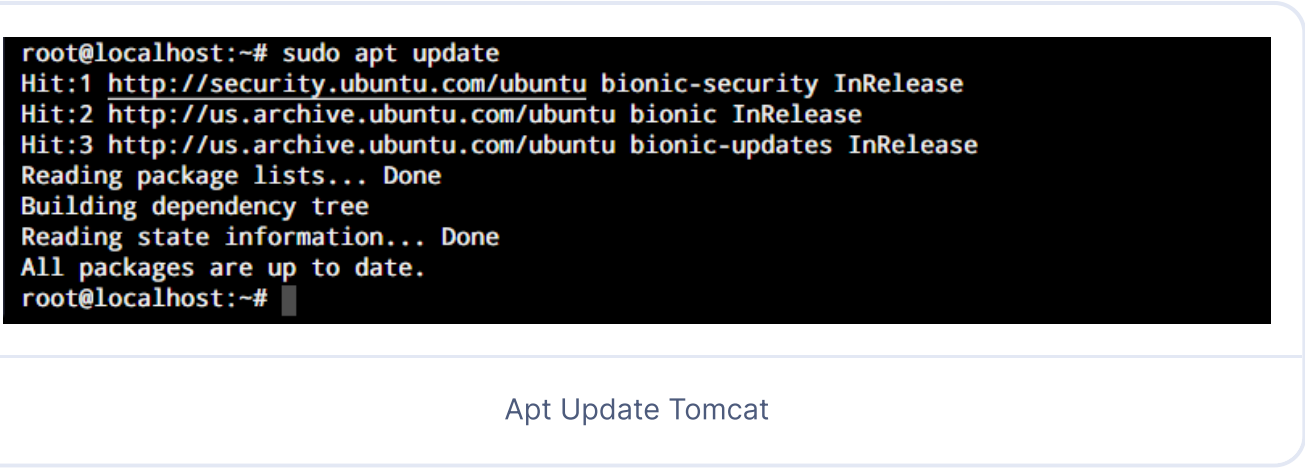

Apt Update Tomcat

This command updates the Ubuntu repositories to the latest available repositories. Now, this ensures that we will get the latest version of the OpenJDK package when we install Java on our system.

Now we use the following command to install Java. For the complete steps to install Java click here.

```
sudo apt install default-jdk
```

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```
root@localhost:~# sudo apt install default-jdk
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.15.0-76 linux-headers-4.15.0-76-generic linux-image-4.15.0-76-generic linu
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  at-spi2-core ca-certificates-java default-jdk-headless default-jre default-jre-headless fo
  libatk-wrapper-java libatk-wrapper-java-jni libatk1.0-0 libatk1.0-data libatspi2.0-0 libdr
  libgl1 libgl1-mesa-dri libglapi-mesa libglvnd0 libglx-mesa0 libglx0 liblcms2-2 libllvm9 li
  libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-shape0 libxcb-sync1 libxcomposite1 libxda
  libxshmfence1 libxtst6 libxv1 libxxf86dga1 libxxf86vm1 openjdk-11-jdk openjdk-11-jdk-headl
Suggested packages:
  libasound2-plugins alsa-utils liblcms2-utils pcscd openjdk-11-demo openjdk-11-source visua
  | fonts-wqy-zenhei fonts-indic mesa-utils
The following NEW packages will be installed:
  at-spi2-core ca-certificates-java default-jdk default-jdk-headless default-jre default-jre
  libatk-bridge2.0-0 libatk-wrapper-java libatk-wrapper-java-jni libatk1.0-0 libatk1.0-data
  libfontenc1 libgif7 libgl1 libgl1-mesa-dri libglapi-mesa libglvnd0 libglx-mesa0 libglx0 li
  libxaw7 libxcb-dri2-0 libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-shape0 libxcb-sync
  libxrandr2 libxrender1 libxshmfence1 libxtst6 libxv1 libxxf86dga1 libxxf86vm1 openjdk-11-j
0 upgraded, 61 newly installed, 0 to remove and 0 not upgraded.
Need to get 262 MB of archives.
After this operation, 703 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Install Default Jdk

This is what you will see on the terminal screen. Enter ‘Y’ in the command line to proceed with the operation. Once the installation is complete, we verify it by checking the version of java installed on our system using this command.

```
java -version
```

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```
root@localhost:~# java -version
openjdk version "11.0.7" 2020-04-14
OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu218.04)
OpenJDK 64-Bit Server VM (build 11.0.7+10-post-Ubuntu-2ubuntu218.04, mixed mode, sharing)
root@localhost:~#
```

Java Version Check

How to Install Tomcat on Linux?

Now that we understand what Tomcat does, and have covered the prerequisites, it is time to install Tomcat on our system. To do so, you need to follow the following steps.

Setting up a Tomcat User

It is not advisable to run Tomcat under a root account. Hence we need to create a new user where we run the Tomcat server on our system. We will use the following command to create our new user.

