

# Ansible Assignment 1

## Step 1: Launched instances for our Jenkins Master and Slave:

The screenshot shows the AWS EC2 Instances page. On the left sidebar, under the 'Instances' section, 'A1 Workstation' and 'A1 Host' are selected, highlighted with a red border. The main table lists these two instances along with their instance IDs, states, and other details. Below the table, a section titled '2 instances selected' displays monitoring metrics for CPU utilization, network in, network out, and network packets.

Name	Instance ID	State	Type	Status	Alarm Status	Availability Zone	Public IP
D8 Slave	i-028772d27d7a681d4	Stopped	t3.micro	-	View alarms	ap-south-1a	-
A1 Workstation	i-0a8d930f38f290686	Running	t3.micro	Initializing	View alarms	ap-south-1a	ec2-13-12
A1 Host	i-0957eb8ee9d3093fa	Running	t3.micro	Initializing	View alarms	ap-south-1a	ec2-3-110

## Step 2: Created an user having ‘manish’ and also applied a password to it on both ‘Workstation’ as well as ‘Host’:

The screenshot shows the EC2 Instance Connect terminal. It displays a shell session on the 'A1 Workstation' instance. The user runs the command 'useradd manish', which creates a new user account. Then, the user runs 'passwd manish', which prompts for a password. The password is set successfully, and the terminal shows the message 'all authentication tokens updated successfully.'

```
[root@ip-172-31-41-132 ~]# useradd manish
[root@ip-172-31-41-132 ~]# passwd manish
Changing password for user manish.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
```

### Step 3: Updated the ‘sudoers’ file in /etc for assigning superuser privileges to ‘manish’ user:

```
## systems).
## Syntax:
##
##      user      MACHINE=COMMANDS
##
## The COMMANDS section may have other options added to it.
##
## Allow root to run any commands anywhere
root    ALL=(ALL)        ALL
manish  ALL=(ALL)        NOPASSWD:ALL

## Allows members of the 'sys' group to run networking, software,
## service management apps and more.
# %sys  ALL = NETWORKING, SOFTWARE, SERVICES, STORAGE, DELEGATING, PROCESSES, LOCATE, DRIVERS
## Allows people in group wheel to run all commands
%wheel  ALL=(ALL)        ALL

## Same thing without a password
# %wheel        ALL=(ALL)        NOPASSWD: ALL

## Allows members of the users group to mount and unmount the

```

102,0-1

i-0de9433d79c89281a (A1 Workstation)

PublicIPs: 15.206.81.95 PrivateIPs: 172.31.41.132

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### Step 4: In /etc/ssh/sshd\_config file, made following changes and restarted the ‘sshd service’:

```
#RekeyLimit default none
#
# Logging
#SyslogFacility AUTH
#LogLevel INFO
#
# Authentication:
#
#LoginGraceTime 2m
PermitRootLogin prohibit-password
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
#
#PubkeyAuthentication yes

#
# Explicitly disable PasswordAuthentication. By presetting it, we
# avoid the cloud-init set_passwords module modifying sshd_config and
# restarting sshd in the default instance launch configuration.
PasswordAuthentication yes
PermitEmptyPasswords no

#
# Change to no to disable s/key passwords
#KbdInteractiveAuthentication yes

#
# Kerberos options
#KerberosAuthentication no
-- INSERT --

```

67,1

i-0de9433d79c89281a (A1 Workstation)

