Install python software properties:

*sudo apt-get install python-software-properties -y*

Next, install Java JRE and JDK from the PPA repository with apt:

sudo apt-get install openjdk-8\*

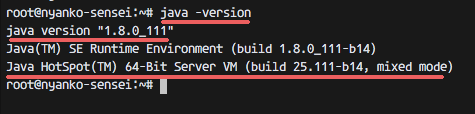
It will take some time, wait until the installation is done.

Check the java version with command below:

*java -version*

You can see the desired results below:

*java version "1.8.0\_111"  
Java(TM) SE Runtime Environment (build 1.8.0\_111-b14)  
Java HotSpot(TM) 64-Bit Server VM (build 25.111-b14, mixed mode)*

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/1.png)

**Step 2 - Configure Java Home Environment**

In the first step, we've installed Java. Now we need to configure the JAVA\_HOME environment variable on the Ubuntu server so that Java applications can find the Java installation directory. Tomcat needs a JAVA\_HOME environment to be setup properly.

Before we configure the JAVA\_HOME environment, we need to know where the Java directory is. Check the location of the Java directory with the command below:

*sudo update-alternatives --config java*

Java directory = "**/usr/lib/jvm/java-8-oracle/jre**"

Then edit the environment file with vim:

*vim /etc/environment*

Add JAVA\_HOME environment by adding the configuration line below:

JAVA\_HOME="/usr/lib/jvm/java-8-oracle/jre"

Save the file and exit the editor.

Next, edit the .bashrc file and add lines to export the JAVA\_HOME environment variables:

*vim ~/.bashrc*

At the end of the file, paste the configuration below:

export JAVA\_HOME=/usr/lib/jvm/java-8-oracle/jre  
export PATH=$JAVA\_HOME/bin:$PATH

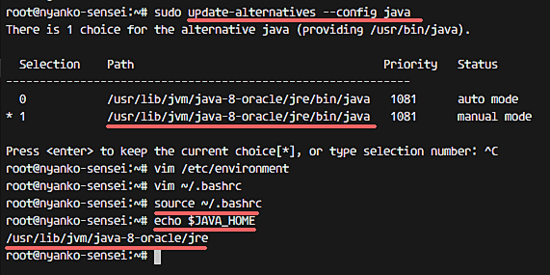
Save and exit, then reload the .bashrc file.

*source ~/.bashrc*

Make sure there is no error, and check the JAVA\_HOME environment:

*echo $JAVA\_HOME*

You will see java directory path.

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/2.png)

**Step 3 - Install Apache Tomcat 8.5**

In this step, we will install Apache Tomcat under the user tomcat.

Create a user and group named tomcat:

*groupadd tomcat  
useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat*

**Note**:  
-s /bin/false = disable shell access.  
-g tomcat = assign the new user to the group tomcat.  
-d /opt/tomcat = define the home directory for the user.

Next, go to the /opt directory and download tomcat with the wget command:

*cd /opt/  
wget https://archive.apache.org/dist/tomcat/tomcat-8/v8.5.6/bin/apache-tomcat-8.5.6.tar.gz*

Extract the Tomcat archive and rename the directory to 'tomcat'.

*tar -xzvf apache-tomcat-8.5.6.tar.gz  
mv apache-tomcat-8.5.6 tomcat*

Change the owner of the tomcat directory to the tomcat user, and make all files in the bin directory executable.

*chown -hR tomcat:tomcat tomcat  
chmod +x /opt/tomcat/bin/\**

Next, we need to define the CATALINA\_HOME directory, so we can run a test with Apache Tomcat. Catalina is the Tomcat servlet container.

Edit the .bashrc file with vim:

*vim ~/.bashrc*

Paste the configuration line below at the end of the line:

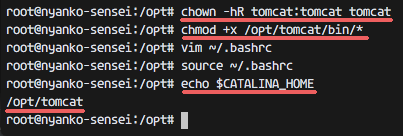
export CATALINA\_HOME=/opt/tomcat

Save and exit, and then reload the .bashrc.

*source ~/.bashrc*

Check the CATALINA\_HOME environment.

*echo $CATALINA\_HOME*

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/3.png)

**Step 4 - Test Apache Tomcat**

In step 3, we configured the basic Tomcat setup, in this step, we will do some testing and make sure that there is no error in our configuration.