```
sudo useradd -r -m -U -d /opt/tomcat -s /bin/false tomcat
```
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As you can see, we grouped our new system user with the directory /opt/Tomcat. This will be used to run the Tomcat service on our system.

Downloading the Tomcat package

Now that we have created a new user for our Tomcat server and switched to it. We need to download the Tomcat package to install Tomcat on Linux.

Let's use the wget command to download the Tomcat package from their official website.

```
wget -c https://downloads.apache.org/tomcat/tomcat-9/v9.0.34/bin/apache
```
Copy

Install Tomcat on Linux

Once the tar archive is downloaded on our system, we need to untar the archive on our system. This can be done as follows using the tar command as shown below.

```
sudo tar xf apache-tomcat-9.0.34.tar.gz -C /opt/tomcat
```
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Using this command, we have extracted the contents of the tar package in /opt/Tomcat. To make updating Tomcat easy, we create a symbolic link that will point to the installation directory of Tomcat.

```
sudo ln -s /opt/tomcat/apache-tomcat-9.0.34 /opt/tomcat/updated
```
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Now, if you wish to install Tomcat on Linux with a newer version in future, simply unpack the new archive and change the symbolic link so that it points to the new version.

Now we need to provide the user Tomcat with access for the Tomcat installation directory. We would use the chown command to change the directory ownership.

```
sudo chown -R tomcat: /opt/tomcat/*
```
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Finally, we will use the chmod command to provide all executable flags to all scripts within the bin directory.

```
sudo sh -c 'chmod +x /opt/tomcat/updated/bin/*.sh'
```
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Don't forget to make sure that the "tomcat" user and group has read and write access to all the files and folders within the /opt/tomcat/updated folder like below.

```
root@localhost:/opt/tomcat# ls -ls
total 4
4 drwxr-xr-x 9 tomcat tomcat 4096 May 10 13:44 apache-tomcat-9.0.34
0 lrwxrwxrwx 1 tomcat tomcat   32 May 10 13:44 updated -> /opt/tomcat/apache-tomcat-9.0.34
root@localhost:/opt/tomcat#
```

Permissions Tomcat

See how both the user and group for the directories is tomcat and tomcat.

Configuring the Tomcat service

Once you install Tomcat on Linux, you need to configure it before you can start using it. First, we need to create a *systemd* unit file to be able to run Tomcat as a service. We need to create a new unit file for this. We will open a new file named *tomcat.service* in the directory */etc/systemd/system* using nano or your preferred editor.

```
sudo nano /etc/systemd/system/tomcat.service
```
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Now enter the following in your file and save it. Note that you need to update the value of *JAVA_HOME* if your Java installation directory is not the same as given below.

```
[Unit]
Description=Apache Tomcat Web Application Container
After=network.target

[Service]
Type=forking
```
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```
User=tomcat
Group=tomcat
```

```
UMask=0007
RestartSec=10
Restart=always

[Install]
WantedBy=multi-user.target
```

Now we reload the daemon to update the system about the new file.

```
sudo systemctl daemon-reload
```

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We use the following command to start the Tomcat service on our system.

```
sudo systemctl start tomcat
```