PublicIPs: 15.206.81.95 PrivateIPs: 172.31.41.132

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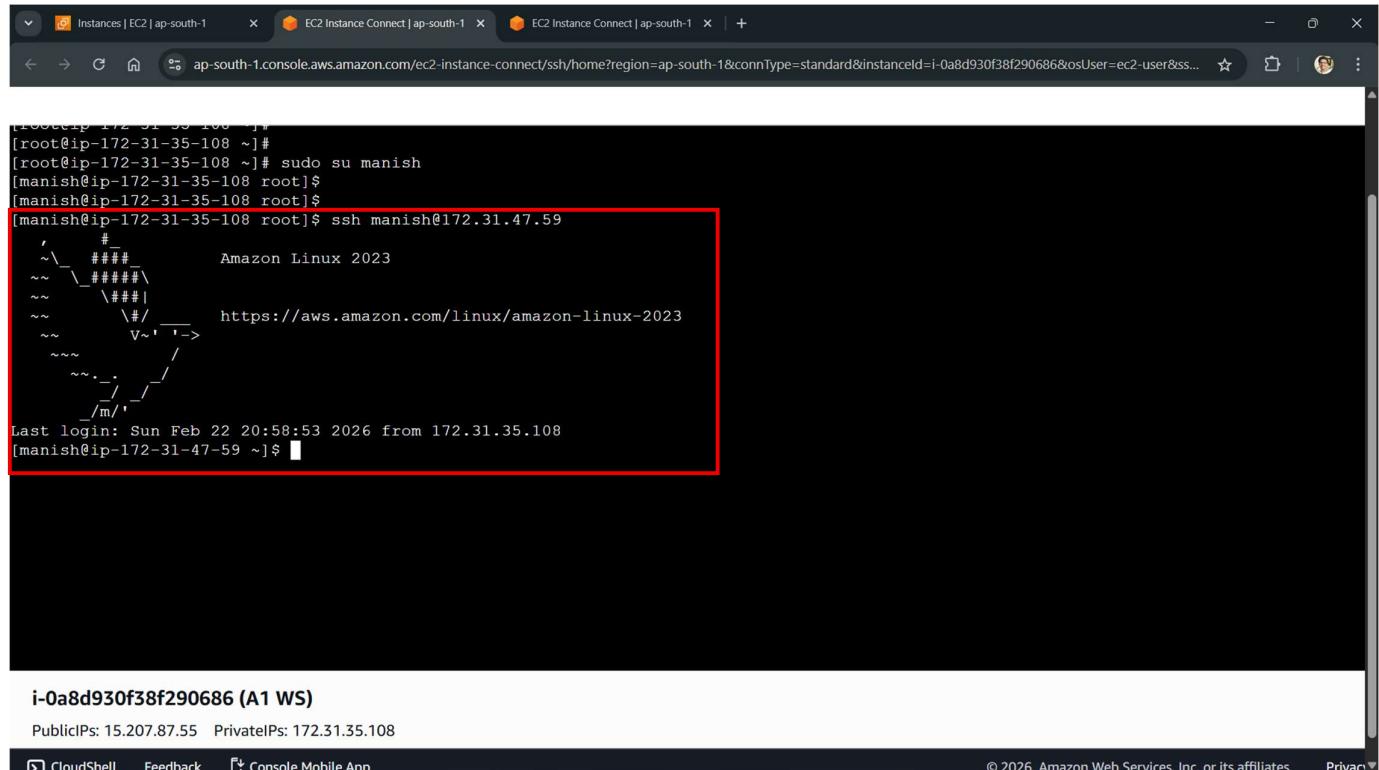
```
[root@ip-172-31-41-132 ~]#
[root@ip-172-31-41-132 ~]# [root@ip-172-31-41-132 ~]# service sshd restart
Redirecting to /bin/systemctl restart sshd.service
[root@ip-172-31-41-132 ~]# 
```

Step 5: Logged in to the ‘**manish**’ user and generated **SSH private and public keypairs**:

```
[root@ip-172-31-35-108 ~]# [root@ip-172-31-35-108 ~]# sudo su manish [manish@ip-172-31-35-108 root]$ [manish@ip-172-31-35-108 root]$ ssh-keygen Generating public/private rsa key pair. Enter file in which to save the key (/home/manish/.ssh/id_rsa): enter passphrase (empty for no passphrase): Enter same passphrase again: Your identification has been saved in /home/manish/.ssh/id_rsa Your public key has been saved in /home/manish/.ssh/id_rsa.pub The key fingerprint is: SHA256:4nvDALPb8Ux9hvTkdYuaBeugiBeSe+gP4Udxx4Taw manish@ip-172-31-35-108.ap-south-1.compute.internal The key's randomart image is: -----[RSA 3072]----+ | .. | | . o. | | . o.o | | o o oEo.o . o| | B.=S=..o*..o| | o.B.= ...==. | | . =B . * . | | . o o.B . = | | ....o o . o | +-----[SHA256]----+ [manish@ip-172-31-35-108 root]$
```

**Step 6: Generated both Private (`id_rsa`) and Public (`id_rsa.pub`) key pairs and copied them to the host instance using its private IP:**

