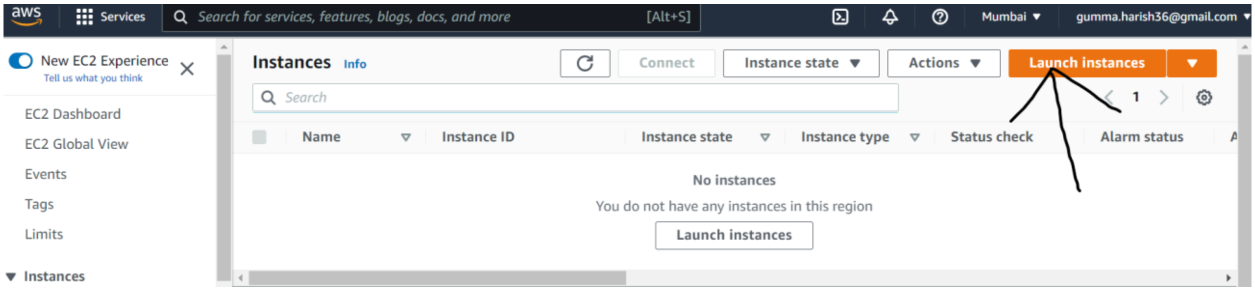
How to Install Apache Tomcat in RHEL 8

Step-1

Launch the instances

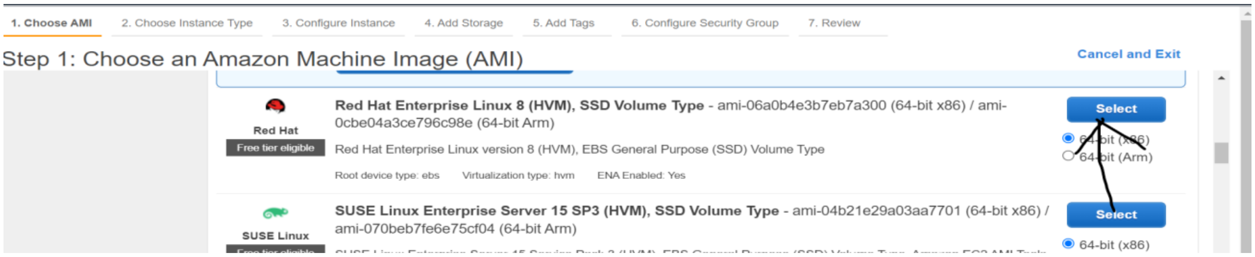


No instances

You do not have any instances in this region

Step-2

Choose an Amazon Machine Image (AMI)



Step 1: Choose an Amazon Machine Image (AMI)

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-06a0b4e3b7eb7a300 (64-bit x86) / ami-0cbe04a3ce796c98e (64-bit Arm)

Red Hat Enterprise Linux version 8 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

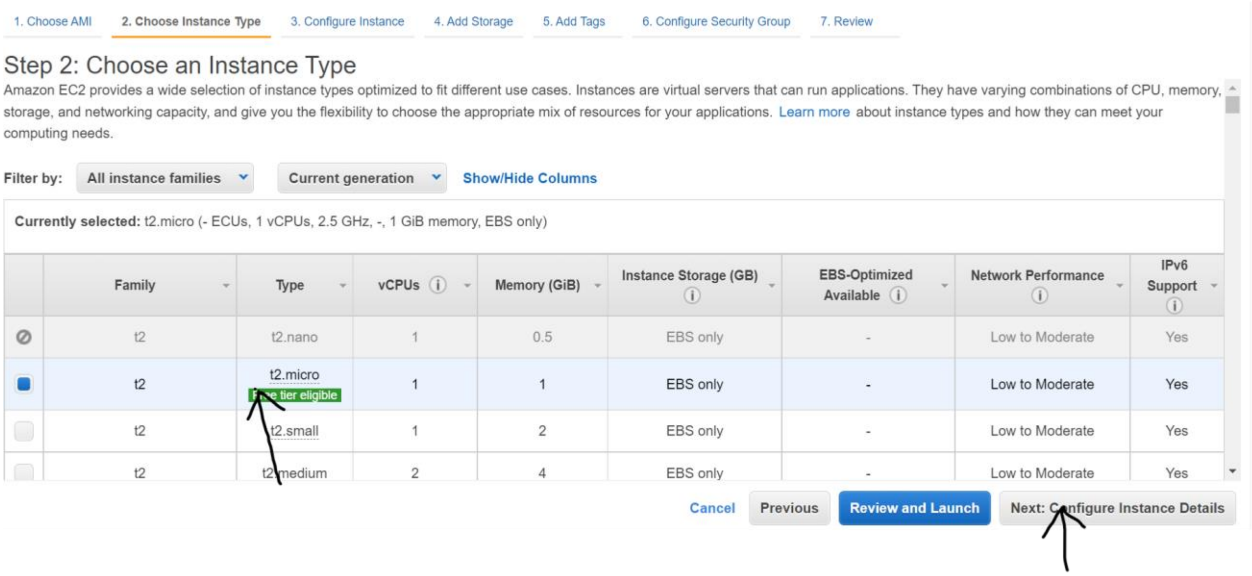
● 64-bit (x86)
○ 64-bit (Arm)

SUSE Linux Enterprise Server 15 SP3 (HVM), SSD Volume Type - ami-04b21e29a03aa7701 (64-bit x86) / ami-070beb7fe6e75cf04 (64-bit Arm)

● 64-bit (x86)

Step-3

Choose an instance type



Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

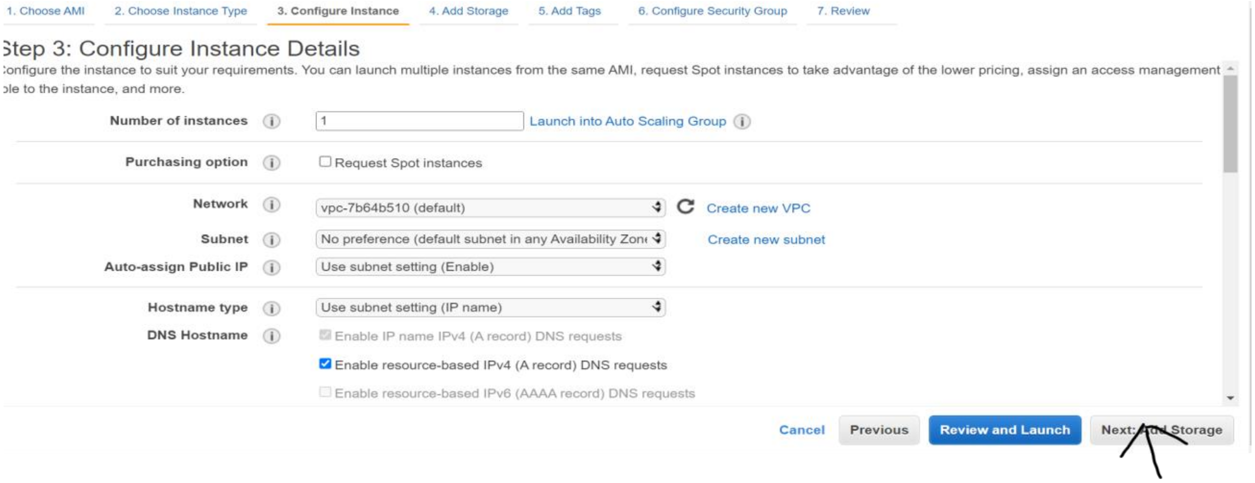
Filter by: All instance families | Current generation

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
⊘	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
■	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
□	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
□	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes

Step-4

Configure instance details (keep the defaults setting only)



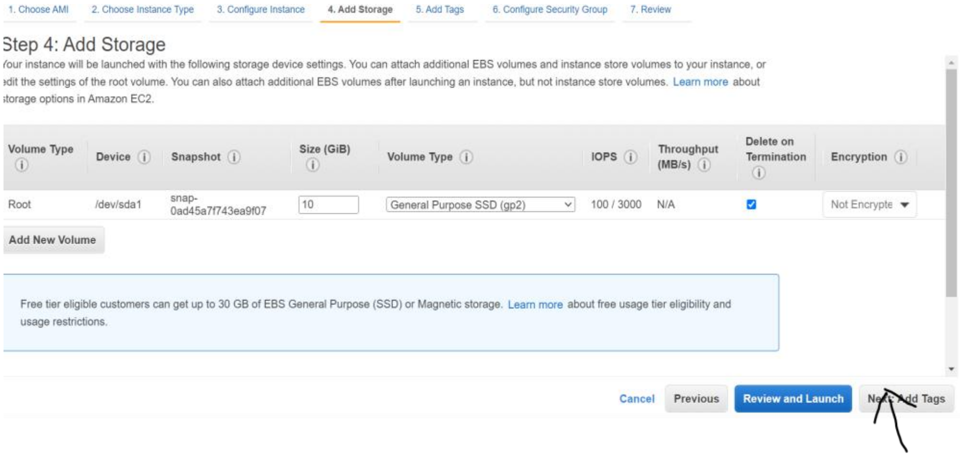
Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances	1	Launch into Auto Scaling Group
Purchasing option	□ Request Spot instances	
Network	vpc-7b64b510 (default)	Create new VPC
Subnet	No preference (default subnet in any Availability Zone	Create new subnet
Auto-assign Public IP	Use subnet setting (Enable)	
Hostname type	Use subnet setting (IP name)	
DNS Hostname	☑ Enable IP name IPv4 (A record) DNS requests ☑ Enable resource-based IPv4 (A record) DNS requests □ Enable resource-based IPv6 (AAAA record) DNS requests	

Step-5

Add storage (on need to add keep the default storage only)



Step 4: Add Storage

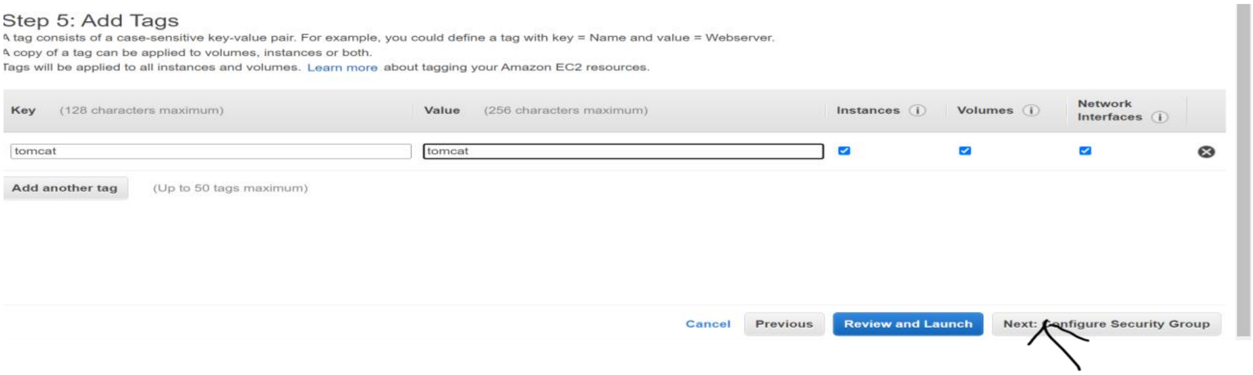
Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. Learn more about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-0ad45a7f743ea9f07	10	General Purpose SSD (gp2)	100 / 3000	N/A	☑	Not Encrypte

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. Learn more about free usage tier eligibility and usage restrictions.

Step-6

Add tags



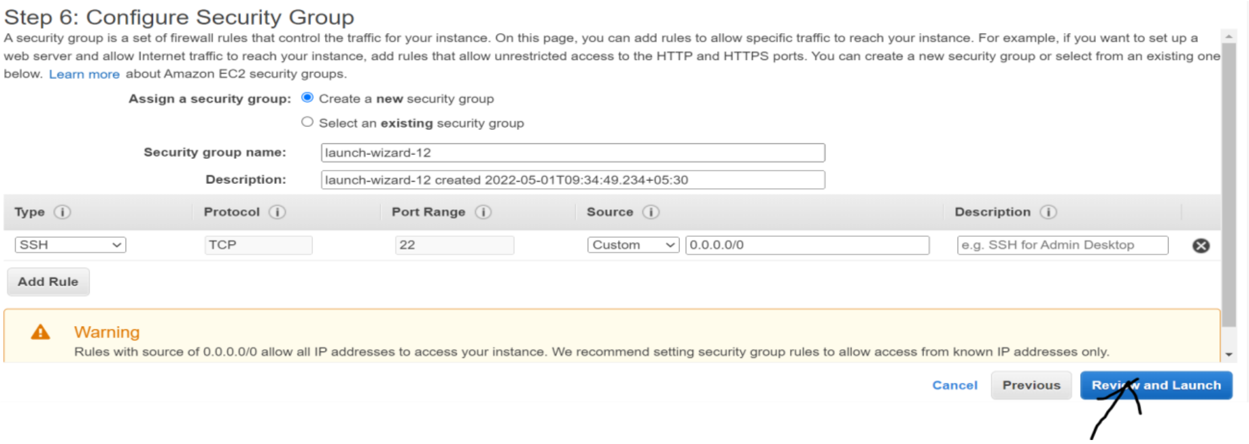
Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.
A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. Learn more about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances	Volumes	Network Interfaces
tomcat	tomcat	☑	☑	☑

Step-7

Configure security group (keep the defaults security group only don't change any thing)



Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

Assign a security group: ● Create a **new** security group
○ Select an **existing** security group

Security group name: launch-wizard-12

Description: launch-wizard-12 created 2022-05-01T09:34:49.234+05:30

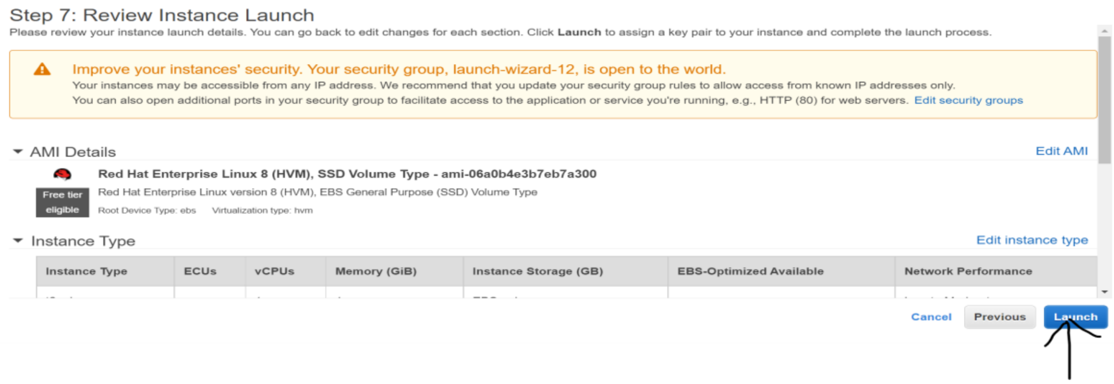
Type	Protocol	Port Range	Source		Description
SSH	TCP	22	Custom	0.0.0.0/0	e.g. SSH for Admin Desktop

Add Rule

Warning
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Step-8

Review instance launch



Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

Improve your instances' security. Your security group, launch-wizard-12, is open to the world.
Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. Edit security groups

AMI Details — Edit AMI

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-06a0b4e3b7eb7a300
Red Hat Enterprise Linux version 8 (HVM), EBS General Purpose (SSD) Volume Type
Root Device Type: ebs Virtualization type: hvm

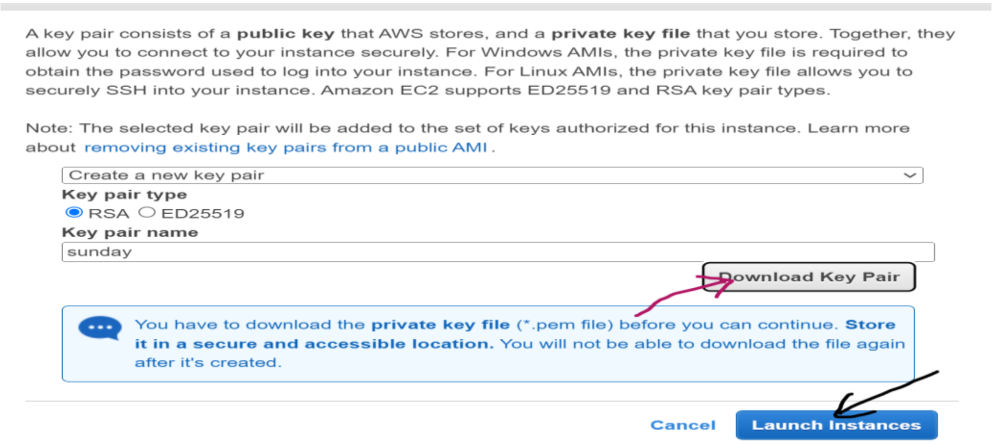
Free tier eligible

Instance Type — Edit instance type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance

Step-9

Creating a new key pair (Download the key pair) and the Launch the instance



A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI .

Create a new key pair

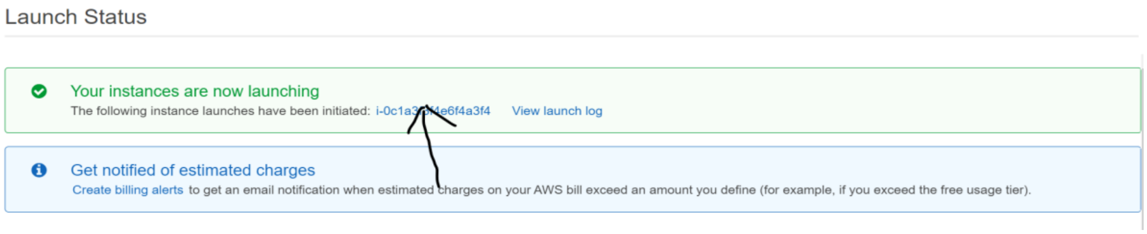
Key pair type
● RSA ○ ED25519

Key pair name
sunday

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Step-10

Launch status



Launch Status

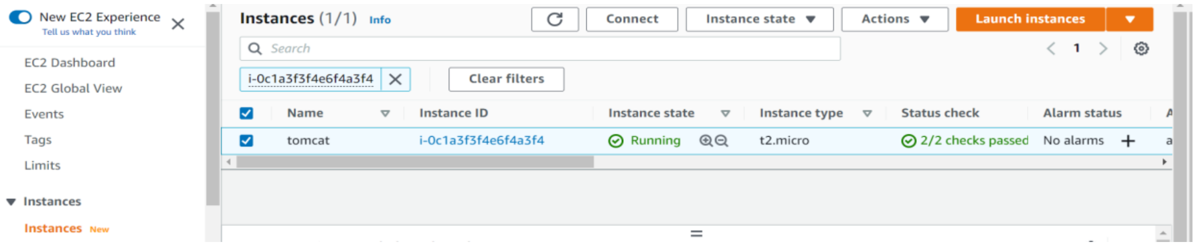
Your instances are now launching

The following instance launches have been initiated: i-0c1a3f3f4e6f4a3f4 View launch log

Get notified of estimated charges

Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

Finally we launched the instance



Instances (1/1) Info

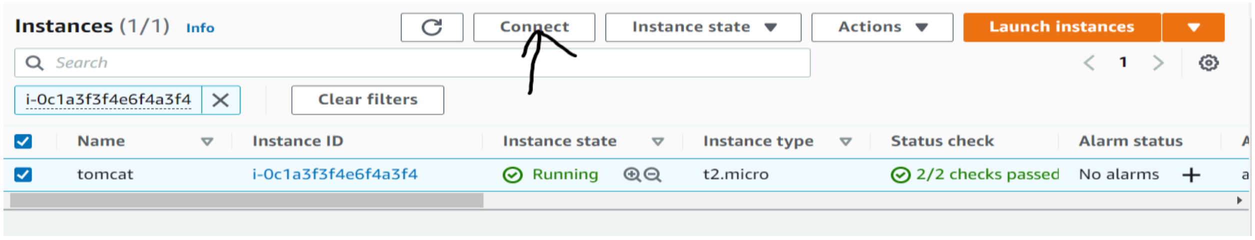
i-0c1a3f3f4e6f4a3f4

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
☑	tomcat	i-0c1a3f3f4e6f4a3f4	Running	t2.micro	2/2 checks passed	No alarms

1.After launching the instance we need to convert the pem file into ppk file to access the putty terminal

Step-11

Press connect



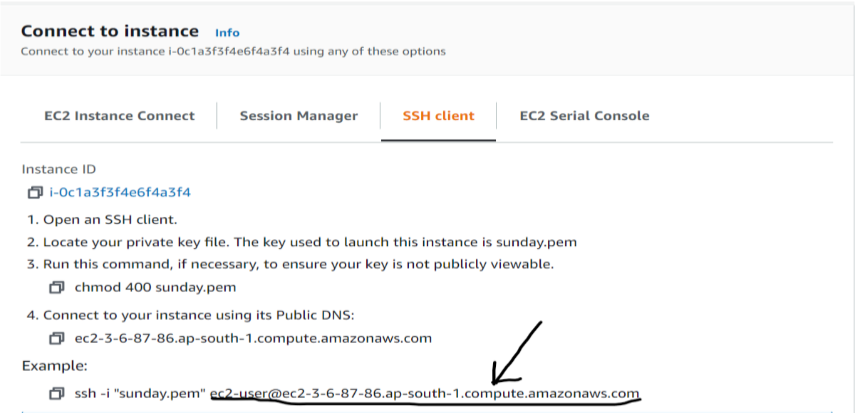
Instances (1/1) Info

i-0c1a3f3f4e6f4a3f4

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
☑	tomcat	i-0c1a3f3f4e6f4a3f4	Running	t2.micro	2/2 checks passed	No alarms

Step-12

Copy the SSH id



Connect to instance Info

Connect to your instance i-0c1a3f3f4e6f4a3f4 using any of these options

Instance ID

i-0c1a3f3f4e6f4a3f4

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is sunday.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.

```
chmod 400 sunday.pem
```

4. Connect to your instance using its Public DNS:

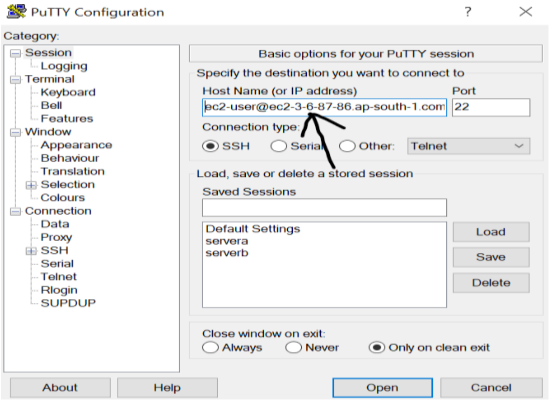
```
ec2-3-6-87-86.ap-south-1.compute.amazonaws.com
```

Example:

```
ssh -i "sunday.pem" ec2-user@ec2-3-6-87-86.ap-south-1.compute.amazonaws.com
```

Step-13

Open the putty (paste the ssh id inside the host name or IP address box)



PuTTY Configuration

Basic options for your PuTTY session

Specify the destination you want to connect to

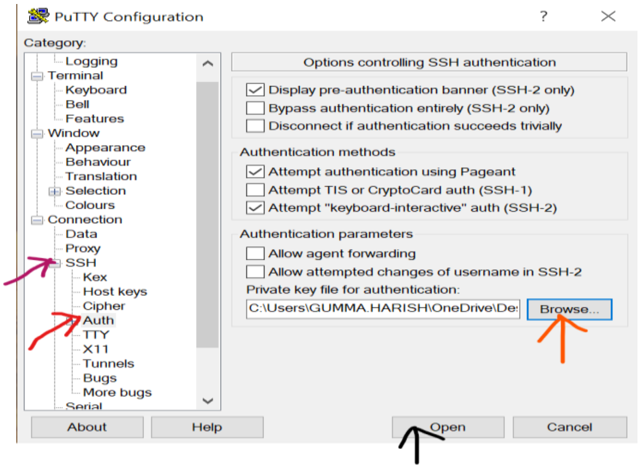
Host Name (or IP address): ec2-user@ec2-3-6-87-86.ap-south-1.com   Port: 22

Connection type: ● SSH ○ Serial ○ Other: Telnet

Load, save or delete a stored session

Saved Sessions: Default Settings, servera, serverb

Close window on exit: ○ Always ○ Never ● Only on clean exit



PuTTY Configuration

Options controlling SSH authentication

☑ Display pre-authentication banner (SSH-2 only)
□ Bypass authentication entirely (SSH-2 only)
□ Disconnect if authentication succeeds trivially

Authentication methods

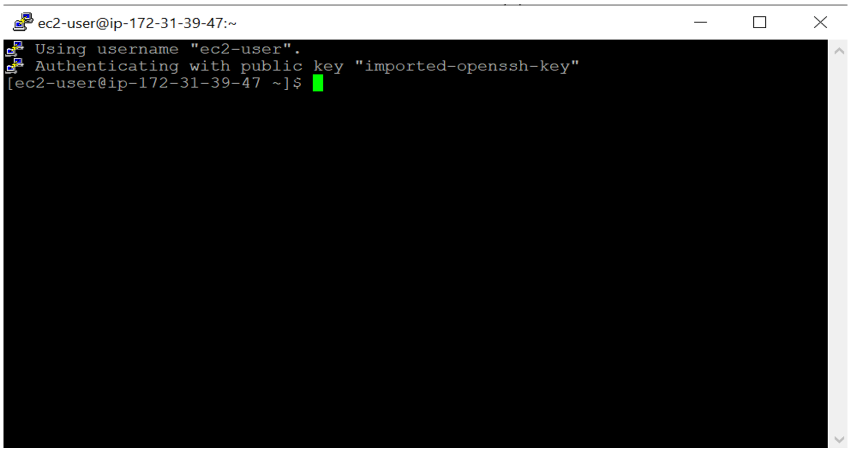
☑ Attempt authentication using Pageant
□ Attempt TIS or CryptoCard auth (SSH-1)
☑ Attempt "keyboard-interactive" auth (SSH-2)

Authentication parameters

□ Allow agent forwarding
□ Allow attempted changes of username in SSH-2

Private key file for authentication: C:\Users\GUMMA.HARISH\OneDrive\De

1. Click on SSH
2. Click on Auth
3. Browse for the ppk file
4. Open



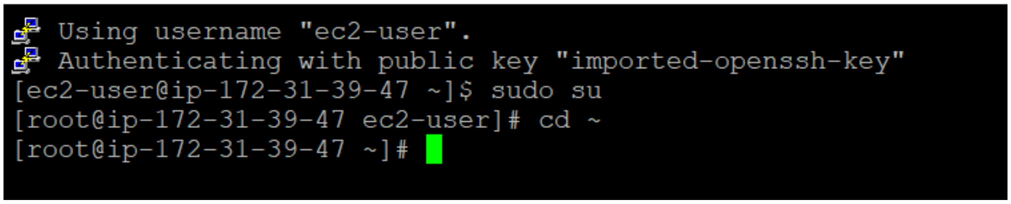
ec2-user@ip-172-31-39-47:~

```
Using username "ec2-user".
Authenticating with public key "imported-openssh-key"
[ec2-user@ip-172-31-39-47 ~]$
```

You will get like this terminal

Step-14

We need to switch to root

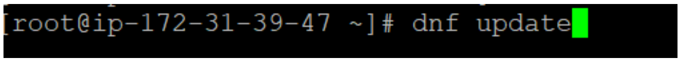


```
Using username "ec2-user".
Authenticating with public key "imported-openssh-key"
[ec2-user@ip-172-31-39-47 ~]$ sudo su
[root@ip-172-31-39-47 ec2-user]# cd ~
[root@ip-172-31-39-47 ~]# 
```

Step-15

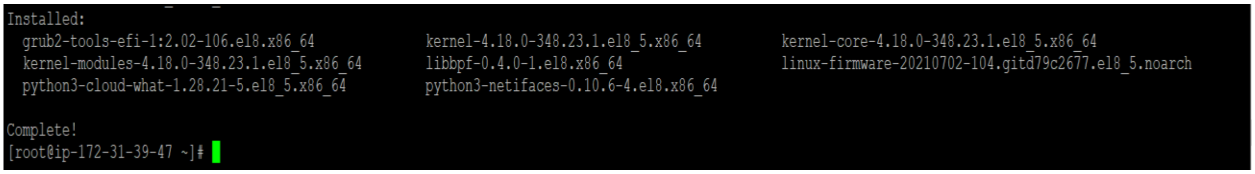
Installing Java on RHEL 8

# dnf update -y



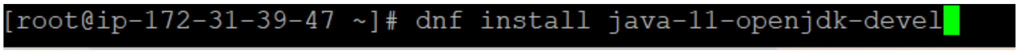
```
[root@ip-172-31-39-47 ~]# dnf update
```

Output is like this



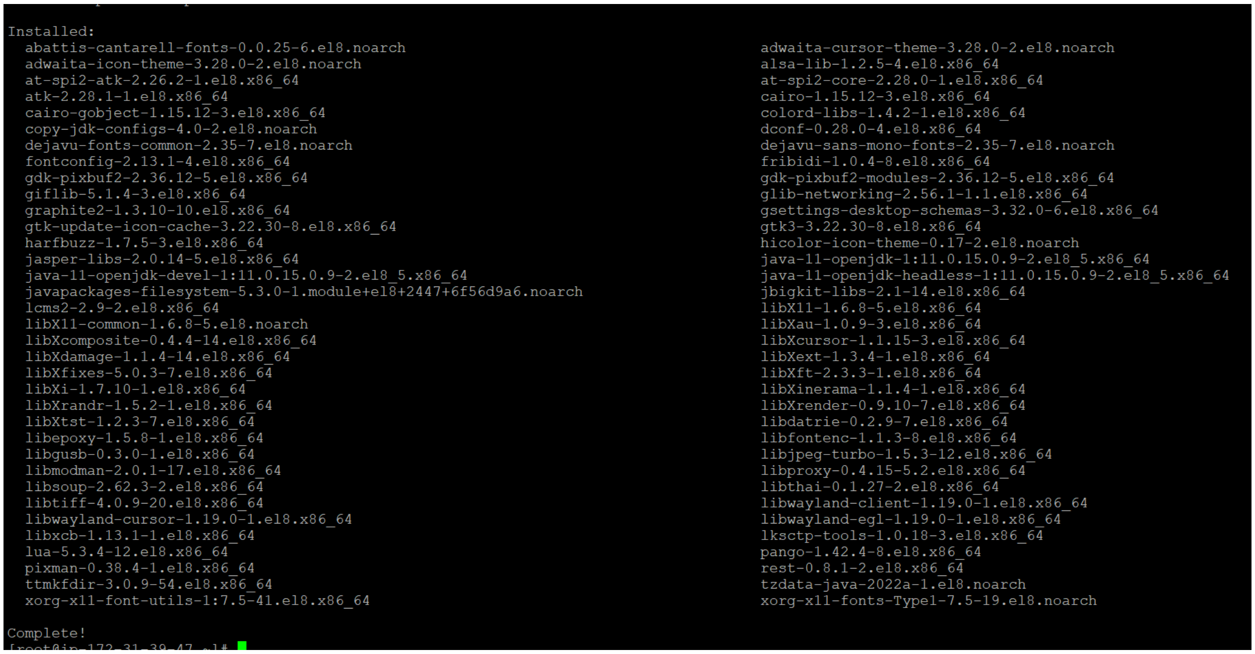
```
Installed:
  grub2-tools-efi-1:2.02-106.el8.x86_64            kernel-4.18.0-348.23.1.el8_5.x86_64           kernel-core-4.18.0-348.23.1.el8_5.x86_64
  kernel-modules-4.18.0-348.23.1.el8_5.x86_64      libbpf-0.4.0-1.el8.x86_64                     linux-firmware-20210702-104.gitd79c2677.el8_5.noarch
  python3-cloud-what-1.28.21-5.el8_5.x86_64        python3-netifaces-0.10.6-4.el8.x86_64

Complete!
[root@ip-172-31-39-47 ~]# 
```

dnf install java-11-openjdk-devel -y



```
[root@ip-172-31-39-47 ~]# dnf install java-11-openjdk-devel
```