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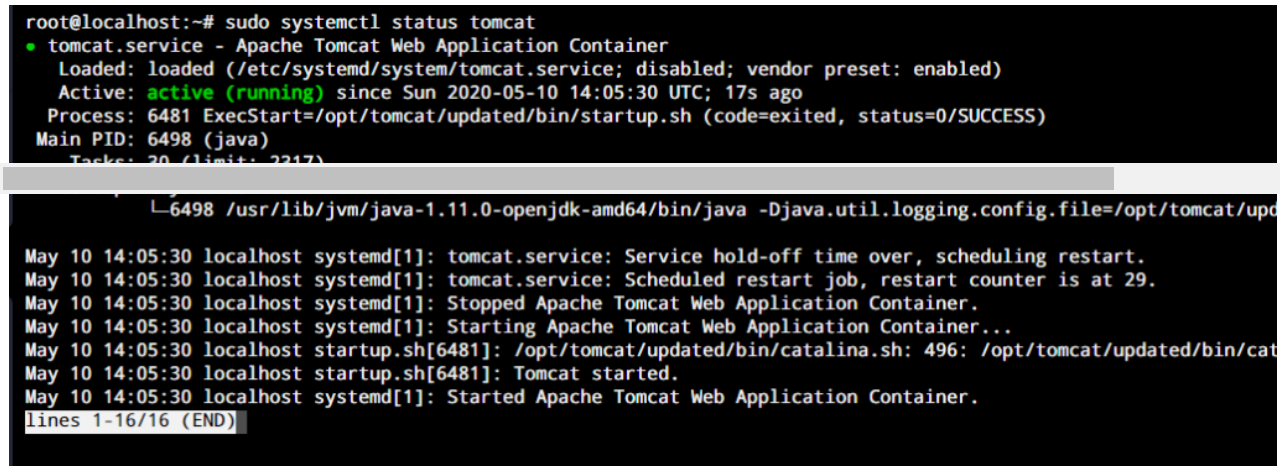
We will use the systemctl command to check the status of our Tomcat service. If the output looks like this, you were successful to install Tomcat on Linux.



Systemctl Tomcat Running

Now we can enable the Tomcat service to run on startup using this command.

```
sudo systemctl enable tomcat
```

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After you install Tomcat on Linux, you need to allow it to use the 8080 port through the firewall to be able to communicate outside your local network.

```
sudo ufw allow 8080/tcp
```

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```
root@localhost:~# sudo systemctl enable tomcat
Created symlink /etc/systemd/system/multi-user.target.wants/tomcat.service → /etc/systemd/system/tomcat.service.
root@localhost:~# sudo ufw allow 8080/tcp
Rules updated
Rules updated (v6)
root@localhost:~#
```

Firewall Rules Tomcat

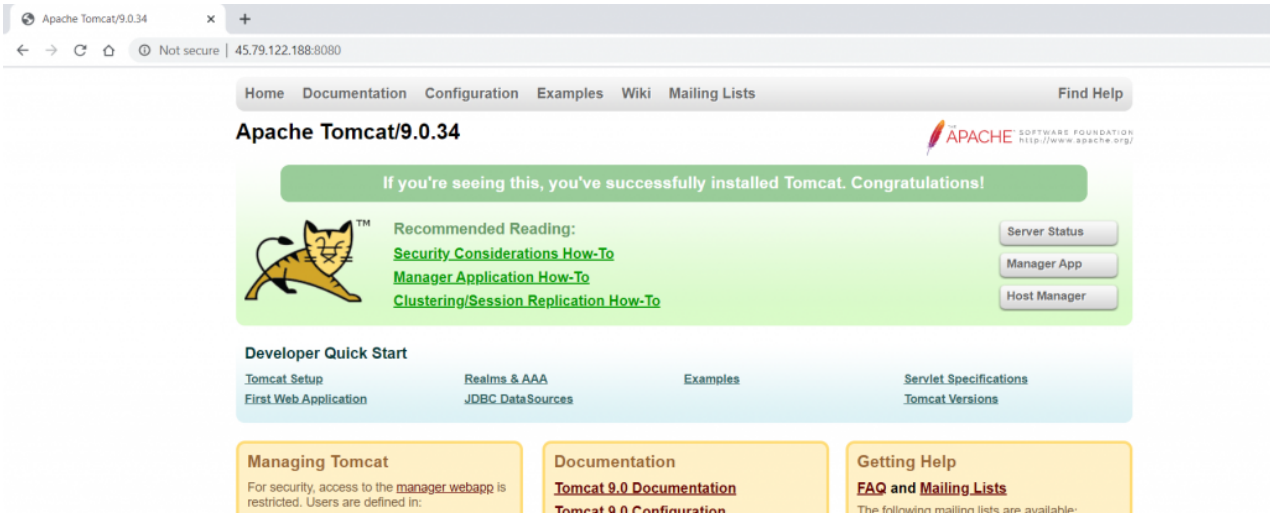
Verifying our installation

Once we install Tomcat on Linux, we need to verify our installation. To do so, simply enter the following in your browser.

```
http://<YourIPAddress>:8080
```

Copy

If your installation and configuration were successful, you should see this page.



Tomcat Running

Conclusion

Tomcat is a powerful tool for deploying Java Servlets and JSPs. It allows you to run Java code in a web server built purely using Java. We hope this tutorial was able to help you install Tomcat on Linux and make some basic configurations.

You can further make custom configurations to your Tomcat server to meet your preferences. If you have any feedback, queries or suggestions, feel free to reach out to us in the comments below.