## Step 7: Successfully logged in to the Host from Workstation using SSH and Private IP of Host:

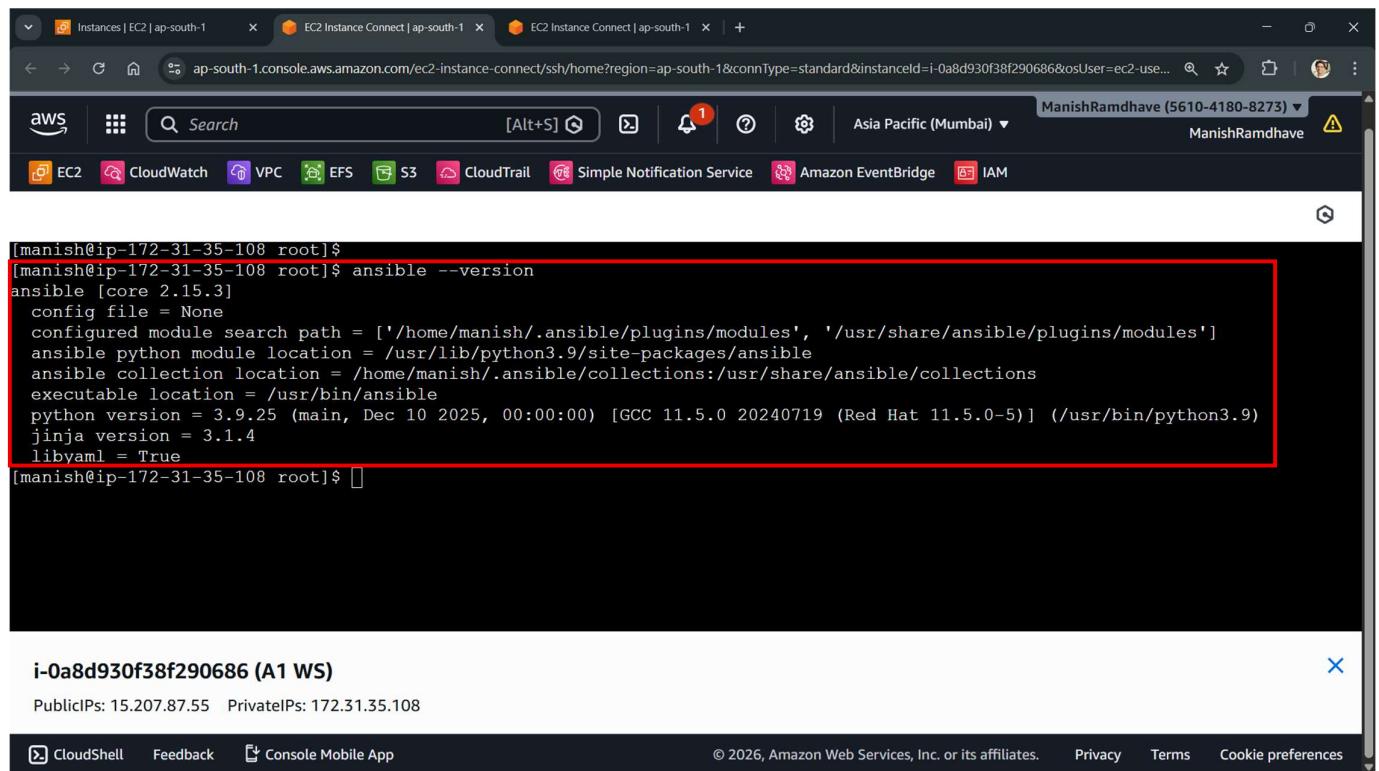


```
[root@ip-172-31-35-108 ~]# [root@ip-172-31-35-108 ~]# sudo su manish [manish@ip-172-31-35-108 root]$ [manish@ip-172-31-35-108 root]$ [manish@ip-172-31-35-108 root]$ ssh manish@172.31.47.59 [manish@ip-172-31-35-108 root]$ # Amazon Linux 2023 [manish@ip-172-31-35-108 root]$ https://aws.amazon.com/linux/amazon-linux-2023 [manish@ip-172-31-35-108 root]$ Last login: Sun Feb 22 20:58:53 2026 from 172.31.35.108 [manish@ip-172-31-47-59 ~]$
```

**i-0a8d930f38f290686 (A1 WS)**  
Public IPs: 15.207.87.55 Private IPs: 172.31.35.108

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## Step 8: Installed Ansible on the Workstation:

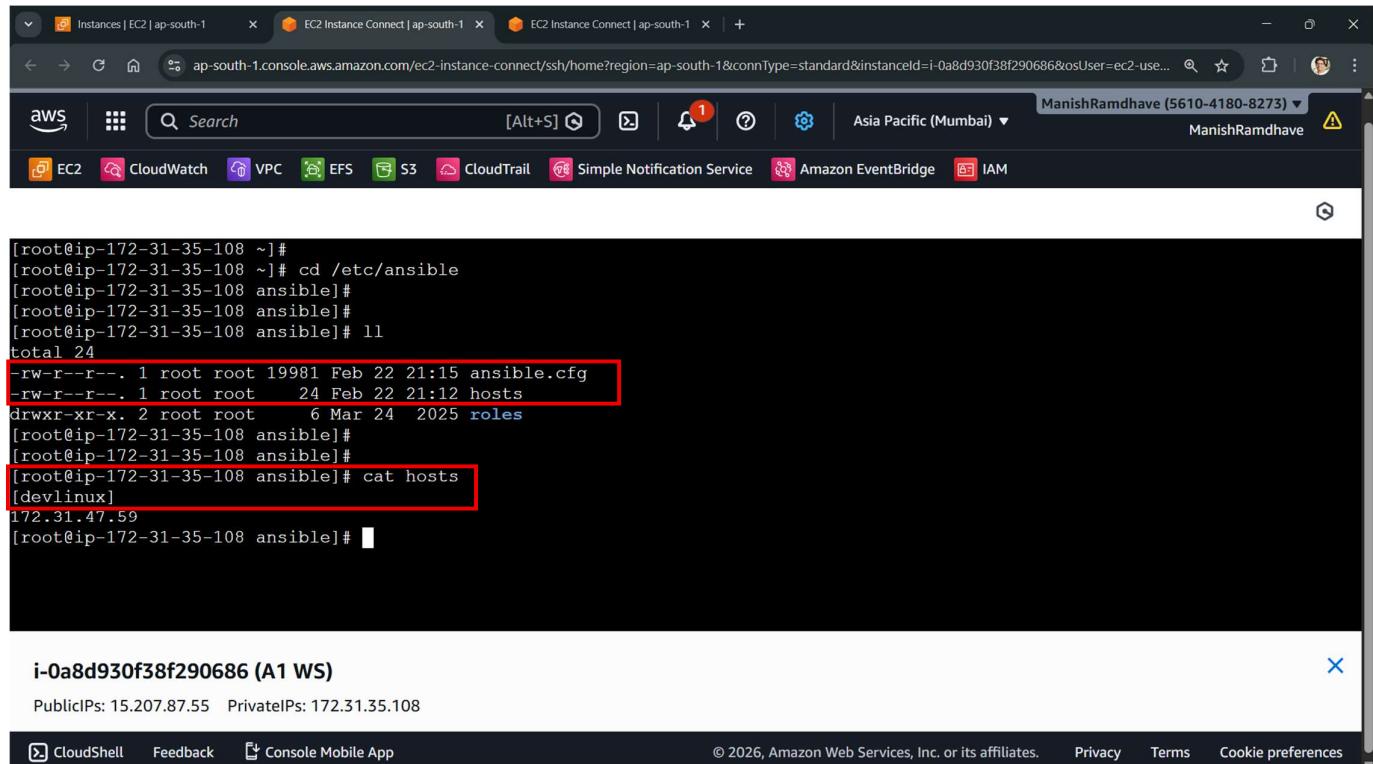


```
[manish@ip-172-31-35-108 root]$ [manish@ip-172-31-35-108 root]$ ansible --version ansible [core 2.15.3] config file = None configured module search path = ['/home/manish/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules'] ansible python module location = /usr/lib/python3.9/site-packages/ansible ansible collection location = /home/manish/.ansible/collections:/usr/share/ansible/collections executable location = /usr/bin/ansible python version = 3.9.25 (main, Dec 10 2025, 00:00:00) [GCC 11.5.0 20240719 (Red Hat 11.5.0-5)] (/usr/bin/python3.9) jinja version = 3.1.4 libyaml = True [manish@ip-172-31-35-108 root]$
```

**i-0a8d930f38f290686 (A1 WS)**  
Public IPs: 15.207.87.55 Private IPs: 172.31.35.108

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Step 9: Created two files in /etc/ansible/ path, ‘hosts’ and ‘ansible.cfg’. The ‘hosts’ consists of the host instances’ private IPs :