Output is like this

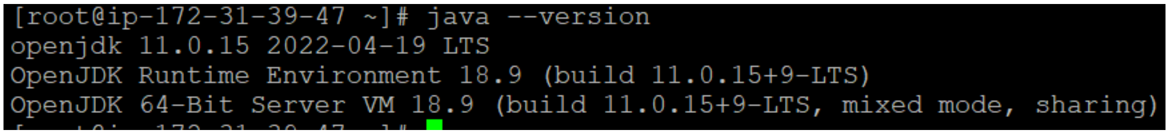


```
Installed:
  abattis-cantarell-fonts-0.0.25-6.el8.noarch                                          adwaita-cursor-theme-3.28.0-2.el8.noarch
  adwaita-icon-theme-3.28.0-2.el8.noarch                                               alsa-lib-1.2.5-4.el8.x86_64
  at-spi2-atk-2.26.2-1.el8.x86_64                                                      at-spi2-core-2.28.0-1.el8.x86_64
  atk-2.28.1-1.el8.x86_64                                                              cairo-1.15.12-3.el8.x86_64
  cairo-gobject-1.15.12-3.el8.x86_64                                                   colord-libs-1.4.2-1.el8.x86_64
  copy-jdk-configs-4.0-2.el8.noarch                                                    dconf-0.28.0-4.el8.x86_64
  dejavu-fonts-common-2.35-7.el8.noarch                                                dejavu-sans-mono-fonts-2.35-7.el8.noarch
  fontconfig-2.13.1-4.el8.x86_64                                                       fribidi-1.0.4-8.el8.x86_64
  gdk-pixbuf2-2.36.12-5.el8.x86_64                                                     gdk-pixbuf2-modules-2.36.12-5.el8.x86_64
  giflib-5.1.4-3.el8.x86_64                                                            glib-networking-2.56.1-1.1.el8.x86_64
  graphite2-1.3.10-10.el8.x86_64                                                       gsettings-desktop-schemas-3.32.0-6.el8.x86_64
  gtk-update-icon-cache-3.22.30-8.el8.x86_64                                           gtk3-3.22.30-8.el8.x86_64
  harfbuzz-1.7.5-3.el8.x86_64                                                          hicolor-icon-theme-0.17-2.el8.noarch
  jasper-libs-2.0.14-5.el8.x86_64                                                      java-11-openjdk-1:11.0.15.0.9-2.el8_5.x86_64
  java-11-openjdk-devel-1:11.0.15.0.9-2.el8_5.x86_64                                   java-11-openjdk-headless-1:11.0.15.0.9-2.el8_5.x86_64
  javapackages-filesystem-5.3.0-1.module+el8+2447+6f56d9a6.noarch                      jbigkit-libs-2.1-14.el8.x86_64
  lcms2-2.9-2.el8.x86_64                                                               libX11-1.6.8-5.el8.x86_64
  libX11-common-1.6.8-5.el8.noarch                                                     libXau-1.0.9-3.el8.x86_64
  libXcomposite-0.4.4-14.el8.x86_64                                                    libXcursor-1.1.15-3.el8.x86_64
  libXdamage-1.1.4-14.el8.x86_64                                                       libXext-1.3.4-1.el8.x86_64
  libXfixes-5.0.3-7.el8.x86_64                                                         libXft-2.3.3-1.el8.x86_64
  libXi-1.7.10-1.el8.x86_64                                                            libXinerama-1.1.4-1.el8.x86_64
  libXrandr-1.5.2-1.el8.x86_64                                                         libXrender-0.9.10-7.el8.x86_64
  libXtst-1.2.3-7.el8.x86_64                                                           libdatrie-0.2.9-7.el8.x86_64
  libepoxy-1.5.8-1.el8.x86_64                                                          libfontenc-1.1.3-8.el8.x86_64
  libgusb-0.3.0-1.el8.x86_64                                                           libjpeg-turbo-1.5.3-12.el8.x86_64
  libmodman-2.0.1-17.el8.x86_64                                                        libproxy-0.4.15-5.2.el8.x86_64
  libsoup-2.62.3-2.el8.x86_64                                                          libthai-0.1.27-2.el8.x86_64
  libtiff-4.0.9-20.el8.x86_64                                                          libwayland-client-1.19.0-1.el8.x86_64
  libwayland-cursor-1.19.0-1.el8.x86_64                                                libwayland-egl-1.19.0-1.el8.x86_64
  libxcb-1.13.1-1.el8.x86_64                                                           lksctp-tools-1.0.18-3.el8.x86_64
  lua-5.3.4-12.el8.x86_64                                                              pango-1.42.4-8.el8.x86_64
  pixman-0.38.4-1.el8.x86_64                                                           rest-0.8.1-2.el8.x86_64
  ttmkfdir-3.0.9-54.el8.x86_64                                                         tzdata-java-2022a-1.el8.noarch
  xorg-x11-font-utils-1:7.5-41.el8.x86_64                                              xorg-x11-fonts-Type1-7.5-19.el8.noarch

Complete!
[root@ip-172-31-39-47 ~]# 
```

Once the installation finishes, you can verify the installed Java version on the system using the following command.

java –version

Sample output



```
[root@ip-172-31-39-47 ~]# java --version
openjdk 11.0.15 2022-04-19 LTS
OpenJDK Runtime Environment 18.9 (build 11.0.15+9-LTS)
OpenJDK 64-Bit Server VM 18.9 (build 11.0.15+9-LTS, mixed mode, sharing)
```

Step-16

Installing Apache Tomcat on RHEL 8

Once **JAVA** has been installed on the system, now it's time to download the latest version of **Apache Tomcat**

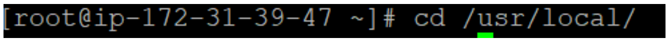
The official Apache download page and check if there is a newer version available to download.

Open this link - https://tomcat.apache.org/download-90.cgi

Download the latest version of **Apache Tomcat**

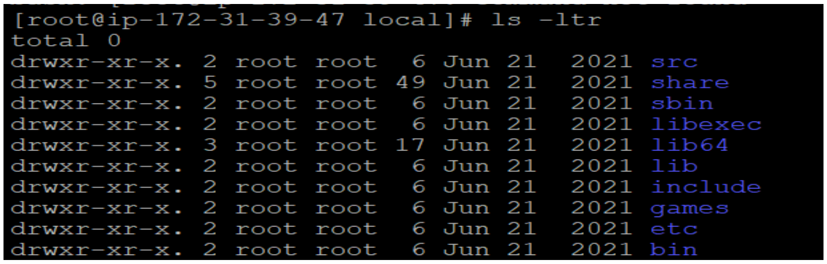
- We need to change directory

cd /usr/local



```
[root@ip-172-31-39-47 ~]# cd /usr/local/
```

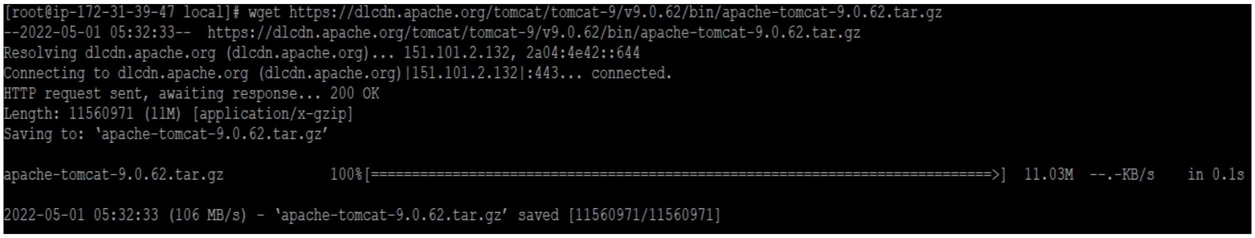
ls -ltr



```
[root@ip-172-31-39-47 local]# ls -ltr
total 0
drwxr-xr-x. 2 root root  6 Jun 21  2021 src
drwxr-xr-x. 5 root root 49 Jun 21  2021 share
drwxr-xr-x. 2 root root  6 Jun 21  2021 sbin
drwxr-xr-x. 2 root root  6 Jun 21  2021 libexec
drwxr-xr-x. 3 root root 17 Jun 21  2021 lib64
drwxr-xr-x. 2 root root  6 Jun 21  2021 lib
drwxr-xr-x. 2 root root  6 Jun 21  2021 include
drwxr-xr-x. 2 root root  6 Jun 21  2021 games
drwxr-xr-x. 2 root root  6 Jun 21  2021 etc
drwxr-xr-x. 2 root root  6 Jun 21  2021 bin
```

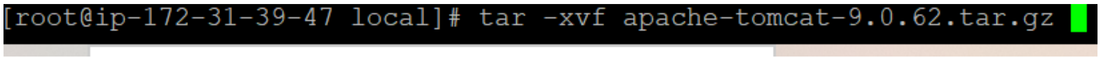
wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.62/bin/apache-tomcat-9.0.62.tar.gz

Sample output



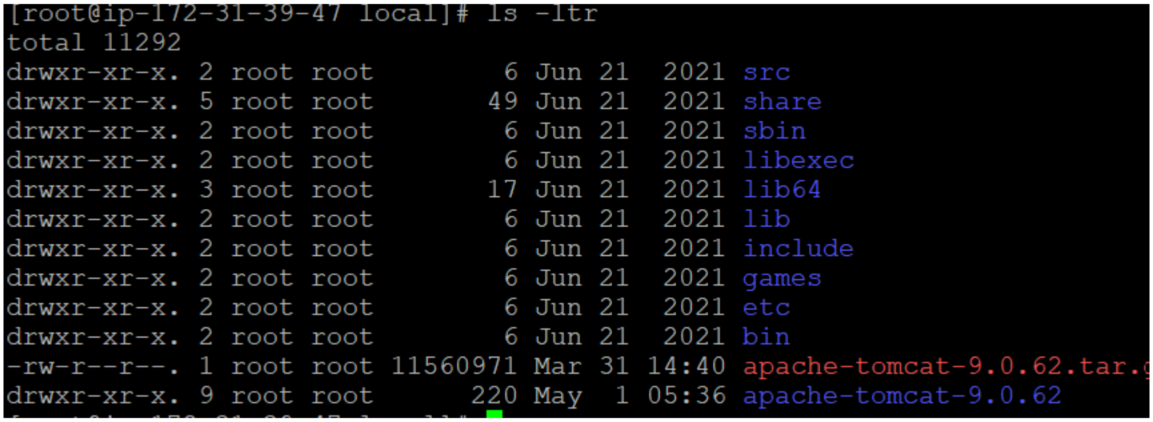
```
[root@ip-172-31-39-47 local]# wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.62/bin/apache-tomcat-9.0.62.tar.gz
--2022-05-01 05:32:33--  https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.62/bin/apache-tomcat-9.0.62.tar.gz
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11560971 (11M) [application/x-gzip]
Saving to: 'apache-tomcat-9.0.62.tar.gz'

apache-tomcat-9.0.62.tar.gz          100%[===========================================================================>]  11.03M  --.-KB/s    in 0.1s

2022-05-01 05:32:33 (106 MB/s) - 'apache-tomcat-9.0.62.tar.gz' saved [11560971/11560971]
```

# tar -xvf apache-tomcat-9.0.62.tar.gz



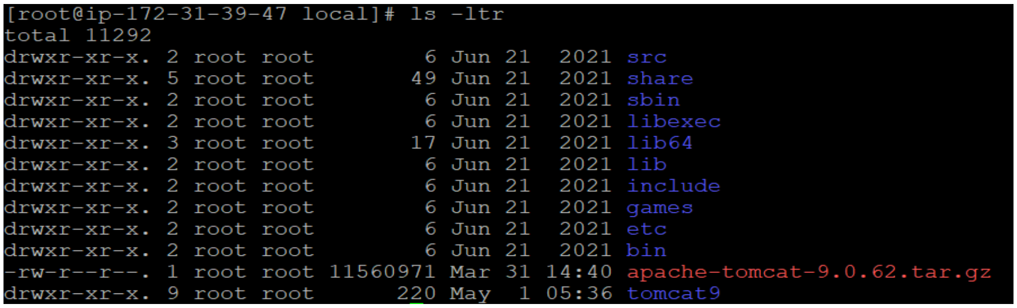
```
[root@ip-172-31-39-47 local]# tar -xvf apache-tomcat-9.0.62.tar.gz
```

Sample output



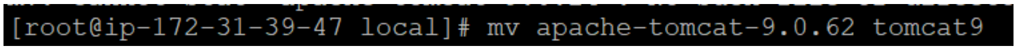
```
[root@ip-172-31-39-47 local]# ls -ltr
total 11292
drwxr-xr-x. 2 root root        6 Jun 21  2021 src
drwxr-xr-x. 5 root root       49 Jun 21  2021 share
drwxr-xr-x. 2 root root        6 Jun 21  2021 sbin
drwxr-xr-x. 2 root root        6 Jun 21  2021 libexec
drwxr-xr-x. 3 root root       17 Jun 21  2021 lib64
drwxr-xr-x. 2 root root        6 Jun 21  2021 lib
drwxr-xr-x. 2 root root        6 Jun 21  2021 include
drwxr-xr-x. 2 root root        6 Jun 21  2021 games
drwxr-xr-x. 2 root root        6 Jun 21  2021 etc
drwxr-xr-x. 2 root root        6 Jun 21  2021 bin
-rw-r--r--. 1 root root 11560971 Mar 31 14:40 apache-tomcat-9.0.62.tar.g
drwxr-xr-x. 9 root root      220 May  1 05:36 apache-tomcat-9.0.62
```

# ls -ltr



```
[root@ip-172-31-39-47 local]# ls -ltr
total 11292
drwxr-xr-x. 2 root root        6 Jun 21  2021 src
drwxr-xr-x. 5 root root       49 Jun 21  2021 share
drwxr-xr-x. 2 root root        6 Jun 21  2021 sbin
drwxr-xr-x. 2 root root        6 Jun 21  2021 libexec
drwxr-xr-x. 3 root root       17 Jun 21  2021 lib64
drwxr-xr-x. 2 root root        6 Jun 21  2021 lib
drwxr-xr-x. 2 root root        6 Jun 21  2021 include
drwxr-xr-x. 2 root root        6 Jun 21  2021 games
drwxr-xr-x. 2 root root        6 Jun 21  2021 etc
drwxr-xr-x. 2 root root        6 Jun 21  2021 bin
-rw-r--r--. 1 root root 11560971 Mar 31 14:40 apache-tomcat-9.0.62.tar.gz
drwxr-xr-x. 9 root root      220 May  1 05:36 tomcat9
```

# mv apache-tomcat-9.0.62 tomcat9

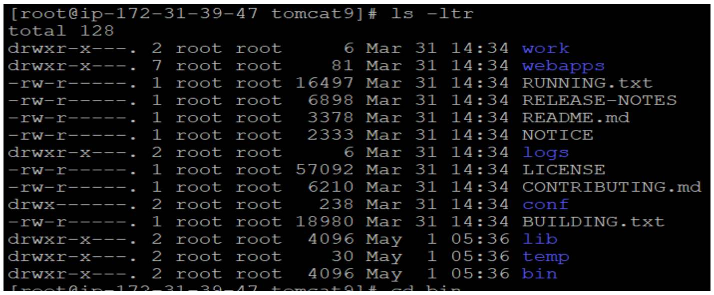


```
[root@ip-172-31-39-47 local]# mv apache-tomcat-9.0.62 tomcat9
```