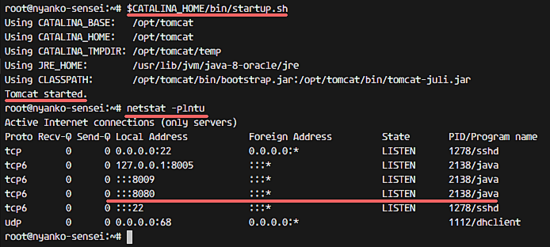
Run the command below to test the Apache Tomcat:

*$CATALINA\_HOME/bin/startup.sh*

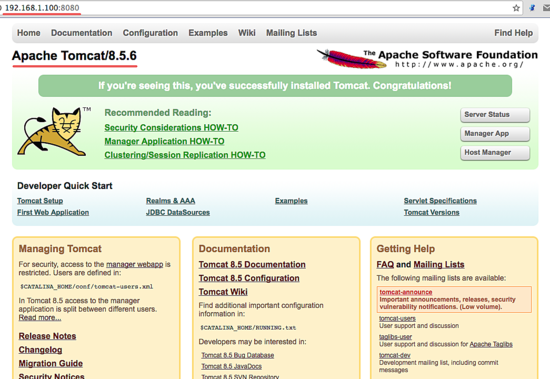
Make sure the results is 'Tomcat started' to verify that Tomcat is successfully installed.

Tomcat is using port 8080, check the open port on the server with netstat command.

*netstat -plntu*

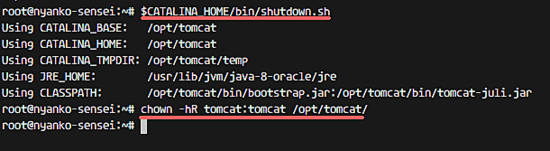
[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/4.png)

Or you can visit the server IP address with port 8080 - in my case http://192.168.1.100:8080 with a web browser. You will see the Apache Tomcat default page.

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/5.png)

Next, stop Apache Tomcat because we will run Tomcat with a service file now. Ensure the tomcat directory is under tomcat user.

*$CATALINA\_HOME/bin/shutdown.sh  
chown -hR tomcat:tomcat /opt/tomcat/*

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/6.png)

**Step 5 - Setup an Apache Tomcat Service**

In this tutorial, we want run Apache Tomcat as tomcat user with a systemd service file so it can be started and stopped easily. Now we need to create the 'tomcat.service' file.

Go to the systemd system directory and create a new file 'tomcat.service'.

*cd /etc/systemd/system/  
vim tomcat.service*

Paste configuration below:

[Unit]  
Description=Apache Tomcat 8 Servlet Container  
After=syslog.target network.target  
  
[Service]  
User=tomcat  
Group=tomcat  
Type=forking  
Environment=CATALINA\_PID=/opt/tomcat/tomcat.pid  
Environment=CATALINA\_HOME=/opt/tomcat  
Environment=CATALINA\_BASE=/opt/tomcat  
ExecStart=/opt/tomcat/bin/startup.sh  
ExecStop=/opt/tomcat/bin/shutdown.sh  
Restart=on-failure  
  
[Install]  
WantedBy=multi-user.target

Save the file and exit the editor.

Reload the systemd daemon, then start the Tomcat service and add the Apache Tomcat service to start at boot time.

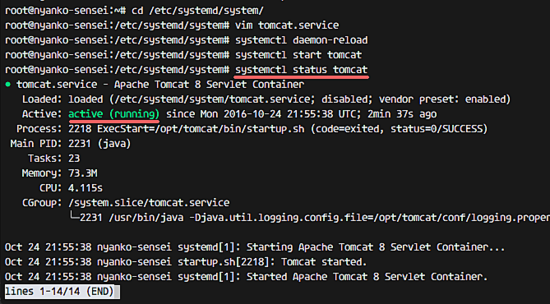
*systemctl daemon-reload  
systemctl start tomcat  
systemctl enable tomcat*

Check that tomcat is running by checking the open port.

*netstat -plntu*

And check the tomcat status, make sure the service is active.