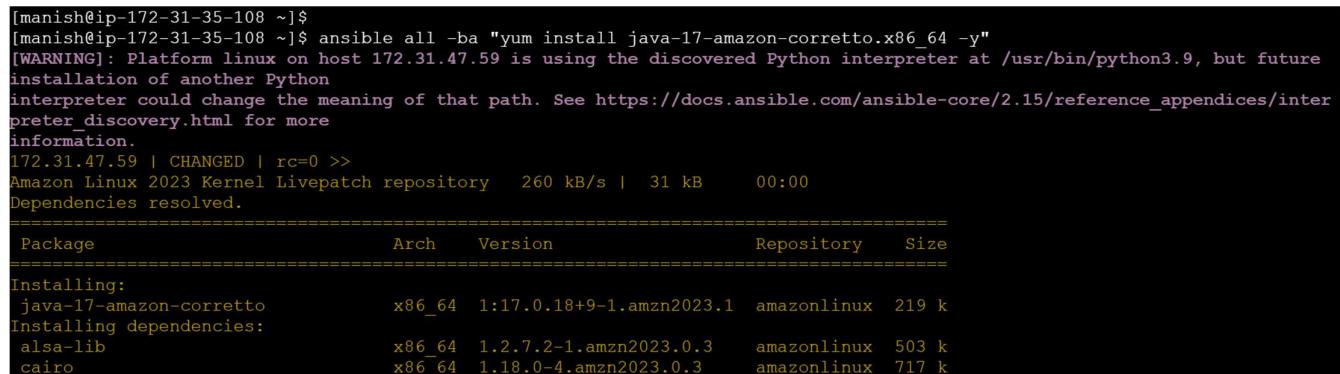
```
[root@ip-172-31-35-108 ~]# [root@ip-172-31-35-108 ~]# cd /etc/ansible [root@ip-172-31-35-108 ansible]# [root@ip-172-31-35-108 ansible]# [root@ip-172-31-35-108 ansible]# ll total 24 -rw-r--r--. 1 root root 19981 Feb 22 21:15 ansible.cfg -rw-r--r--. 1 root root 24 Feb 22 21:12 hosts drwxr-xr-x. 2 root root 6 Mar 24 2025 roles [root@ip-172-31-35-108 ansible]# [root@ip-172-31-35-108 ansible]# [root@ip-172-31-35-108 ansible]# cat hosts [devlinux] 172.31.47.59 [root@ip-172-31-35-108 ansible]#
```

**i-0a8d930f38f290686 (A1 WS)**

PublicIPs: 15.207.87.55 PrivateIPs: 172.31.35.108

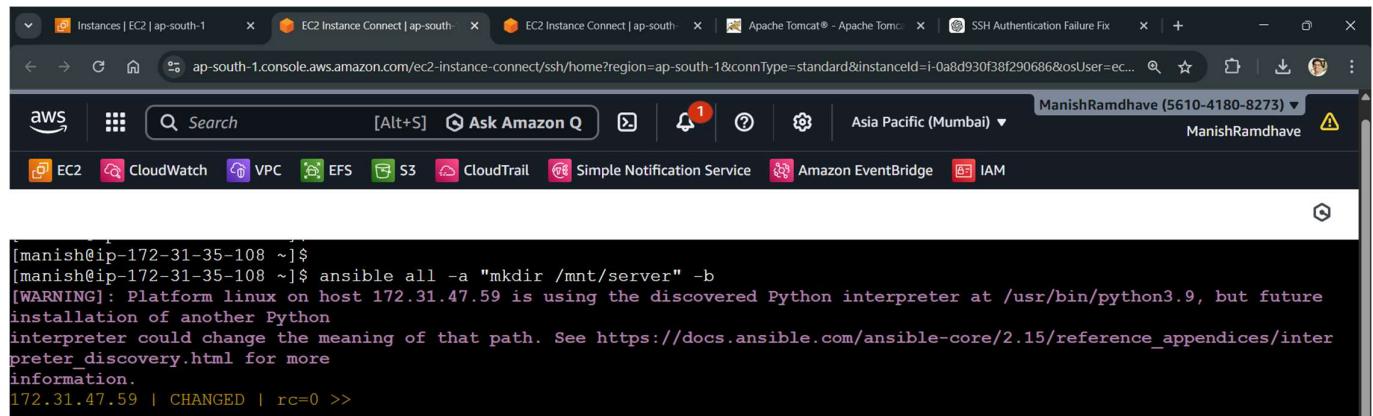
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Step 10: Installed Java-17 on Host instance by Workstation instance using adhoc commands:



```
[manish@ip-172-31-35-108 ~]$ [manish@ip-172-31-35-108 ~]$ ansible all -ba "yum install java-17-amazon-corretto.x86_64 -y" [WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information. 172.31.47.59 | CHANGED | rc=0 >> Amazon Linux 2023 Kernel Livepatch repository 260 kB/s | 31 kB 00:00 Dependencies resolved. ===== Package Arch Version Repository Size ====== Installing: java-17-amazon-corretto x86_64 1:17.0.18+9-1.amzn2023.1 amazonlinux 219 k Installing dependencies: alsa-lib x86_64 1.2.7.2-1.amzn2023.0.3 amazonlinux 503 k cairo x86_64 1.18.0-4.amzn2023.0.3 amazonlinux 717 k
```

Step 11: Made a ‘server’ folder in /mnt/ path using ‘adhoc’ commands which will run on ‘Host’:



```
[manish@ip-172-31-35-108 ~]$ [manish@ip-172-31-35-108 ~]$ ansible all -a "mkdir /mnt/server" -b [WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information. 172.31.47.59 | CHANGED | rc=0 >>
```