# cd tomcat9/

# pwd

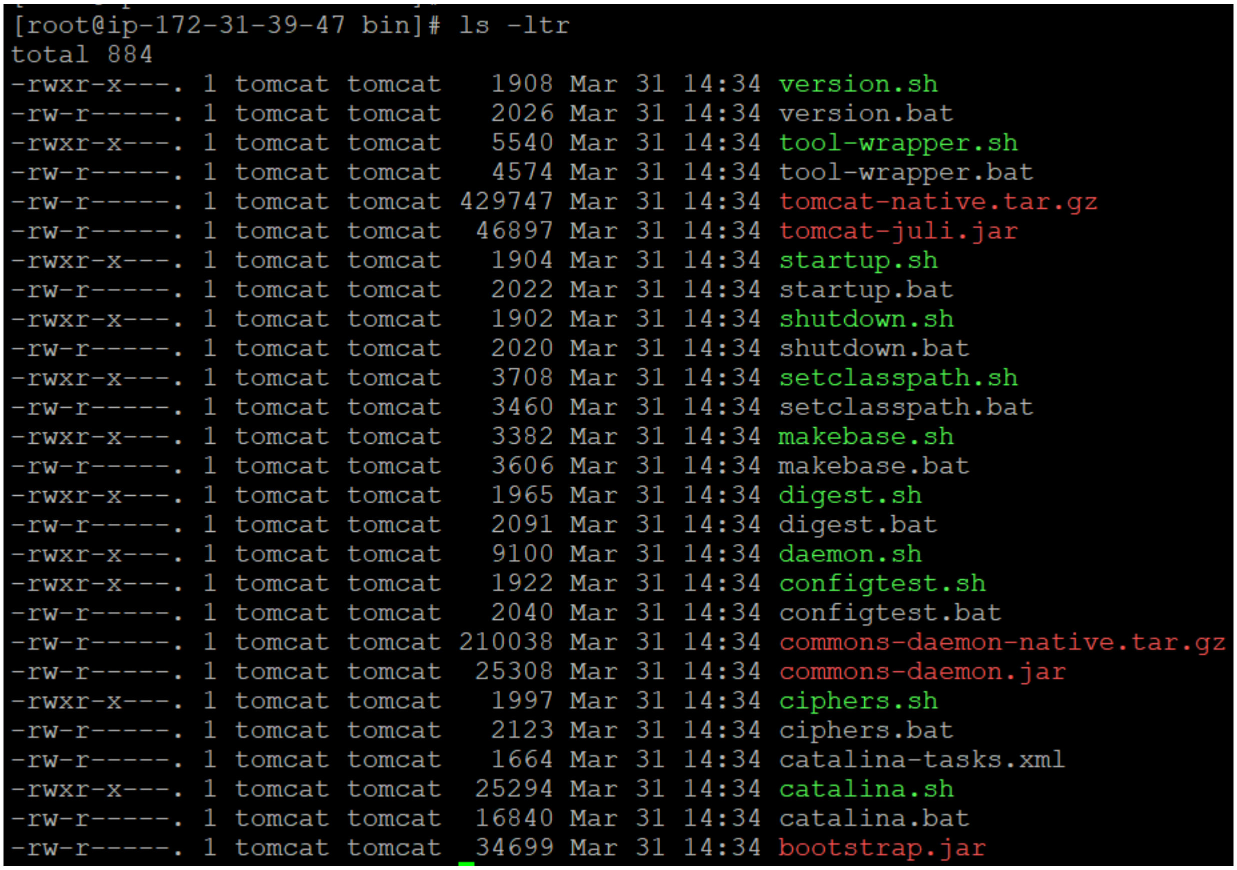
# ls -ltr



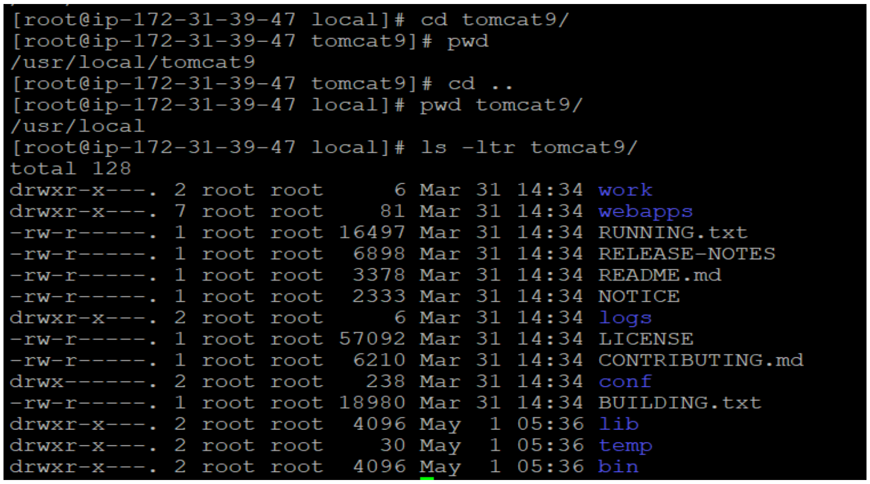
```
[root@ip-172-31-39-47 tomcat9]# ls -ltr
total 128
drwxr-x---. 2 root root     6 Mar 31 14:34 work
drwxr-x---. 7 root root    81 Mar 31 14:34 webapps
-rw-r-----. 1 root root 16497 Mar 31 14:34 RUNNING.txt
-rw-r-----. 1 root root  6898 Mar 31 14:34 RELEASE-NOTES
-rw-r-----. 1 root root  3378 Mar 31 14:34 README.md
-rw-r-----. 1 root root  2333 Mar 31 14:34 NOTICE
drwxr-x---. 2 root root     6 Mar 31 14:34 logs
-rw-r-----. 1 root root 57092 Mar 31 14:34 LICENSE
-rw-r-----. 1 root root  6210 Mar 31 14:34 CONTRIBUTING.md
drwx------. 2 root root   238 Mar 31 14:34 conf
-rw-r-----. 1 root root 18980 Mar 31 14:34 BUILDING.txt
drwxr-x---. 2 root root  4096 May  1 05:36 lib
drwxr-x---. 2 root root    30 May  1 05:36 temp
drwxr-x---. 2 root root  4096 May  1 05:36 bin
[root@ip-172-31-39-47 tomcat9]# cd bin
```

# cd bin

# ls -ltr



```
[root@ip-172-31-39-47 bin]# ls -ltr
total 884
-rwxr-x---. 1 tomcat tomcat   1908 Mar 31 14:34 version.sh
-rw-r-----. 1 tomcat tomcat   2026 Mar 31 14:34 version.bat
-rwxr-x---. 1 tomcat tomcat   5540 Mar 31 14:34 tool-wrapper.sh
-rw-r-----. 1 tomcat tomcat   4574 Mar 31 14:34 tool-wrapper.bat
-rw-r-----. 1 tomcat tomcat 429747 Mar 31 14:34 tomcat-native.tar.gz
-rw-r-----. 1 tomcat tomcat  46897 Mar 31 14:34 tomcat-juli.jar
-rwxr-x---. 1 tomcat tomcat   1904 Mar 31 14:34 startup.sh
-rw-r-----. 1 tomcat tomcat   2022 Mar 31 14:34 startup.bat
-rwxr-x---. 1 tomcat tomcat   1902 Mar 31 14:34 shutdown.sh
-rw-r-----. 1 tomcat tomcat   2020 Mar 31 14:34 shutdown.bat
-rwxr-x---. 1 tomcat tomcat   3708 Mar 31 14:34 setclasspath.sh
-rw-r-----. 1 tomcat tomcat   3460 Mar 31 14:34 setclasspath.bat
-rwxr-x---. 1 tomcat tomcat   3382 Mar 31 14:34 makebase.sh
-rw-r-----. 1 tomcat tomcat   3606 Mar 31 14:34 makebase.bat
-rwxr-x---. 1 tomcat tomcat   1965 Mar 31 14:34 digest.sh
-rw-r-----. 1 tomcat tomcat   2091 Mar 31 14:34 digest.bat
-rwxr-x---. 1 tomcat tomcat   9100 Mar 31 14:34 daemon.sh
-rwxr-x---. 1 tomcat tomcat   1922 Mar 31 14:34 configtest.sh
-rw-r-----. 1 tomcat tomcat   2040 Mar 31 14:34 configtest.bat
-rw-r-----. 1 tomcat tomcat 210038 Mar 31 14:34 commons-daemon-native.tar.gz
-rw-r-----. 1 tomcat tomcat  25308 Mar 31 14:34 commons-daemon.jar
-rwxr-x---. 1 tomcat tomcat   1997 Mar 31 14:34 ciphers.sh
-rw-r-----. 1 tomcat tomcat   2123 Mar 31 14:34 ciphers.bat
-rw-r-----. 1 tomcat tomcat   1664 Mar 31 14:34 catalina-tasks.xml
-rwxr-x---. 1 tomcat tomcat  25294 Mar 31 14:34 catalina.sh
-rw-r-----. 1 tomcat tomcat  16840 Mar 31 14:34 catalina.bat
-rw-r-----. 1 tomcat tomcat  34699 Mar 31 14:34 bootstrap.jar
```



```
[root@ip-172-31-39-47 local]# cd tomcat9/
[root@ip-172-31-39-47 tomcat9]# pwd
/usr/local/tomcat9
[root@ip-172-31-39-47 tomcat9]# cd ..
[root@ip-172-31-39-47 local]# pwd tomcat9/
/usr/local
[root@ip-172-31-39-47 local]# ls -ltr tomcat9/
total 128
drwxr-x---. 2 root root     6 Mar 31 14:34 work
drwxr-x---. 7 root root    81 Mar 31 14:34 webapps
-rw-r-----. 1 root root 16497 Mar 31 14:34 RUNNING.txt
-rw-r-----. 1 root root  6898 Mar 31 14:34 RELEASE-NOTES
-rw-r-----. 1 root root  3378 Mar 31 14:34 README.md
-rw-r-----. 1 root root  2333 Mar 31 14:34 NOTICE
drwxr-x---. 2 root root     6 Mar 31 14:34 logs
-rw-r-----. 1 root root 57092 Mar 31 14:34 LICENSE
-rw-r-----. 1 root root  6210 Mar 31 14:34 CONTRIBUTING.md
drwx------. 2 root root   238 Mar 31 14:34 conf
-rw-r-----. 1 root root 18980 Mar 31 14:34 BUILDING.txt
drwxr-x---. 2 root root  4096 May  1 05:36 lib
drwxr-x---. 2 root root    30 May  1 05:36 temp
drwxr-x---. 2 root root  4096 May  1 05:36 bin
```

The following is a description of each of the sub-directories in the installation directory of Apache Tomcat.

bin – contains the executables.

conf – contains configuration files.

lib – stores library files.

log – stores log files.

temp – contains temporary files.

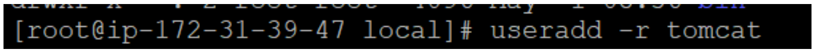
webaaps – stores web application files

Step-16

Running Apache Tomcat Under Systemd in RHEL 8

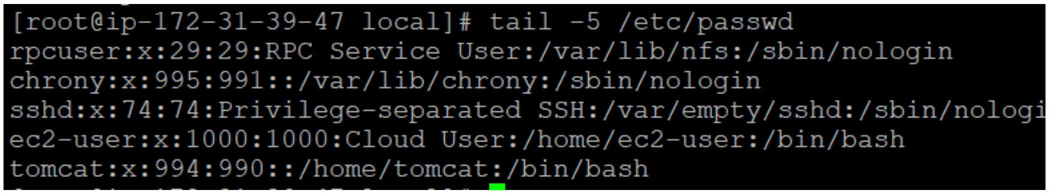
To easily manage the **Apache Tomcat** daemon, you need to run it as a service under **systemd** (system and service manager). The service will run with permissions of a system user called **tomcat**

# useradd -r tomcat



```
[root@ip-172-31-39-47 local]# useradd -r tomcat
```

# tail -5 /etc/passwd

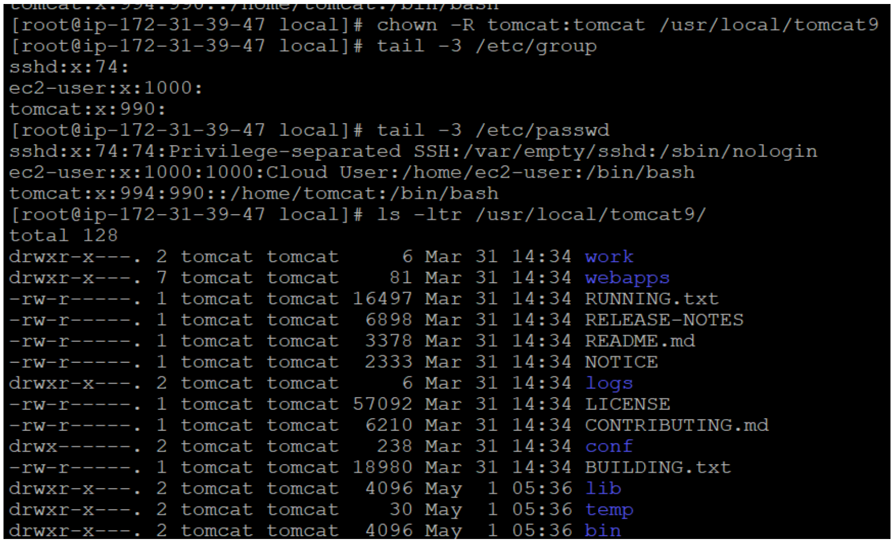


```
[root@ip-172-31-39-47 local]# tail -5 /etc/passwd
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
chrony:x:995:991::/var/lib/chrony:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologi
ec2-user:x:1000:1000:Cloud User:/home/ec2-user:/bin/bash
tomcat:x:994:990::/home/tomcat:/bin/bash
```

Once the **tomcat** user is created, give it permissions and ownership rights to the Tomcat installation directory and all of its contents using the following chown command.

chown -R tomcat:tomcat /usr/local/tomcat9

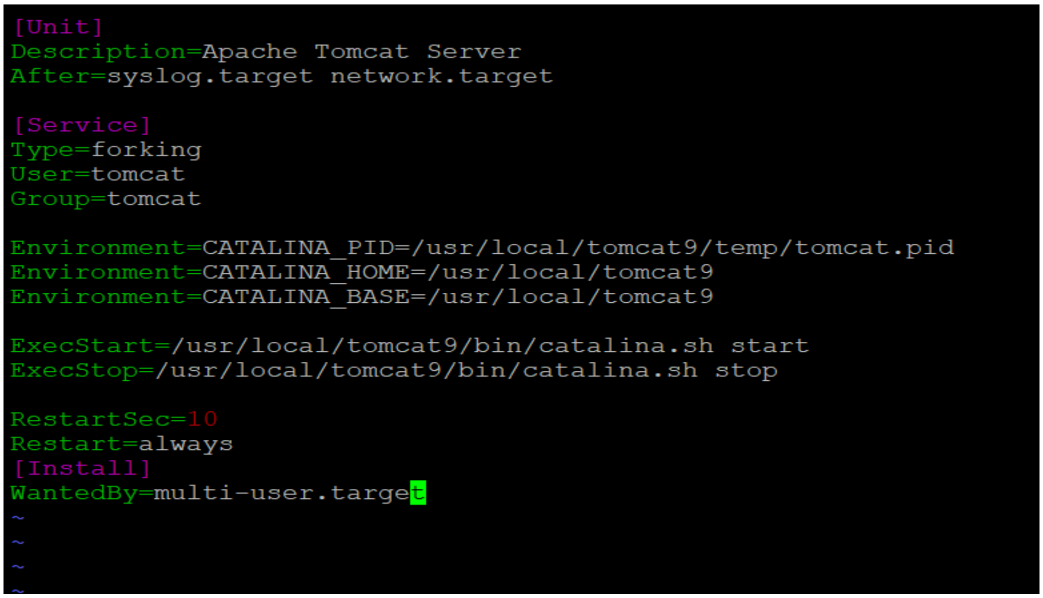
ls -ltr /usr/local/tomcat9



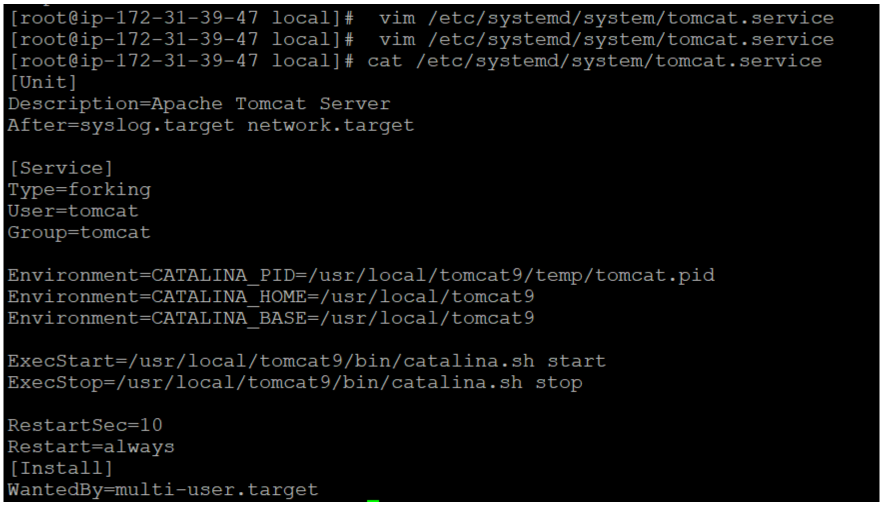
```
[root@ip-172-31-39-47 local]# chown -R tomcat:tomcat /usr/local/tomcat9
[root@ip-172-31-39-47 local]# tail -3 /etc/group
sshd:x:74:
ec2-user:x:1000:
tomcat:x:990:
[root@ip-172-31-39-47 local]# tail -3 /etc/passwd
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
ec2-user:x:1000:1000:Cloud User:/home/ec2-user:/bin/bash
tomcat:x:994:990::/home/tomcat:/bin/bash
[root@ip-172-31-39-47 local]# ls -ltr /usr/local/tomcat9/
total 128
drwxr-x---. 2 tomcat tomcat     6 Mar 31 14:34 work
drwxr-x---. 7 tomcat tomcat    81 Mar 31 14:34 webapps
-rw-r-----. 1 tomcat tomcat 16497 Mar 31 14:34 RUNNING.txt
-rw-r-----. 1 tomcat tomcat  6898 Mar 31 14:34 RELEASE-NOTES
-rw-r-----. 1 tomcat tomcat  3378 Mar 31 14:34 README.md
-rw-r-----. 1 tomcat tomcat  2333 Mar 31 14:34 NOTICE
drwxr-x---. 2 tomcat tomcat     6 Mar 31 14:34 logs
-rw-r-----. 1 tomcat tomcat 57092 Mar 31 14:34 LICENSE
-rw-r-----. 1 tomcat tomcat  6210 Mar 31 14:34 CONTRIBUTING.md
drwx------. 2 tomcat tomcat   238 Mar 31 14:34 conf
-rw-r-----. 1 tomcat tomcat 18980 Mar 31 14:34 BUILDING.txt
drwxr-x---. 2 tomcat tomcat  4096 May  1 05:36 lib
drwxr-x---. 2 tomcat tomcat    30 May  1 05:36 temp
drwxr-x---. 2 tomcat tomcat  4096 May  1 05:36 bin
```

Next, create a tomcat.service unit file under **/etc/systemd/system/** directory using your favorite text editor.

vim /etc/systemd/system/tomcat.service



```
[Unit]
Description=Apache Tomcat Server
After=syslog.target network.target

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

Environment=CATALINA_PID=/usr/local/tomcat9/temp/tomcat.pid
Environment=CATALINA_HOME=/usr/local/tomcat9
Environment=CATALINA_BASE=/usr/local/tomcat9

ExecStart=/usr/local/tomcat9/bin/catalina.sh start
ExecStop=/usr/local/tomcat9/bin/catalina.sh stop

RestartSec=10
Restart=always
[Install]
WantedBy=multi-user.target
~
~
~
~
```



```
[root@ip-172-31-39-47 local]#  vim /etc/systemd/system/tomcat.service
[root@ip-172-31-39-47 local]#  vim /etc/systemd/system/tomcat.service
[root@ip-172-31-39-47 local]# cat /etc/systemd/system/tomcat.service
[Unit]
Description=Apache Tomcat Server
After=syslog.target network.target

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

Environment=CATALINA_PID=/usr/local/tomcat9/temp/tomcat.pid
Environment=CATALINA_HOME=/usr/local/tomcat9
Environment=CATALINA_BASE=/usr/local/tomcat9

ExecStart=/usr/local/tomcat9/bin/catalina.sh start
ExecStop=/usr/local/tomcat9/bin/catalina.sh stop

RestartSec=10
Restart=always
[Install]
WantedBy=multi-user.target
```

Save the file reload the systemd configuration to apply the recent changes using the following command.

# systemctl daemon-reload

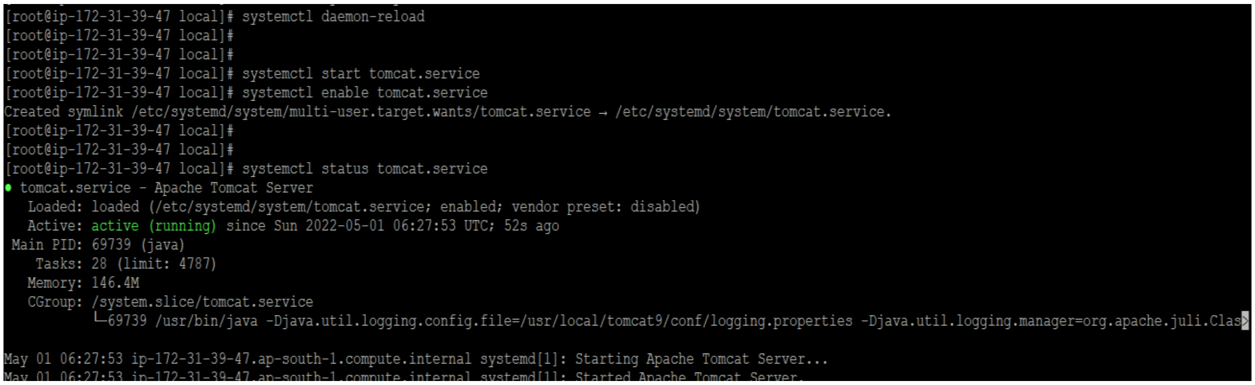
Then start the **tomcat** service, enable it to auto-start at system boot and check the status using the following commands.

# systemctl start tomcat.service

# systemctl enable tomcat.service

# systemctl status tomcat.service

Sample output

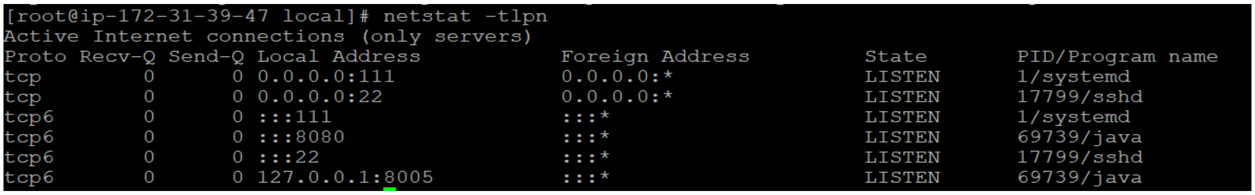


```
[root@ip-172-31-39-47 local]# systemctl daemon-reload
[root@ip-172-31-39-47 local]#
[root@ip-172-31-39-47 local]#
[root@ip-172-31-39-47 local]# systemctl start tomcat.service
[root@ip-172-31-39-47 local]# systemctl enable tomcat.service
Created symlink /etc/systemd/system/multi-user.target.wants/tomcat.service → /etc/systemd/system/tomcat.service.
[root@ip-172-31-39-47 local]#
[root@ip-172-31-39-47 local]#
[root@ip-172-31-39-47 local]# systemctl status tomcat.service
● tomcat.service - Apache Tomcat Server
   Loaded: loaded (/etc/systemd/system/tomcat.service; enabled; vendor preset: disabled)
   Active: active (running) since Sun 2022-05-01 06:27:53 UTC; 52s ago
 Main PID: 69739 (java)
    Tasks: 28 (limit: 4787)
   Memory: 146.4M
   CGroup: /system.slice/tomcat.service
           └─69739 /usr/bin/java -Djava.util.logging.config.file=/usr/local/tomcat9/conf/logging.properties -Djava.util.logging.manager=org.apache.juli.Clas>

May 01 06:27:53 ip-172-31-39-47.ap-south-1.compute.internal systemd[1]: Starting Apache Tomcat Server...
May 01 06:27:53 ip-172-31-39-47.ap-south-1.compute.internal systemd[1]: Started Apache Tomcat Server.
```

Tomcat uses port **8080** and **8443** for **HTTP** and **HTTPS** requests respectively.

You can also confirm that the daemon is up and listening by checking the HTTP port among all listening ports on the system using netstat -tlpn

netstat -tlpn



```
[root@ip-172-31-39-47 local]# netstat -tlpn
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:111             0.0.0.0:*               LISTEN      1/systemd
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      17799/sshd
tcp6       0      0 :::111                  :::*                    LISTEN      1/systemd
tcp6       0      0 :::8080                 :::*                    LISTEN      69739/java
tcp6       0      0 :::22                   :::*                    LISTEN      17799/sshd
tcp6       0      0 127.0.0.1:8005          :::*                    LISTEN      69739/java
```

Step-17

Firewalld service running check

If you have the firewalld service running, you must open the ports 8080 and 8443 before accessing the web interface for Tomcat, using the firewall-cmd command as shown.

1.we need check whether the firewall is installed are not for we use the command

 # yum list firewall*

2) If it is not installed we need to install for we use the command

# yum install firewall* -y

3) If you want the firewall daemon service we use the command

# systemctl list-unit-files | grep “firewall”

4) we need to check the firewalld.service status .if it is not in running state . we need to enable and start the firewalld.service we use these commands

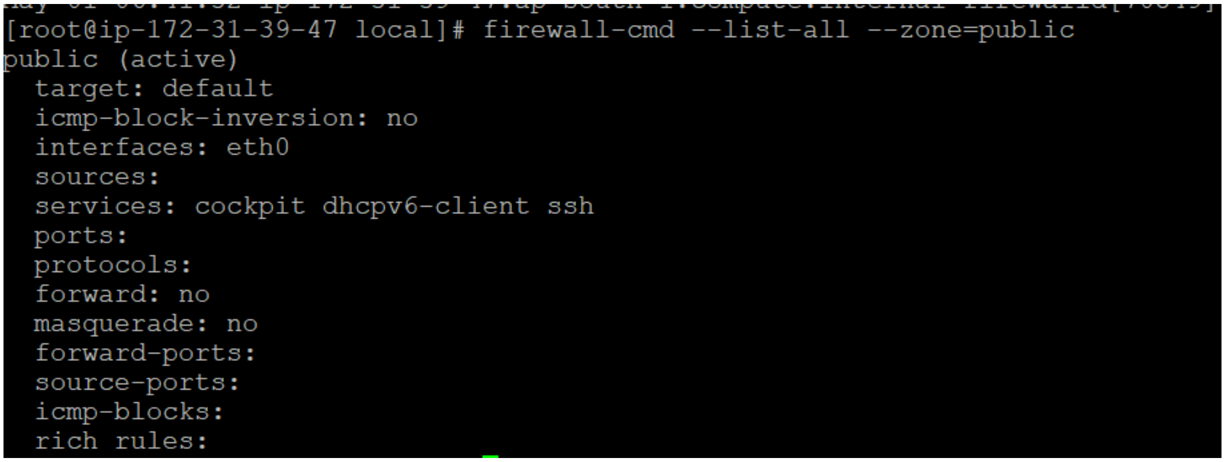
# systemctl status firewalld.service

# systemctl start firewalld.service

# systemctl enable firewalld.service

# firewall-cmd --list-all (this will give current profile details)

# firewall-cmd --list-all --zone=public (this will specific profile details)



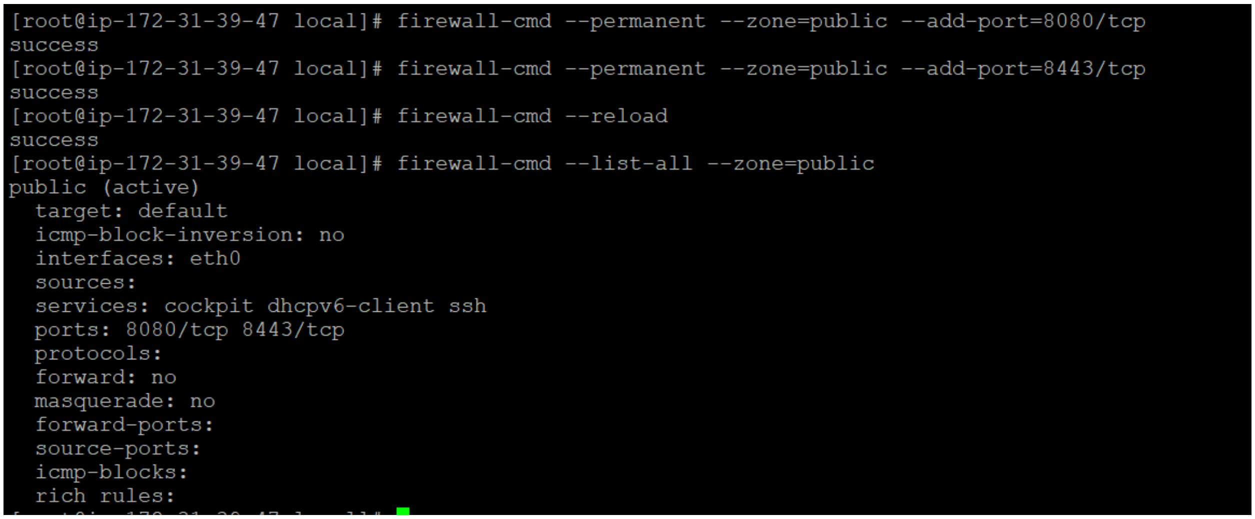
```
[root@ip-172-31-39-47 local]# firewall-cmd --list-all --zone=public
public (active)
  target: default
  icmp-block-inversion: no
  interfaces: eth0
  sources:
  services: cockpit dhcpv6-client ssh
  ports:
  protocols:
  forward: no
  masquerade: no
  forward-ports:
  source-ports:
  icmp-blocks:
  rich rules:
```

firewall-cmd --permanent --zone=public --add-port=8080/tcp

firewall-cmd --permanent --zone=public --add-port=8443/tcp

firewall-cmd --reload

firewall-cmd --list-all --zone=public



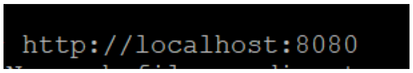
```
[root@ip-172-31-39-47 local]# firewall-cmd --permanent --zone=public --add-port=8080/tcp
success
[root@ip-172-31-39-47 local]# firewall-cmd --permanent --zone=public --add-port=8443/tcp
success
[root@ip-172-31-39-47 local]# firewall-cmd --reload
success
[root@ip-172-31-39-47 local]# firewall-cmd --list-all --zone=public
public (active)
  target: default
  icmp-block-inversion: no
  interfaces: eth0
  sources:
  services: cockpit dhcpv6-client ssh
  ports: 8080/tcp 8443/tcp
  protocols:
  forward: no
  masquerade: no
  forward-ports:
  source-ports:
  icmp-blocks:
  rich rules:
```

Step-18

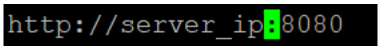
Access Apache Tomcat Web Interface

Now that you have installed, configured and started **Tomcat** as a service, and allowed requests to the daemon via the firewall, you can test the installation by trying to accessing the web interface using the URL

# http://SERVER_IP:8080



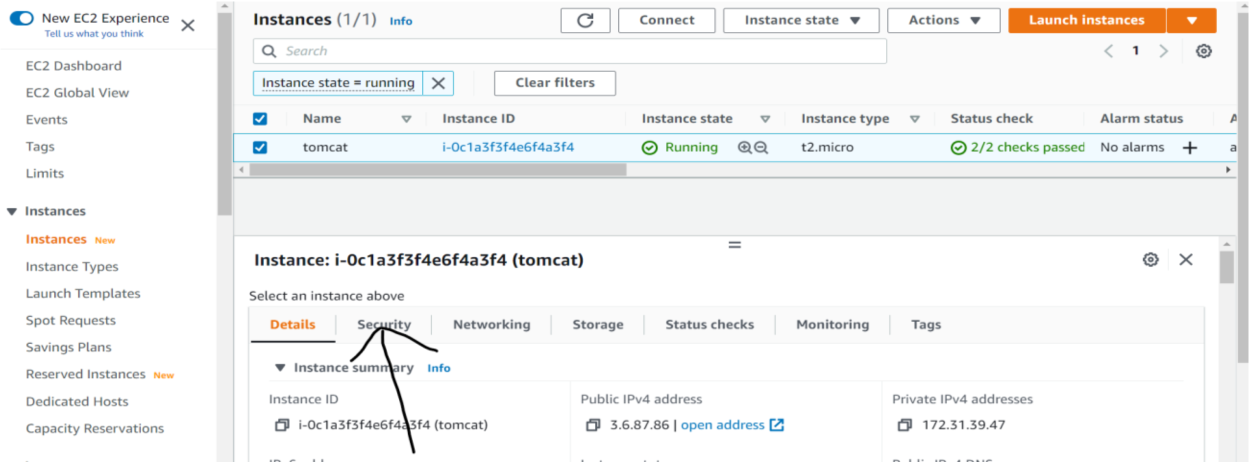
```
 http://localhost:8080
```



```
http://server_ip:8080
```

Step-19

Open the security



Instances (1/1) Info

Instance state = running

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
☑	tomcat	i-0c1a3f3f4e6f4a3f4	Running	t2.micro	2/2 checks passed	No alarms

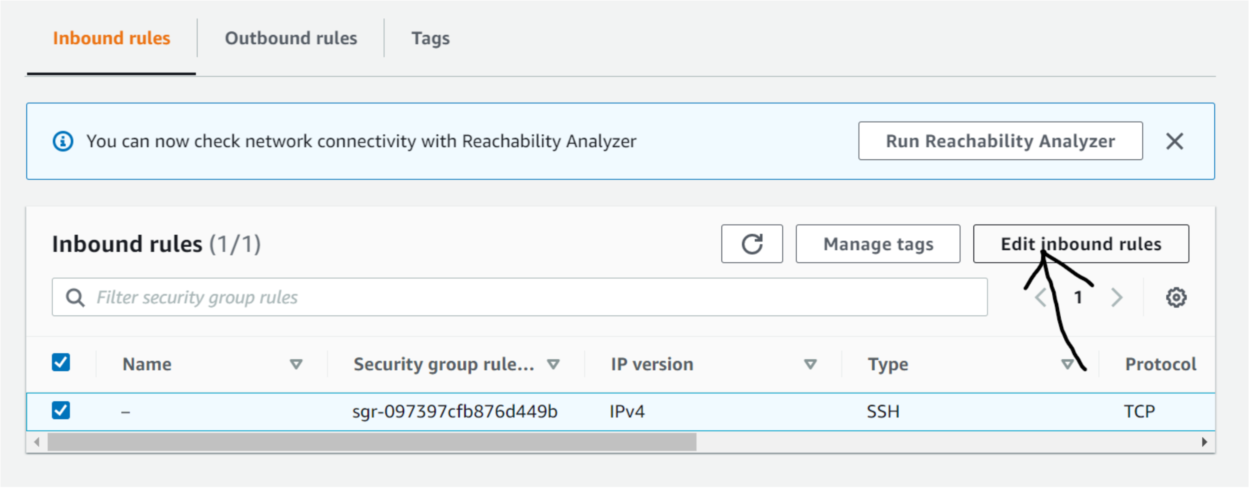
Instance: i-0c1a3f3f4e6f4a3f4 (tomcat)

Select an instance above

Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
i-0c1a3f3f4e6f4a3f4 (tomcat)	3.6.87.86 | open address	172.31.39.47

After opening the security group edit the inbound rules



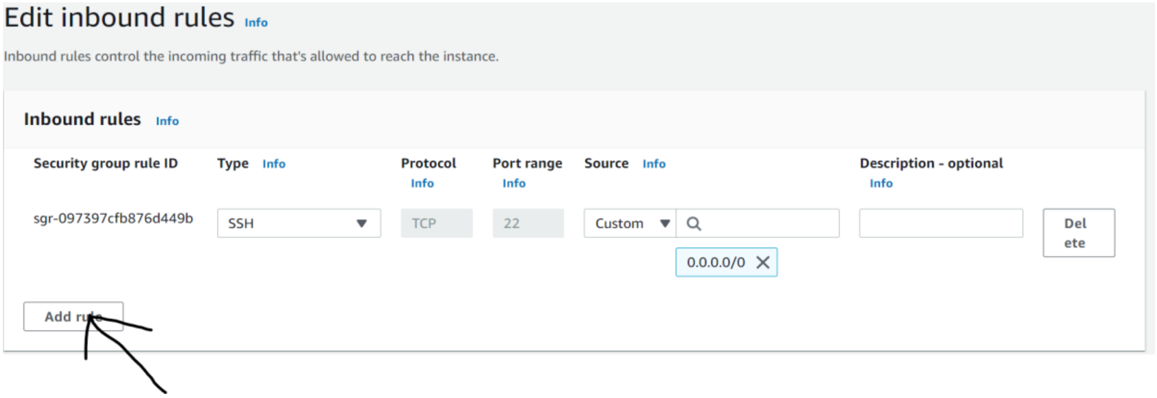
You can now check network connectivity with Reachability Analyzer

Inbound rules (1/1)

☑	Name	Security group rule...	IP version	Type	Protocol
☑	–	sgr-097397cfb876d449b	IPv4	SSH	TCP

By default SSH port opened

Now we need to the http, https,custom tcp

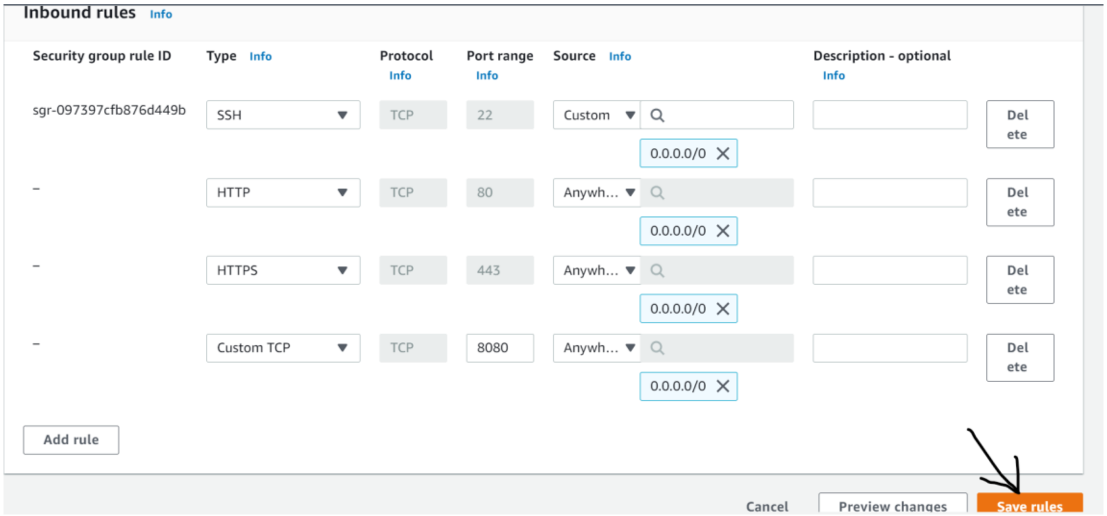


Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

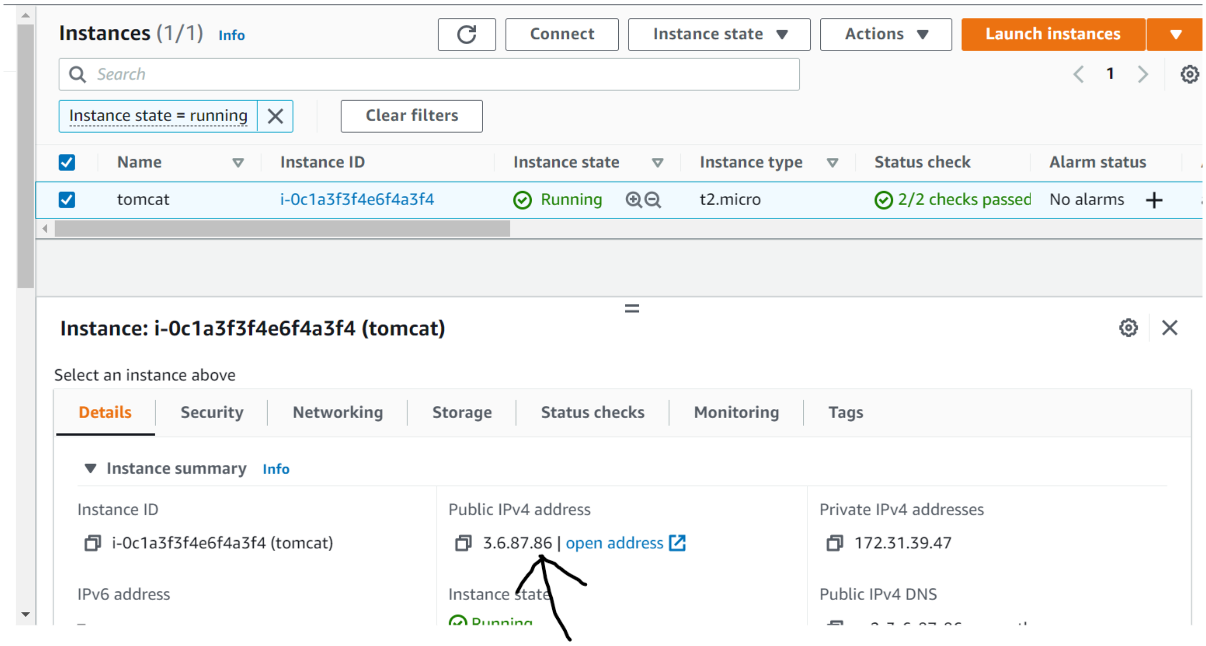
Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info
sgr-097397cfb876d449b	SSH	TCP	22	Custom 0.0.0.0/0	



Security group rule ID	Type	Protocol	Port range	Source	Description - optional	
sgr-097397cfb876d449b	SSH	TCP	22	Custom 0.0.0.0/0		Delete
–	HTTP	TCP	80	Anywh... 0.0.0.0/0		Delete
–	HTTPS	TCP	443	Anywh... 0.0.0.0/0		Delete
–	Custom TCP	TCP	8080	Anywh... 0.0.0.0/0		Delete

1) **Take the public ip and open in the web browser with port 8080 (Example: <Ip_address:8080>**



	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
☑	tomcat	i-0c1a3f3f4e6f4a3f4	Running	t2.micro	2/2 checks passed	No alarms

Instance: i-0c1a3f3f4e6f4a3f4 (tomcat)

Select an instance above

Instance summary Info

Instance ID: i-0c1a3f3f4e6f4a3f4 (tomcat)

Public IPv4 address: 3.6.87.86 | open address

Private IPv4 addresses: 172.31.39.47

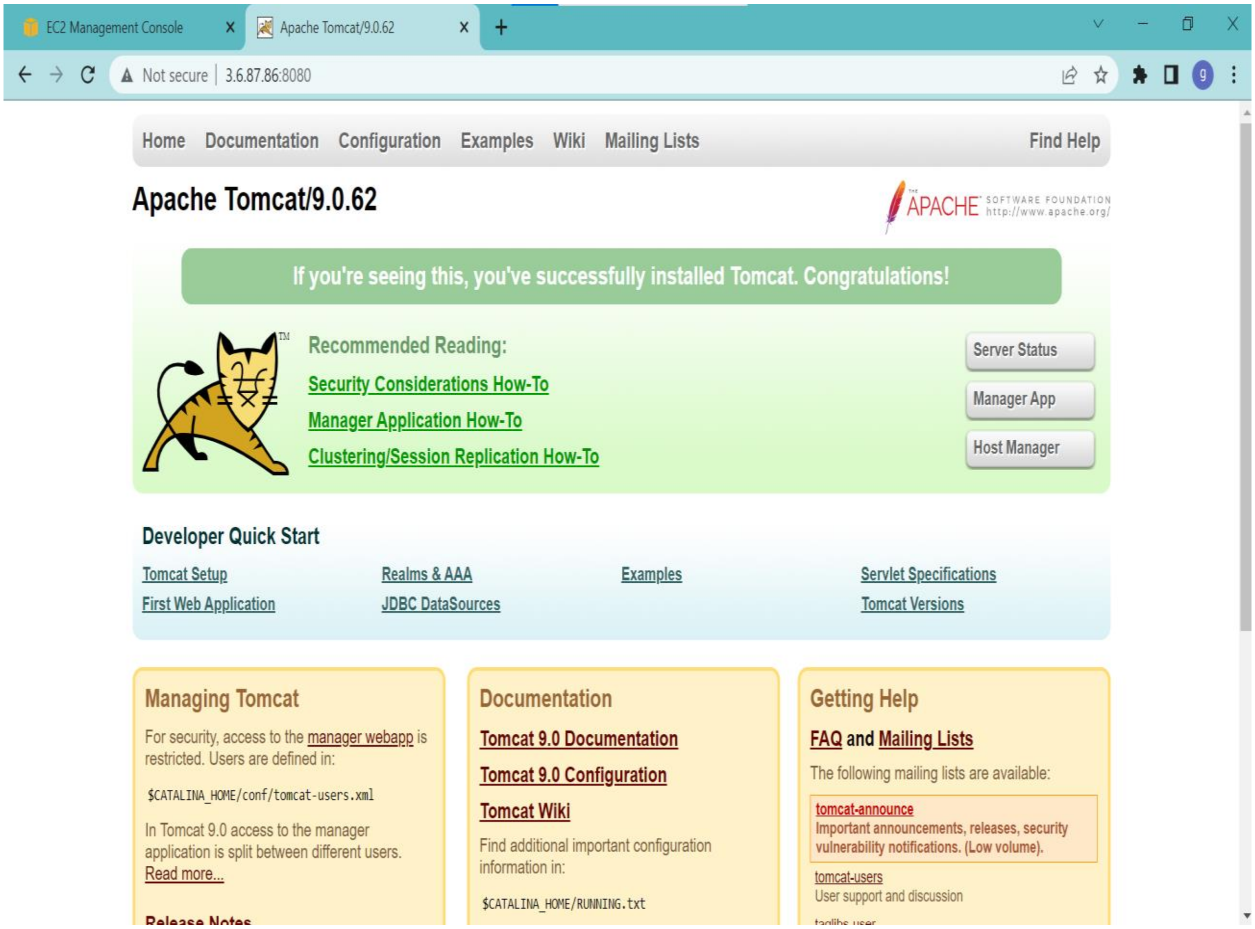
IPv6 address

Instance state: Running

Public IPv4 DNS

Step-20

Finally the Apache tomcat web page we got it



Apache Tomcat/9.0.62

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Recommended Reading:
Security Considerations How-To
Manager Application How-To
Clustering/Session Replication How-To

Developer Quick Start
Tomcat Setup | Realms & AAA | Examples | Servlet Specifications
First Web Application | JDBC DataSources | | Tomcat Versions

Managing Tomcat
For security, access to the manager webapp is restricted. Users are defined in:
$CATALINA_HOME/conf/tomcat-users.xml
In Tomcat 9.0 access to the manager application is split between different users. Read more...
Release Notes

Documentation
Tomcat 9.0 Documentation
Tomcat 9.0 Configuration
Tomcat Wiki
Find additional important configuration information in:
$CATALINA_HOME/RUNNING.txt

Getting Help
FAQ and Mailing Lists
The following mailing lists are available:
tomcat-announce
Important announcements, releases, security vulnerability notifications. (Low volume).
tomcat-users
User support and discussion
taglibs-user

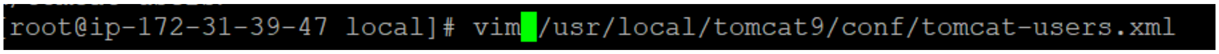
Step-21

Enable HTTP Authentication for Tomcat Manager and Host Manager

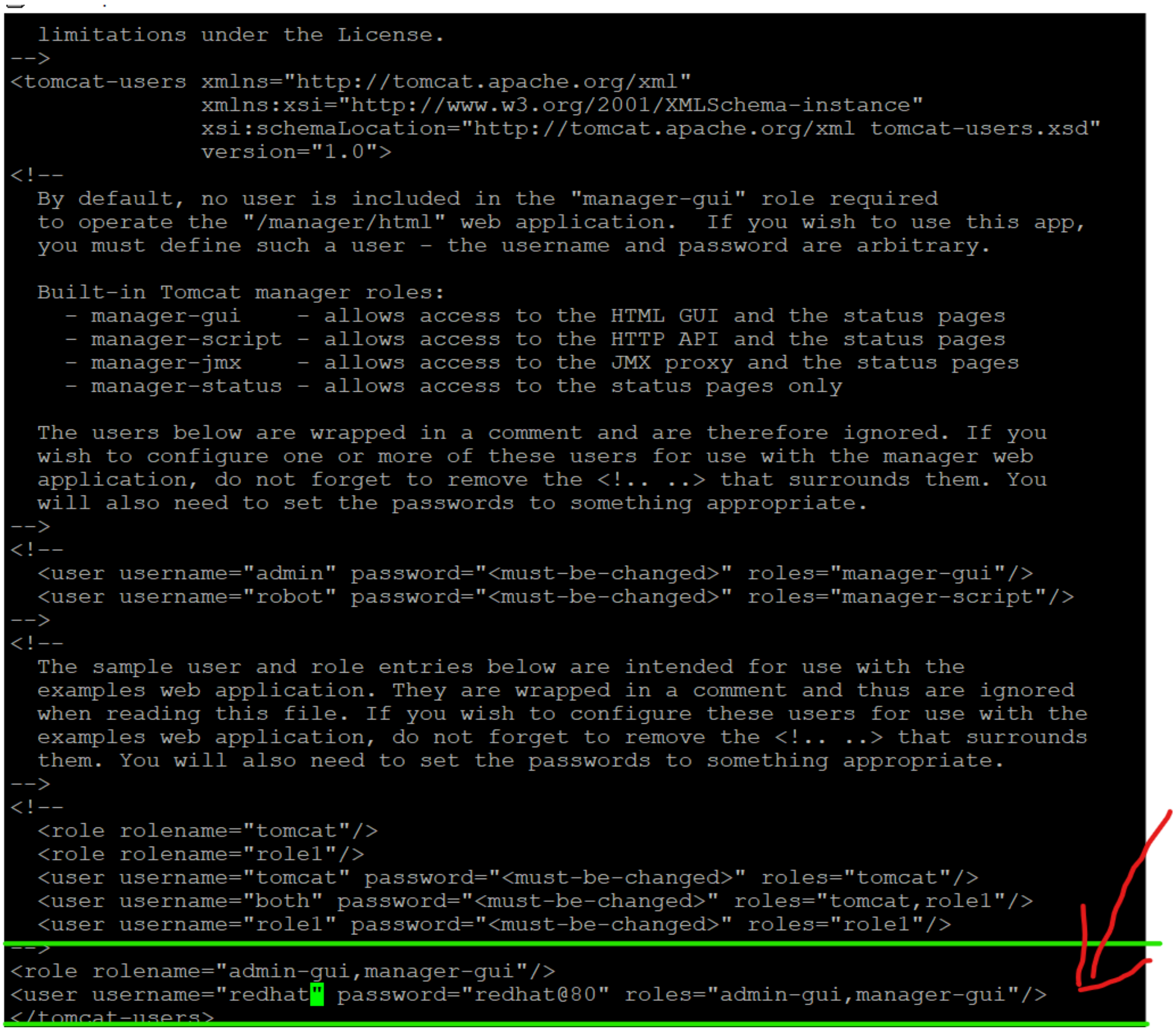
To ensure restricted access to the **Manager** and **Host Manager** apps in a production environment, you need to configure basic HTTP authentication in the **/usr/local/tomcat9/conf/tomcat-users.xml** configuration file.