*systemctl status tomcat*

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/7.png)

**Step 6 - Configure Apache Tomcat Users**

In this step, we will configure the users for Apache Tomcat. Tomcat is installed, and it's running by default on port 8080, we can access it from the web browser, but we can not access the site-manager dashboard until now. This is the purpose of this step, to enable and configure Tomcat users, edit the file 'tomcat-users.xml'.

Go to the tomcat configuration directory and edit the tomcat-users.xml with vim.

*cd /opt/tomcat/conf/  
vim tomcat-users.xml*

Create a new line under line 43 and paste configuration below:

*<role rolename="manager-gui"/>  
<user username="admin" password="password" roles="manager-gui,admin-gui"/>*

Save and exit.

Next, go to the manager directory and edit the context.xml file.

*cd /opt/tomcat/webapps/manager/META-INF/  
vim context.xml*

Comment line 19 and 20.

*<Context antiResourceLocking="false" privileged="true" >  
<!--  <Valve className="org.apache.catalina.valves.RemoteAddrValve"  
         allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1" /> -->  
</Context>*

Save and exit.

And go to the host-manager directory and edit the context file again.

*cd /opt/tomcat/webapps/host-manager/META-INF/  
vim context.xml*

Comment out line 19 and 20.

*<Context antiResourceLocking="false" privileged="true" >  
<!--  <Valve className="org.apache.catalina.valves.RemoteAddrValve"  
         allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1" /> -->  
</Context>*

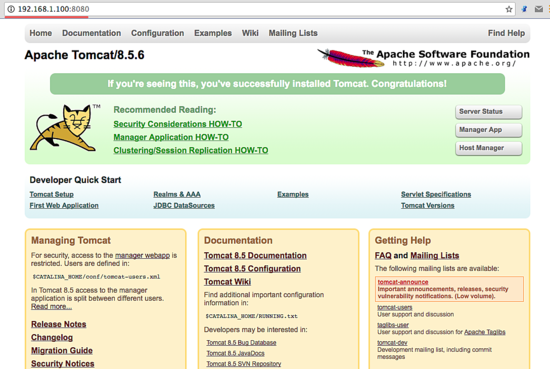
Save and exit, then restart tomcat.

*systemctl restart tomcat*

**Step 7 - Testing Tomcat**

Open your web browser and type in your server IP with port 8080. You will see the Apache Tomcat home directory.

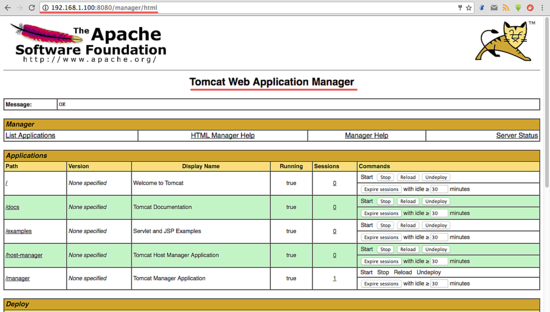
[http://192.168.1.100:8080](http://192.168.1.100:8080/)

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/8.png)

Go to the manager dashboard with the URL below:

<http://192.168.1.100:8080/manager/html>

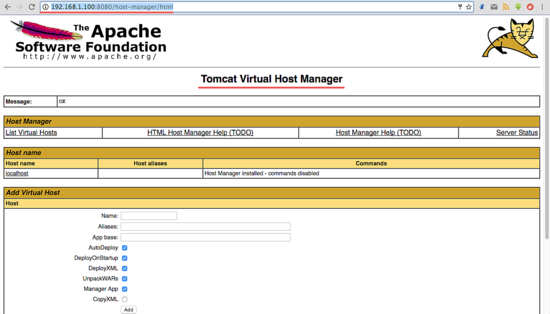
Type the admin username 'admin' with password 'mypassword', the configuration from step 5.

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/9.png)

Now go to the host-manager dashboard with URL below:

<http://192.168.1.100:8080/host-manager/html>

Enter the admin user and password from step 5, you will see the Tomcat Virtual host Manager.

[](https://www.howtoforge.com/images/how-to-install-apache-tomcat-8-5-on-ubuntu-16-04/big/10.png)

Apache Tomcat 8.5 has been installed and tested on Ubuntu 16.04.