## Step 12: Downloaded the Apache-Tomcat-10.1.52 in ‘/mnt/server/’ path:

```
[manish@ip-172-31-35-108 ~]$  
[manish@ip-172-31-35-108 ~]$ ansible all -m shell -a "cd /mnt/server && wget https://dlcdn.apache.org/tomcat/tomcat-10/v10.1.52/bin/apache-tomcat-10.1.52.zip" -b  
[WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information.  
172.31.47.59 | CHANGED | rc=0 >>  
--2026-02-22 21:58:33-- https://dlcdn.apache.org/tomcat/tomcat-10/v10.1.52/bin/apache-tomcat-10.1.52.zip  
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: 14869727 (14M) [application/zip]  
Saving to: 'apache-tomcat-10.1.52.zip'
```

## Step 13: Extracted the ‘apache-tomcat-10.1.52.zip’ file in the same path:

```
[manish@ip-172-31-35-108 ~]$  
[manish@ip-172-31-35-108 ~]$ ansible all -m shell -a "cd /mnt/server && unzip apache-tomcat-10.1.52.zip" -b  
[WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information.  
172.31.47.59 | CHANGED | rc=0 >>  
Archive: apache-tomcat-10.1.52.zip  
  creating: apache-tomcat-10.1.52/  
  creating: apache-tomcat-10.1.52/bin/  
  creating: apache-tomcat-10.1.52/conf/  
  creating: apache-tomcat-10.1.52/lib/  
  creating: apache-tomcat-10.1.52/logs/
```

## Step 14: After Extraction, deleted the apache-tomcat-10.1.52.zip file:

```
[manish@ip-172-31-35-108 ~]$  
[manish@ip-172-31-35-108 ~]$ ansible all -m shell -a "cd /mnt/server && rm -rf apache-tomcat-10.1.52.zip" -b  
[WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information.  
172.31.47.59 | CHANGED | rc=0 >>
```

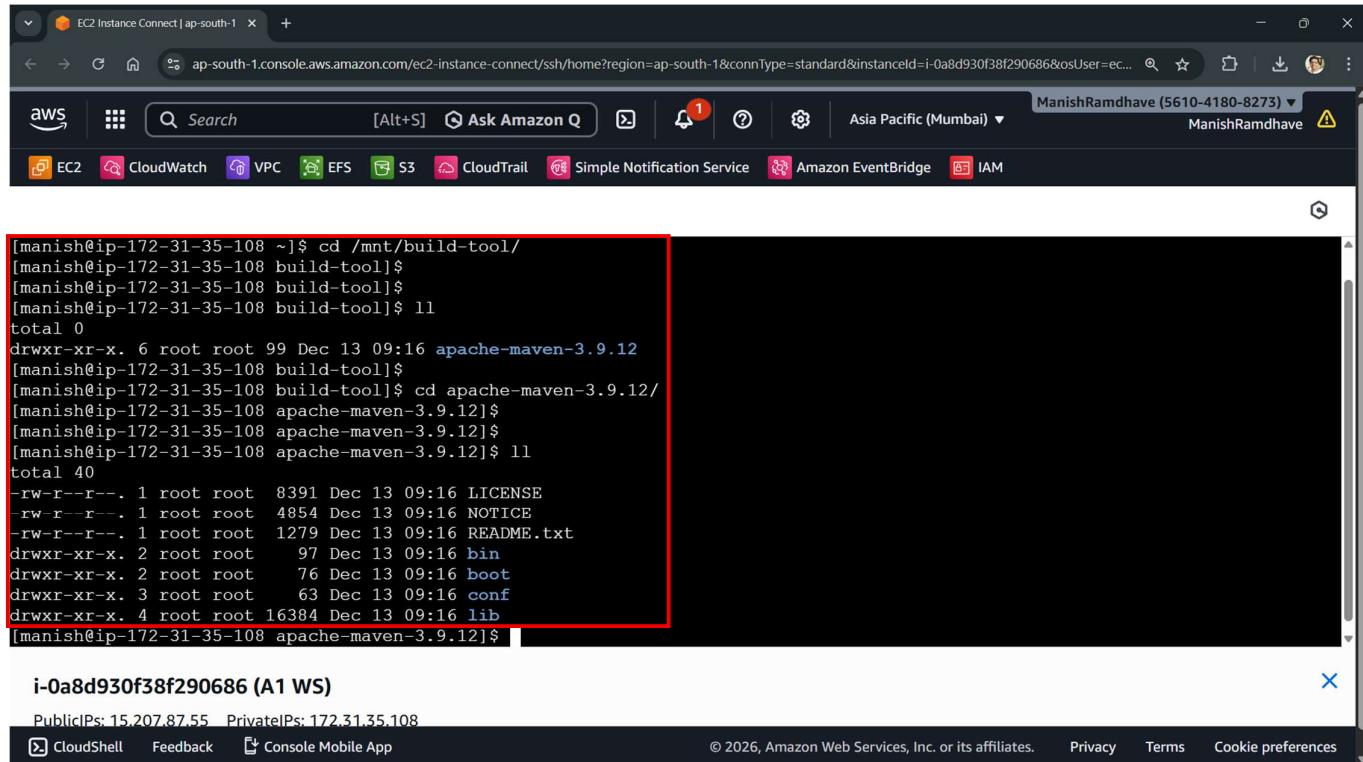
## Step 15: Assigned full permission to the ‘apache-tomcat-10.1.52’ folder (i.e.Tomcat Home):

```
[manish@ip-172-31-35-108 ~]$  
[manish@ip-172-31-35-108 ~]$ ansible all -m shell -a "cd /mnt/server && chmod -R 777 apache-tomcat-10.1.52" -b  
[WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information.  
172.31.47.59 | CHANGED | rc=0 >>
```