vim /usr/local/tomcat9/conf/tomcat-users.xml

Copy and paste the following configuration within the <tomcat-users> and </tomcat-users> tags as shown in the screenshot. This configuration adds the **admin-gui** and **manager-gui** roles to a user named **“redhat”** with a password of **“redhat@80”**.



```
[root@ip-172-31-39-47 local]# vim /usr/local/tomcat9/conf/tomcat-users.xml
```



```
  limitations under the License.
-->
<tomcat-users xmlns="http://tomcat.apache.org/xml"
              xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
              version="1.0">
<!--
  By default, no user is included in the "manager-gui" role required
  to operate the "/manager/html" web application.  If you wish to use this app,
  you must define such a user - the username and password are arbitrary.

  Built-in Tomcat manager roles:
    - manager-gui    - allows access to the HTML GUI and the status pages
    - manager-script - allows access to the HTTP API and the status pages
    - manager-jmx    - allows access to the JMX proxy and the status pages
    - manager-status - allows access to the status pages only

  The users below are wrapped in a comment and are therefore ignored. If you
  wish to configure one or more of these users for use with the manager web
  application, do not forget to remove the <!.. ..> that surrounds them. You
  will also need to set the passwords to something appropriate.
-->
<!--
  <user username="admin" password="<must-be-changed>" roles="manager-gui"/>
  <user username="robot" password="<must-be-changed>" roles="manager-script"/>
-->
<!--
  The sample user and role entries below are intended for use with the
  examples web application. They are wrapped in a comment and thus are ignored
  when reading this file. If you wish to configure these users for use with the
  examples web application, do not forget to remove the <!.. ..> that surrounds
  them. You will also need to set the passwords to something appropriate.
-->
<!--
  <role rolename="tomcat"/>
  <role rolename="role1"/>
  <user username="tomcat" password="<must-be-changed>" roles="tomcat"/>
  <user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
  <user username="role1" password="<must-be-changed>" roles="role1"/>
-->
<role rolename="admin-gui,manager-gui"/>
<user username="redhat" password="redhat@80" roles="admin-gui,manager-gui"/>
</tomcat-users>
```

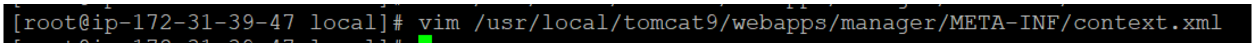
Step-22

Enable Remote Access to Tomcat Manager and Web Manager

By default, access to the **Manager** and **Host Manager** apps is restricted to the **localhost**, the server on which **Tomcat** is installed and running. But you can enable remote access to a specific IP address or network e.g your LAN.

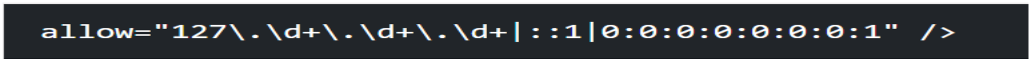
To enable remote access to the **Manager** app, open and edit the configuration file **/opt/apache-tomcat-9.0.62/webapps/host-manager/META-INF/context.xml**.

```
# vim /usr/local/tomcat9/webapps/manager/META-INF/context.xml
```



```
[root@ip-172-31-39-47 local]# vim /usr/local/tomcat9/webapps/manager/META-INF/context.xml
```

Then look for the following line.

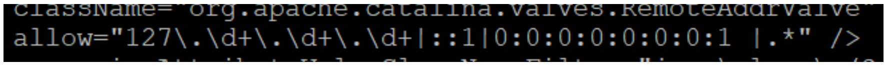


```
allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1" />
```

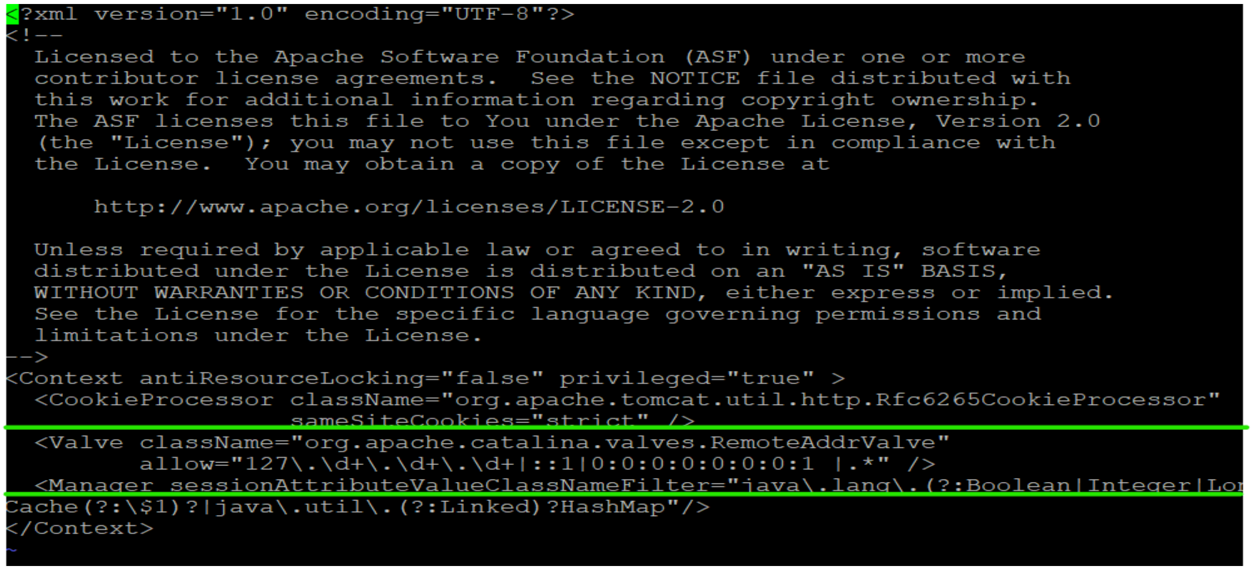
Allow everyone

.* will allow everyone to have access to the Web manager.

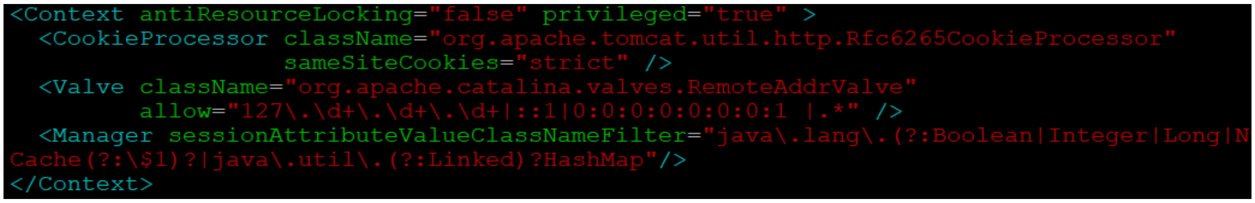
allow tomcat access from any host or network.



```
className="org.apache.catalina.valves.RemoteAddrValve"
allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1 |.*" />
```



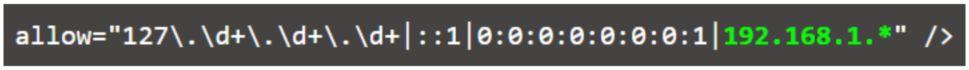
```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  Licensed to the Apache Software Foundation (ASF) under one or more
  contributor license agreements.  See the NOTICE file distributed with
  this work for additional information regarding copyright ownership.
  The ASF licenses this file to You under the Apache License, Version 2.0
  (the "License"); you may not use this file except in compliance with
  the License.  You may obtain a copy of the License at

      http://www.apache.org/licenses/LICENSE-2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
                   sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
         allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1 |.*" />
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer|Lor
Cache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
</Context>
~
```



```
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
                   sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
         allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1 |.*" />
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer|Long|N
Cache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
</Context>
```

Allow Organization network

You can also allow only your organization network. For example: To allow the 192.168.1.0/24 network only, you can use the below values.



```
allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1|192.168.1.*" />
```

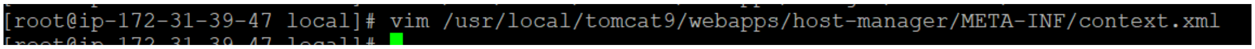
Enable Tomcat Access from IP

save the changes in the file and close it.

Step-23

Enable remote access to the **Host Manager**

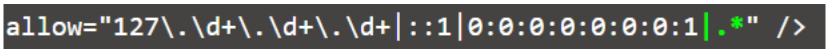
vim /usr/local/tomcat9/webapps/host-manager/META-INF/context.xml



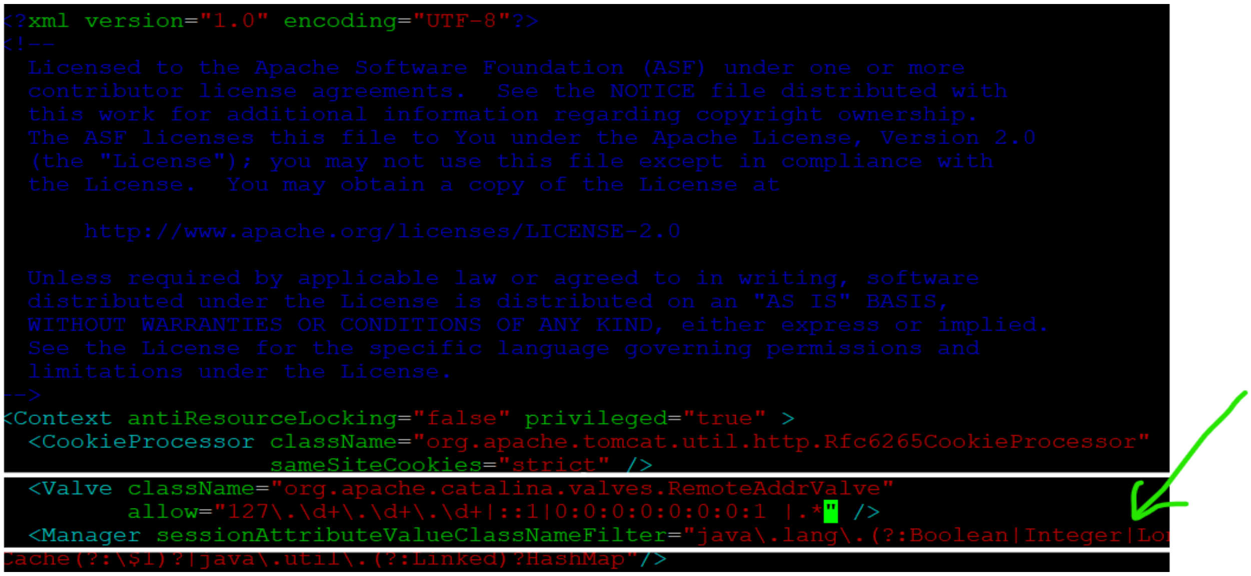
```
[root@ip-172-31-39-47 local]# vim /usr/local/tomcat9/webapps/host-manager/META-INF/context.xml
[root@ip-172-31-39-47 local]#
```

Allow everyone

.* will allow everyone to have access to the Web manager.



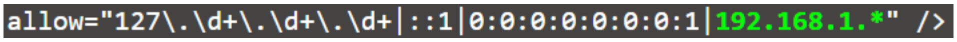
```
allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1|.*" />
```



```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  Licensed to the Apache Software Foundation (ASF) under one or more
  contributor license agreements.  See the NOTICE file distributed with
  this work for additional information regarding copyright ownership.
  The ASF licenses this file to You under the Apache License, Version 2.0
  (the "License"); you may not use this file except in compliance with
  the License.  You may obtain a copy of the License at

      http://www.apache.org/licenses/LICENSE-2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
                   sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
         allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1 |.*" />
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer|Lo
Cache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
```

Allow Organization network

You can also allow only your organization network. For example: To allow the 192.168.1.0/24 network only, you can use the below values.

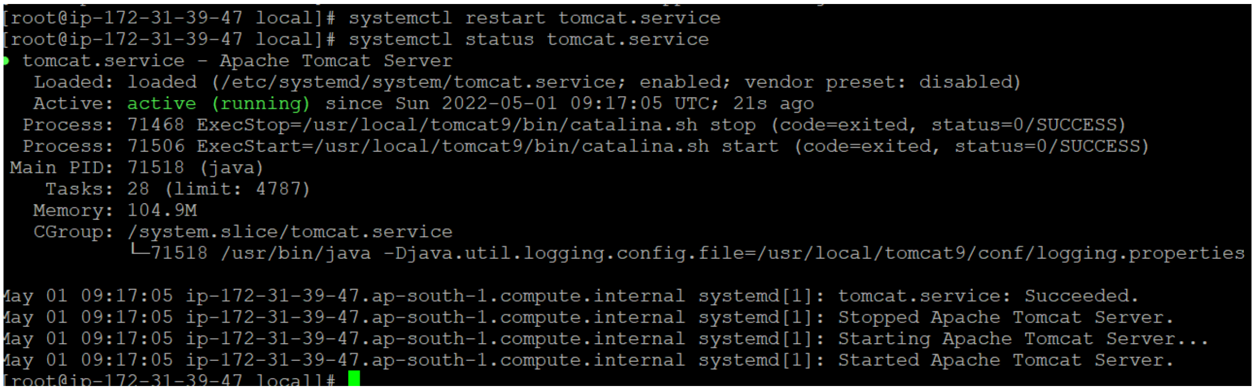


```
allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1|192.168.1.*" />
```

Next, restart the **tomcat** service to apply the recent changes.

# systemctl restart tomcat.service

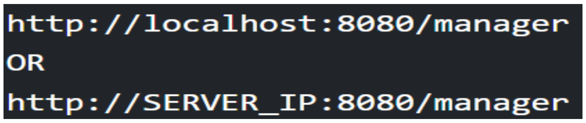
# systemctl status tomcat.service



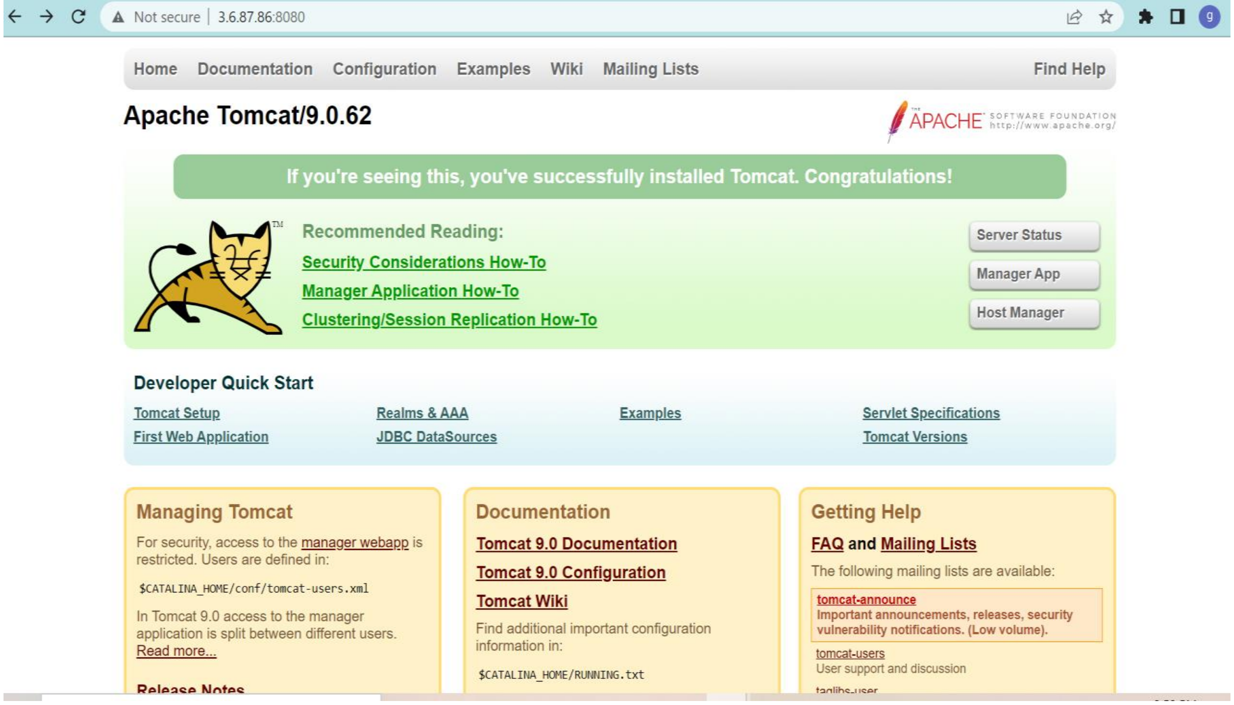
```
[root@ip-172-31-39-47 local]# systemctl restart tomcat.service
[root@ip-172-31-39-47 local]# systemctl status tomcat.service
● tomcat.service - Apache Tomcat Server
   Loaded: loaded (/etc/systemd/system/tomcat.service; enabled; vendor preset: disabled)
   Active: active (running) since Sun 2022-05-01 09:17:05 UTC; 21s ago
  Process: 71468 ExecStop=/usr/local/tomcat9/bin/catalina.sh stop (code=exited, status=0/SUCCESS)
  Process: 71506 ExecStart=/usr/local/tomcat9/bin/catalina.sh start (code=exited, status=0/SUCCESS)
 Main PID: 71518 (java)
    Tasks: 28 (limit: 4787)
   Memory: 104.9M
   CGroup: /system.slice/tomcat.service
           └─71518 /usr/bin/java -Djava.util.logging.config.file=/usr/local/tomcat9/conf/logging.properties

May 01 09:17:05 ip-172-31-39-47.ap-south-1.compute.internal systemd[1]: tomcat.service: Succeeded.
May 01 09:17:05 ip-172-31-39-47.ap-south-1.compute.internal systemd[1]: Stopped Apache Tomcat Server.
May 01 09:17:05 ip-172-31-39-47.ap-south-1.compute.internal systemd[1]: Starting Apache Tomcat Server...
May 01 09:17:05 ip-172-31-39-47.ap-south-1.compute.internal systemd[1]: Started Apache Tomcat Server.
[root@ip-172-31-39-47 local]#
```

Step-24

To access the **Tomcat Manager** web use the URL.



```
http://localhost:8080/manager
OR
http://SERVER_IP:8080/manager
```



Not secure | 3.6.87.86:8080
Home Documentation Configuration Examples Wiki Mailing Lists Find Help
APACHE SOFTWARE FOUNDATION http://www.apache.org/
Server Status
Manager App
Host Manager

Apache Tomcat/9.0.62

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Recommended Reading:

Security Considerations How-To

Manager Application How-To

Clustering/Session Replication How-To

Developer Quick Start

Tomcat Setup
First Web Application
Realms & AAA
JDBC DataSources
Examples
Servlet Specifications
Tomcat Versions

Managing Tomcat

For security, access to the manager webapp is restricted. Users are defined in:

`$CATALINA_HOME/conf/tomcat-users.xml`

In Tomcat 9.0 access to the manager application is split between different users. Read more...

Release Notes

Documentation

Tomcat 9.0 Documentation

Tomcat 9.0 Configuration

Tomcat Wiki

Find additional important configuration information in:

`$CATALINA_HOME/RUNNING.txt`

Getting Help

FAQ and Mailing Lists

The following mailing lists are available:

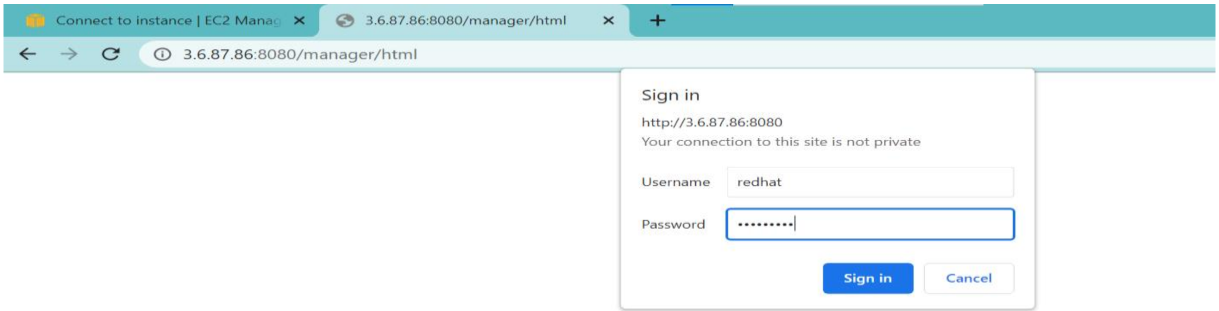
tomcat-announce
Important announcements, releases, security vulnerability notifications. (Low volume).

tomcat-users
User support and discussion

taglibs-user

Apache Tomcat Admin Login

You will be asked to authenticate: enter the username and password you created earlier on to log into the manager app as shown in the screenshot.


Connect to instance | EC2 Manag
3.6.87.86:8080/manager/html
3.6.87.86:8080/manager/html

Sign in

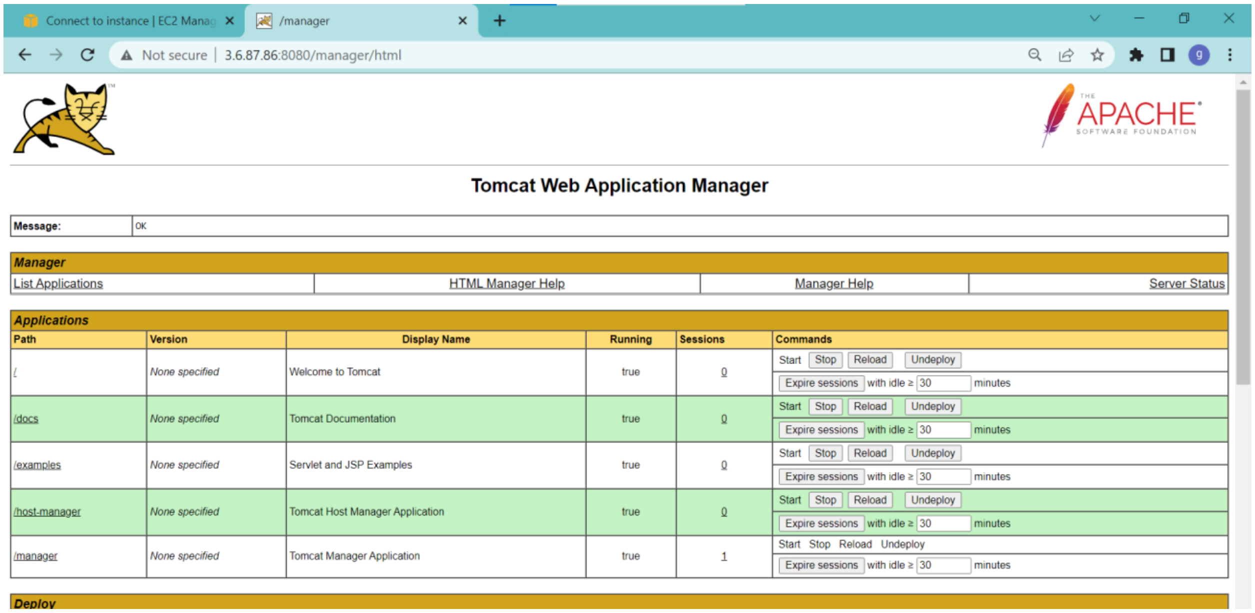
http://3.6.87.86:8080

Your connection to this site is not private

Username: redhat

Password: •••••••••

The following screenshot shows the **Manager** app HTML interface where you can deploy a new web application from the uploaded contents of a WAR file, deploy a new web application or list existing apps and do more.


Connect to instance | EC2 Manag
/manager
Not secure | 3.6.87.86:8080/manager/html
THE APACHE SOFTWARE FOUNDATION

Tomcat Web Application Manager

Message:	OK

Manager			
List Applications	HTML Manager Help	Manager Help	Server Status

Applications

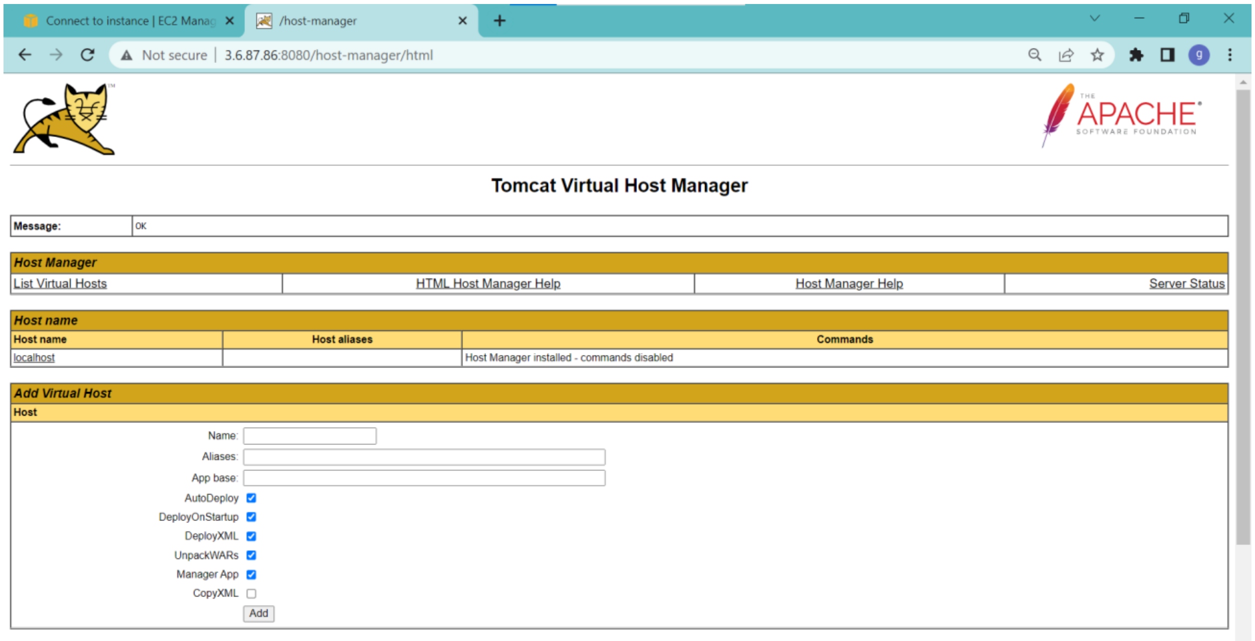
Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

Deploy

Step-25

To access the **Host Manager**

```
http://localhost:8080/host-manager
OR
http://SERVER_IP:8080/host-manager
```


Connect to instance | EC2 Manag
/host-manager
Not secure | 3.6.87.86:8080/host-manager/html
APACHE SOFTWARE FOUNDATION

Tomcat Virtual Host Manager

Message:	OK

Host Manager			
List Virtual Hosts	HTML Host Manager Help	Host Manager Help	Server Status

Host name

Host name	Host aliases	Commands
localhost		Host Manager installed - commands disabled

Add Virtual Host

Host

Name:

Aliases:

App base:

AutoDeploy ☑

DeployOnStartup ☑

DeployXML ☑

UnpackWARs ☑

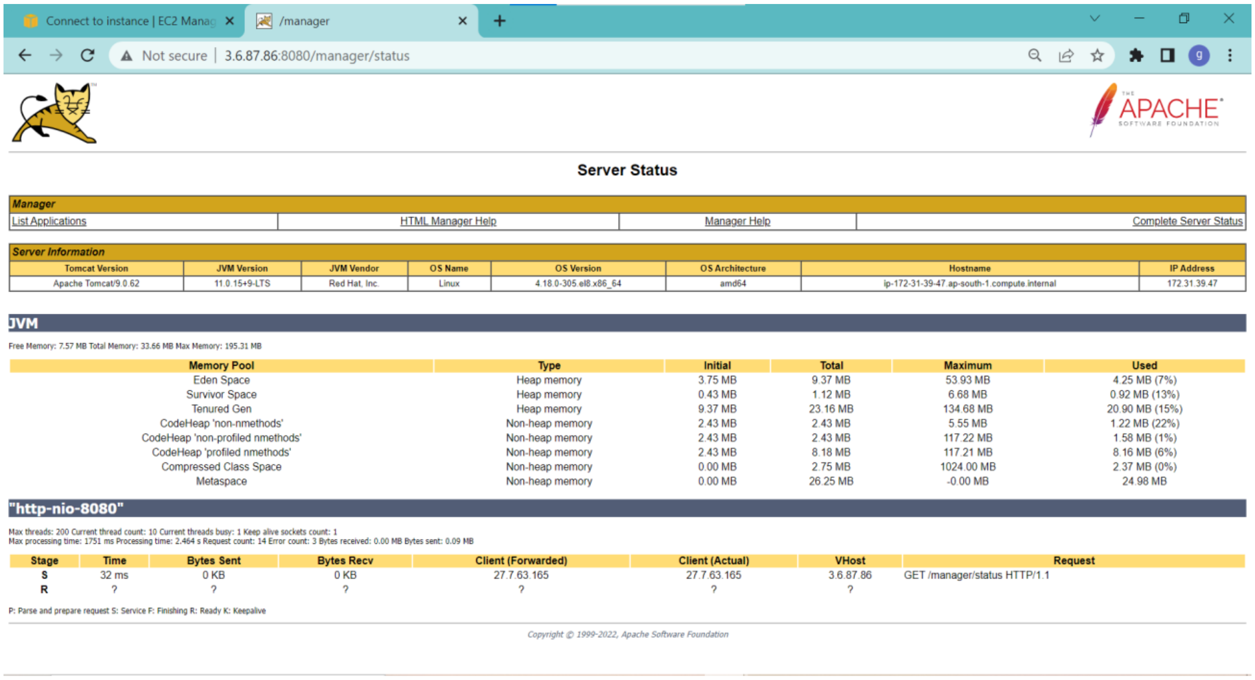
Manager App ☑

CopyXML ☐

Add

Step-26

Server status


Connect to instance | EC2 Manag
/manager
Not secure | 3.6.87.86:8080/manager/status
APACHE SOFTWARE FOUNDATION

Server Status

Manager			
List Applications	HTML Manager Help	Manager Help	Complete Server Status

Server Information

Tomcat Version	JVM Version	JVM Vendor	OS Name	OS Version	OS Architecture	Hostname	IP Address
Apache Tomcat/9.0.62	11.0.15+9-LTS	Red Hat, Inc.	Linux	4.18.0-305.el8.x86_64	amd64	ip-172-31-39-47.ap-south-1.compute.internal	172.31.39.47

JVM

Free Memory: 7.57 MB Total Memory: 33.66 MB Max Memory: 195.31 MB

Memory Pool	Type	Initial	Total	Maximum	Used
Eden Space	Heap memory	3.75 MB	9.37 MB	53.93 MB	4.25 MB (7%)
Survivor Space	Heap memory	0.43 MB	1.12 MB	6.68 MB	0.92 MB (13%)
Tenured Gen	Heap memory	9.37 MB	23.16 MB	134.68 MB	20.90 MB (15%)
CodeHeap 'non-nmethods'	Non-heap memory	2.43 MB	2.43 MB	5.55 MB	1.22 MB (22%)
CodeHeap 'non-profiled nmethods'	Non-heap memory	2.43 MB	2.43 MB	117.22 MB	1.58 MB (1%)
CodeHeap 'profiled nmethods'	Non-heap memory	2.43 MB	8.18 MB	117.21 MB	8.16 MB (6%)
Compressed Class Space	Non-heap memory	0.00 MB	2.75 MB	1024.00 MB	2.37 MB (0%)
Metaspace	Non-heap memory	0.00 MB	26.25 MB	-0.00 MB	24.98 MB

"http-nio-8080"

Max threads: 200 Current thread count: 10 Current threads busy: 1 Keep alive sockets count: 1
Max processing time: 1751 ms Processing time: 2.464 s Request count: 14 Error count: 3 Bytes received: 0.00 MB Bytes sent: 0.09 MB

Stage	Time	Bytes Sent	Bytes Recv	Client (Forwarded)	Client (Actual)	VHost	Request
S	32 ms	0 KB	0 KB	27.7.63.165	27.7.63.165	3.6.87.86	GET /manager/status HTTP/1.1
R	?	?	?	?	?	?	

P: Parse and prepare request S: Service F: Finishing R: Ready K: Keepalive

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Referral Link:

https://www.tecmint.com/install-apache-tomcat-in-rhel-8/