## Step 16: Started the apache-tomcat-10.1.52 using ‘/bin/startup.sh’ script file:

```
[manish@ip-172-31-35-108 ~]$  
[manish@ip-172-31-35-108 ~]$ ansible all -m shell -a "cd /mnt/server/apache-tomcat-10.1.52/bin && ./startup.sh"  
[WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information.  
172.31.47.59 | CHANGED | rc=0 >>  
Using CATALINA_BASE:   /mnt/server/apache-tomcat-10.1.52  
Using CATALINA_HOME:  /mnt/server/apache-tomcat-10.1.52  
Using CATALINA_TMPDIR: /mnt/server/apache-tomcat-10.1.52/temp  
Using JRE_HOME:       /usr  
Using CLASSPATH:      /mnt/server/apache-tomcat-10.1.52/bin/bootstrap.jar:/mnt/server/apache-tomcat-10.1.52/bin/tomcat-juli.jar  
Using CATALINA_OPTS:  
Tomcat started.
```

## Step 17: Created a ‘build-tool’ folder in /mnt/ on Workstation and Downloaded the Apache-Maven-3.9.12 in it:



```
[manish@ip-172-31-35-108 ~]$ cd /mnt/build-tool/
[manish@ip-172-31-35-108 build-tool]$
[manish@ip-172-31-35-108 build-tool]$
[manish@ip-172-31-35-108 build-tool]$ ll
total 0
drwxr-xr-x. 6 root root 99 Dec 13 09:16 apache-maven-3.9.12
[manish@ip-172-31-35-108 build-tool]$
[manish@ip-172-31-35-108 build-tool]$ cd apache-maven-3.9.12/
[manish@ip-172-31-35-108 apache-maven-3.9.12]$
[manish@ip-172-31-35-108 apache-maven-3.9.12]$
[manish@ip-172-31-35-108 apache-maven-3.9.12]$ ll
total 40
-rw-r--r--. 1 root root 8391 Dec 13 09:16 LICENSE
-rw-r--r--. 1 root root 4854 Dec 13 09:16 NOTICE
-rw-r--r--. 1 root root 1279 Dec 13 09:16 README.txt
drwxr-xr-x. 2 root root 97 Dec 13 09:16 bin
drwxr-xr-x. 2 root root 76 Dec 13 09:16 boot
drwxr-xr-x. 3 root root 63 Dec 13 09:16 conf
drwxr-xr-x. 4 root root 16384 Dec 13 09:16 lib
[manish@ip-172-31-35-108 apache-maven-3.9.12]$
```

i-0a8d930f38f290686 (A1 WS)

PublicIPs: 15.207.87.55 PrivateIPs: 172.31.35.108

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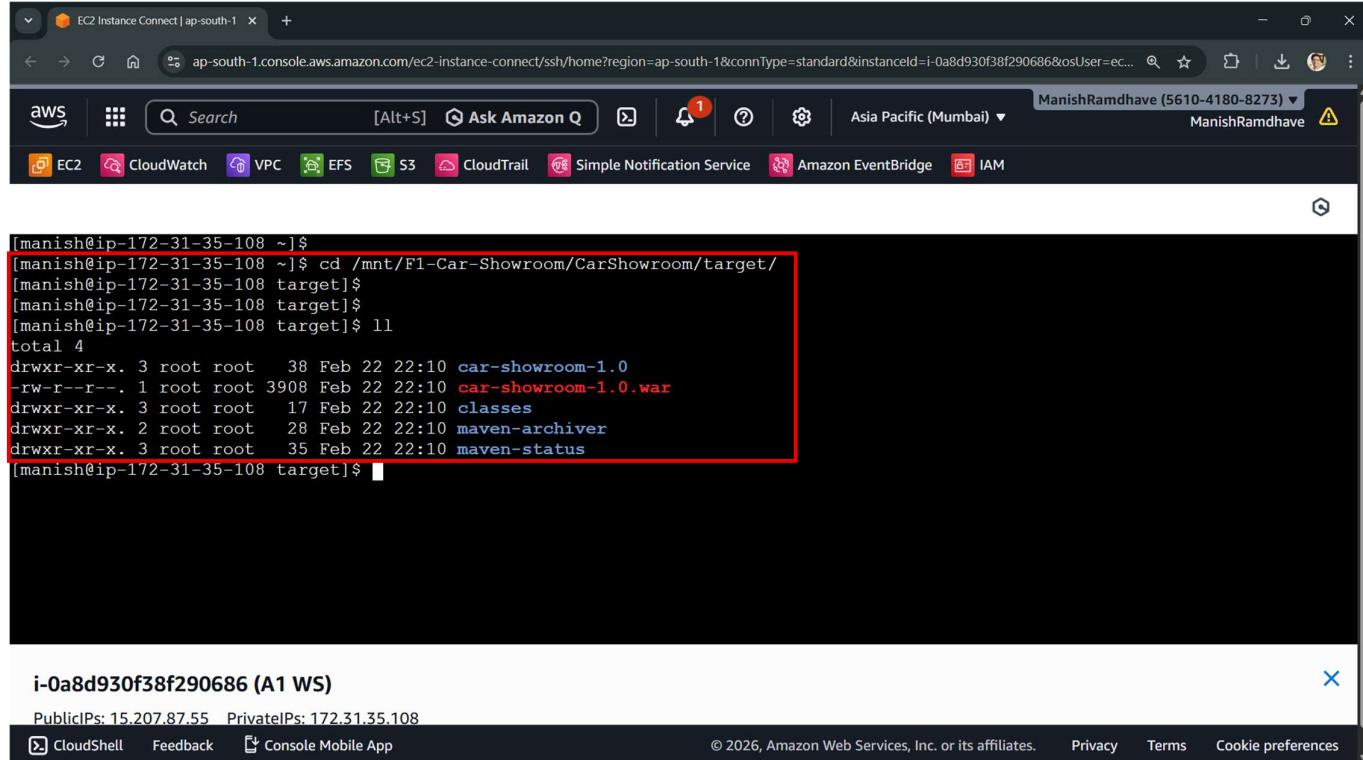
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## Step 18: Compiled and Packaged the ‘car-showroom-1.0.war’ file in the target folder:



```
[manish@ip-172-31-35-108 ~]$
[manish@ip-172-31-35-108 ~]$ cd /mnt/F1-Car-Showroom/CarShowroom/target/
[manish@ip-172-31-35-108 target]$
[manish@ip-172-31-35-108 target]$
[manish@ip-172-31-35-108 target]$ ll
total 4
drwxr-xr-x. 3 root root 38 Feb 22 22:10 car-showroom-1.0
-rw-r--r--. 1 root root 3908 Feb 22 22:10 car-showroom-1.0.war
drwxr-xr-x. 3 root root 17 Feb 22 22:10 classes
drwxr-xr-x. 2 root root 28 Feb 22 22:10 maven-archiver
drwxr-xr-x. 3 root root 35 Feb 22 22:10 maven-status
[manish@ip-172-31-35-108 target]$
```

i-0a8d930f38f290686 (A1 WS)

PublicIPs: 15.207.87.55 PrivateIPs: 172.31.35.108

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Step 19: Copied the ‘car-showroom-1.0’ application to Tomcat Home’s /webapps folder and it gets deployed as we have kept tomcat server started:

```
[manish@ip-172-31-35-108 ~]$ ansible all -m copy -a "src=/mnt/ansible all -m copy -a "src=/mnt/F1-Car-Showroom/CarShowroom/target/car-showroom-1.0.war dest=/mnt/server/apache-tomcat-10.1.52/webapps/" -b
[WARNING]: Platform linux on host 172.31.47.59 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more information.
172.31.47.59 | CHANGED => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3.9"
    },
    "changed": true,
    "checksum": "66ebd081e9b3531f3dd042a71b41ad1e852f129a",
    "dest": "/mnt/server/apache-tomcat-10.1.52/webapps/car-showroom-1.0.war",
    "gid": 1001,
    "group": "manish",
    "md5sum": "d5128f2bc9a0f60f1e015de8e4546dd7",
    "mode": "0664",
}
```

## Results:

We have successfully deployed the ‘car-showroom-1.0’ application using ansible ‘adhoc command’ and hosted the same application using Host Public IP and Tomcat Server Port No.8080:

