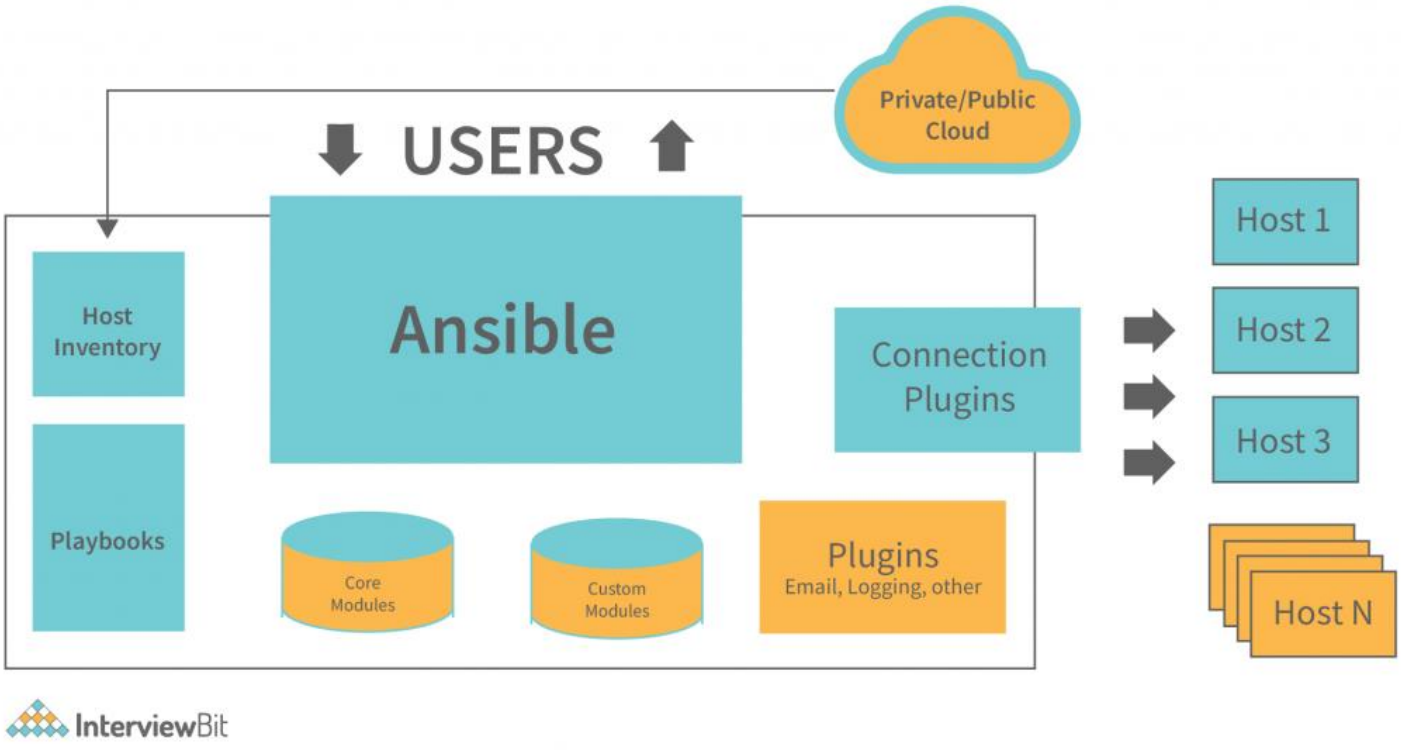
ANSIBLE:

Ansible is a software tool that provides simple but powerful automation for cross-platform computer support. It is primarily intended for IT professionals, who use it for application deployment, updates on workstations and servers, cloud provisioning, configuration management, intra-service orchestration, and nearly anything a systems administrator does on a weekly or daily basis. Ansible doesn't depend on agent software and has no additional security infrastructure, so it's easy to deploy.

Because Ansible is all about automation, it requires instructions to accomplish each job. With everything written down in simple script form, it's easy to do version control. The practical result of this is a major contribution to the "infrastructure as code" movement in IT: the idea that the maintenance of server and client infrastructure can and should be treated the same as software development, with repositories of self-documenting, proven, and executable solutions capable of running an organization regardless of staff changes.

While Ansible may be at the forefront of automation, systems administration, and DevOps, it's also useful to everyday users. Ansible allows you to configure not just one computer, but potentially a whole network of computers at once, and using it requires no programming skills. Instructions written for Ansible are human-readable. Whether you're entirely new to computers or an expert, Ansible files are easy to understand.

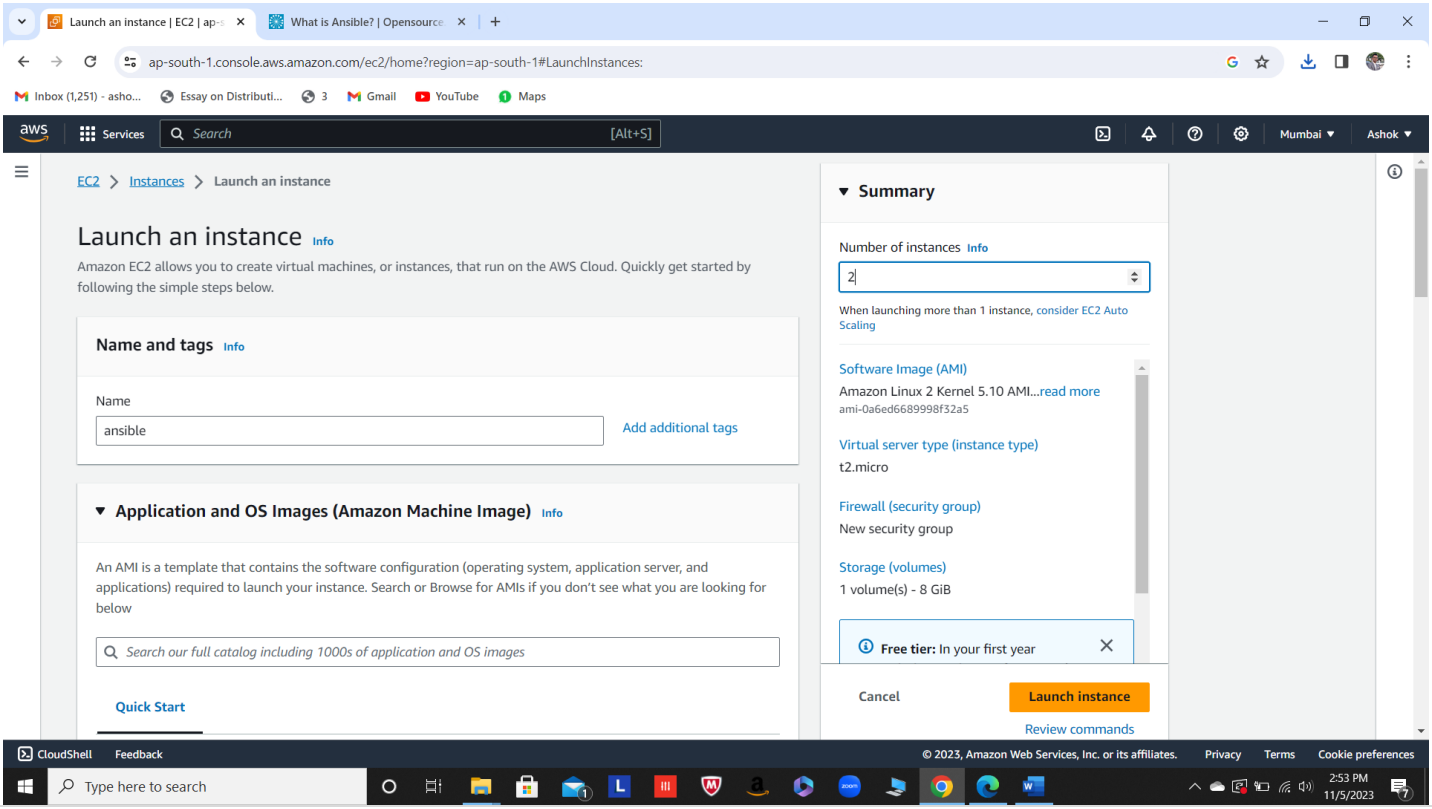


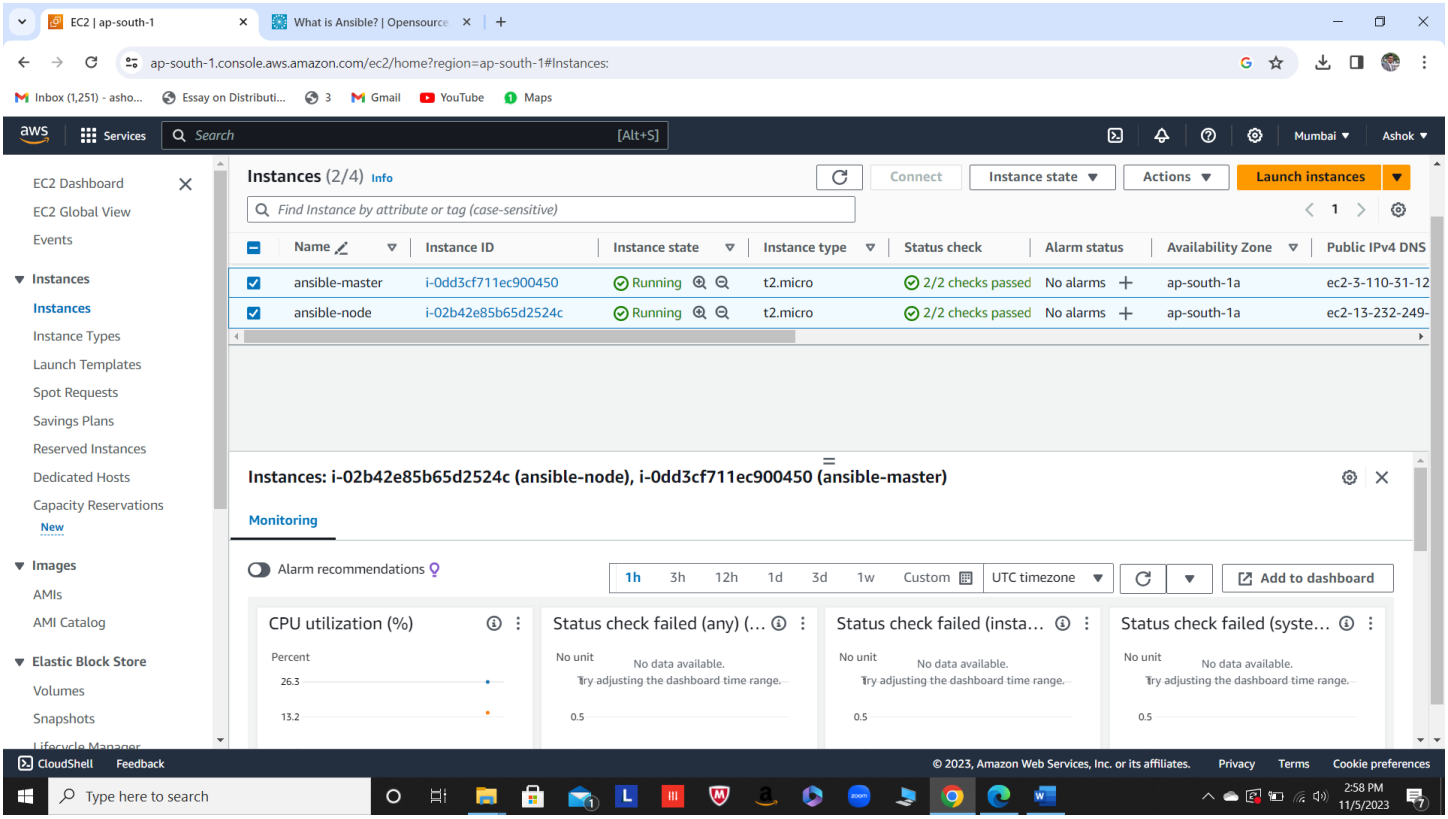
Configuration of Master and Node Instances:

Configuring a master and nodes in Ansible involves setting up the Ansible-mater and configuring the Ansible-node to be managed by Ansible. Here's a step-by-step procedure for configuring the master and nodes:

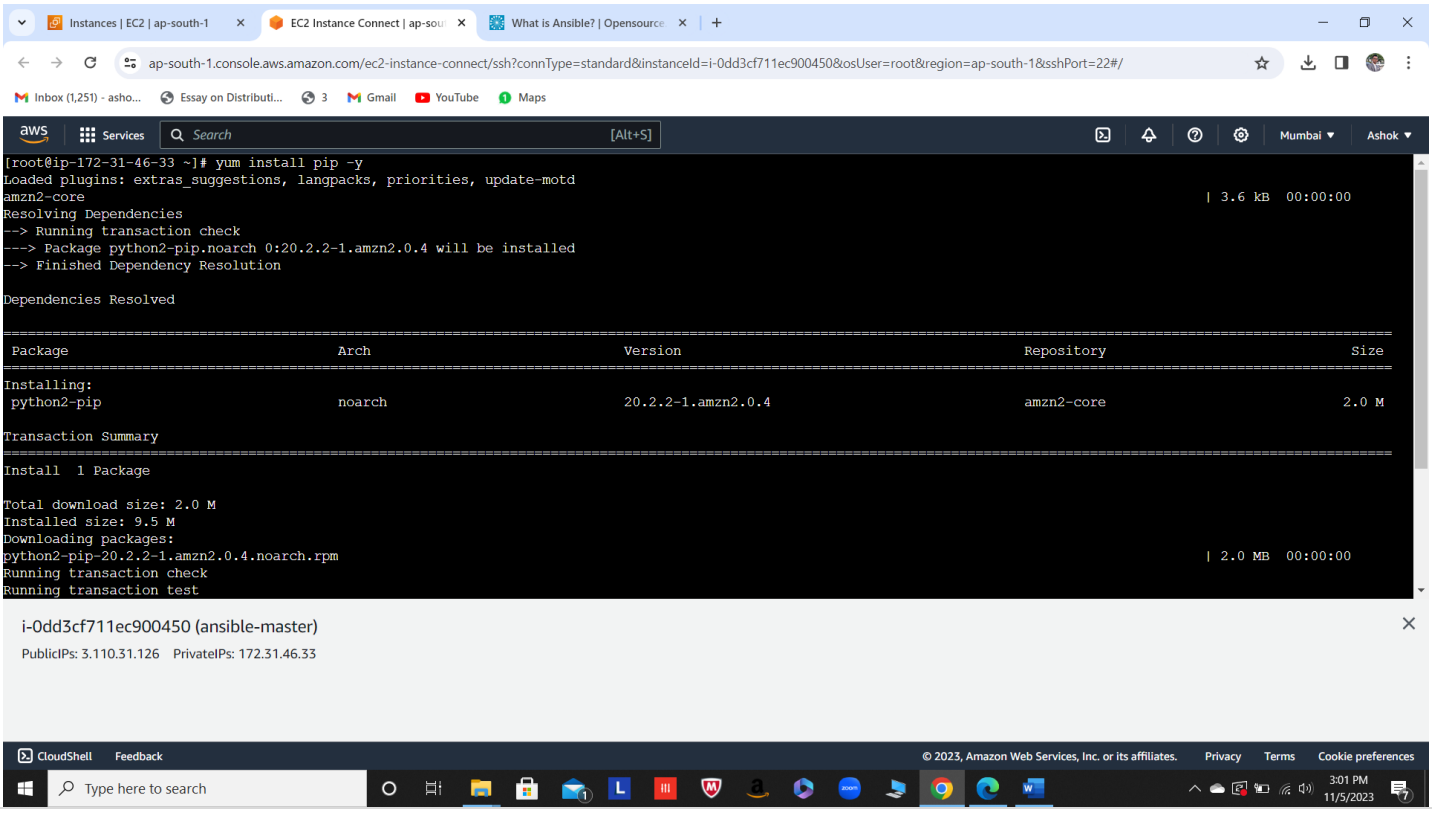
1. **Install Ansible on the Ansible-master:**
   Ensure that we have a machine designated as the Ansible-master. This is where we will run Ansible commands from.
2. **Set Up SSH Key-Based Authentication:** Ansible uses SSH to communicate with remote nodes. Ensure that you can SSH into the nodes without requiring a password by setting up SSH key-based authentication.
3. **Test SSH Connection:** Verify that Ansible can connect to the nodes using SSH.
4. **Configure Ansible Inventory:** The inventory file (host) defines the remote servers (nodes) that Ansible will manage. Create an inventory file, typically named host, and define the IP addresses.
5. **Create Ansible Playbooks:** Ansible playbooks are YAML files that define tasks to be executed on remote nodes.
6. **Run Ansible Playbook:** Execute the playbooks to configure the nodes.

- Create instances Ansible-master and Ansible-node.

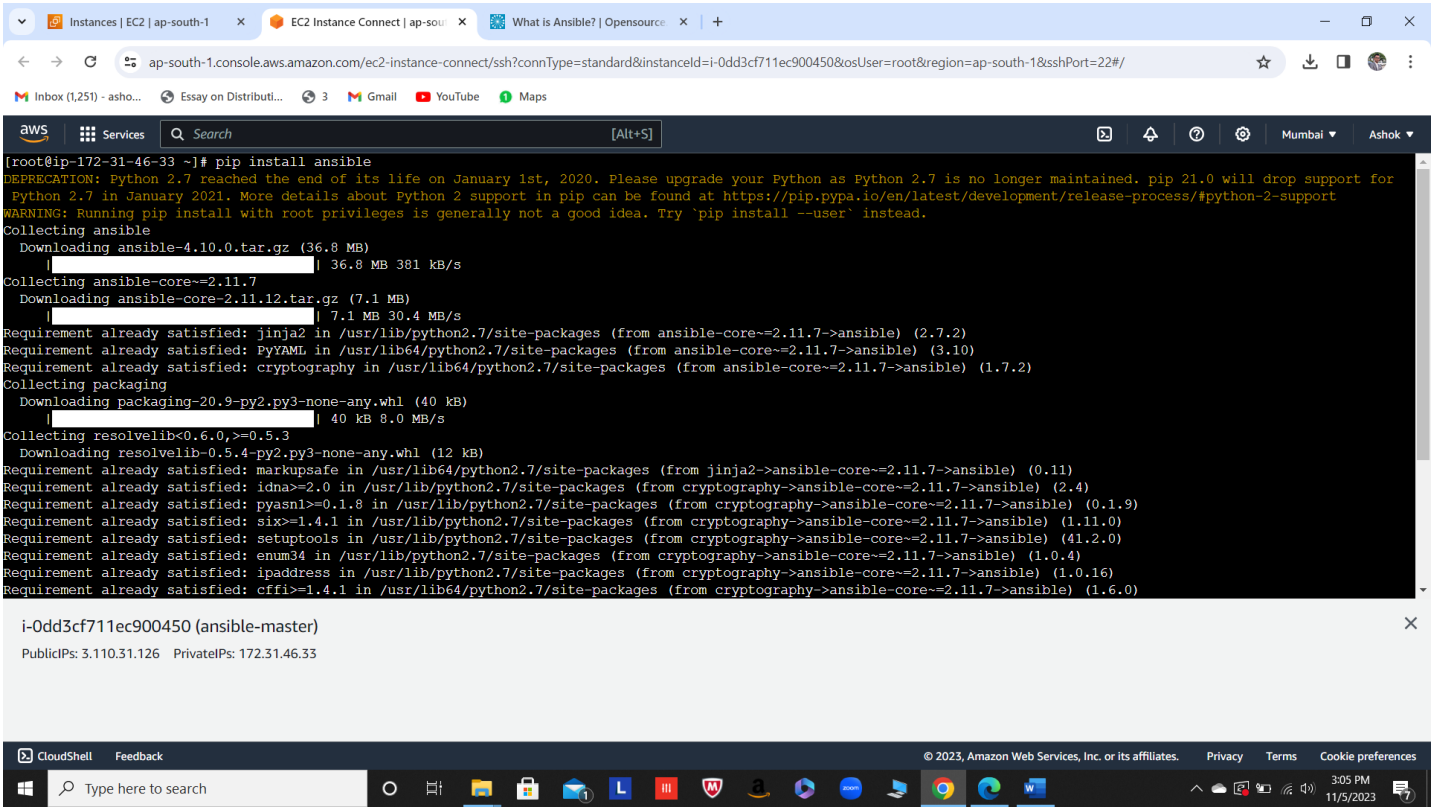




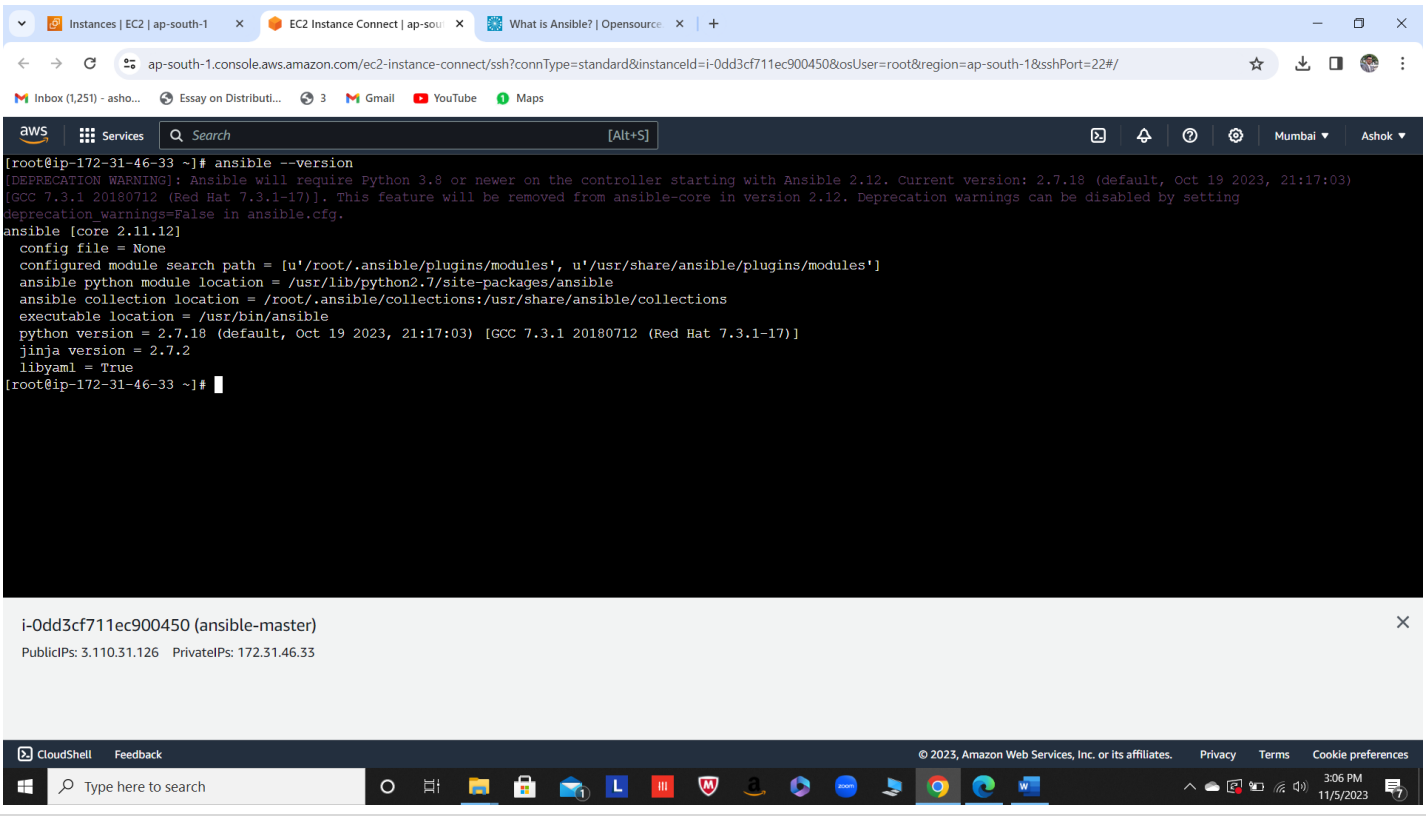
- Pip -y (to install python)(dependency for ansible).



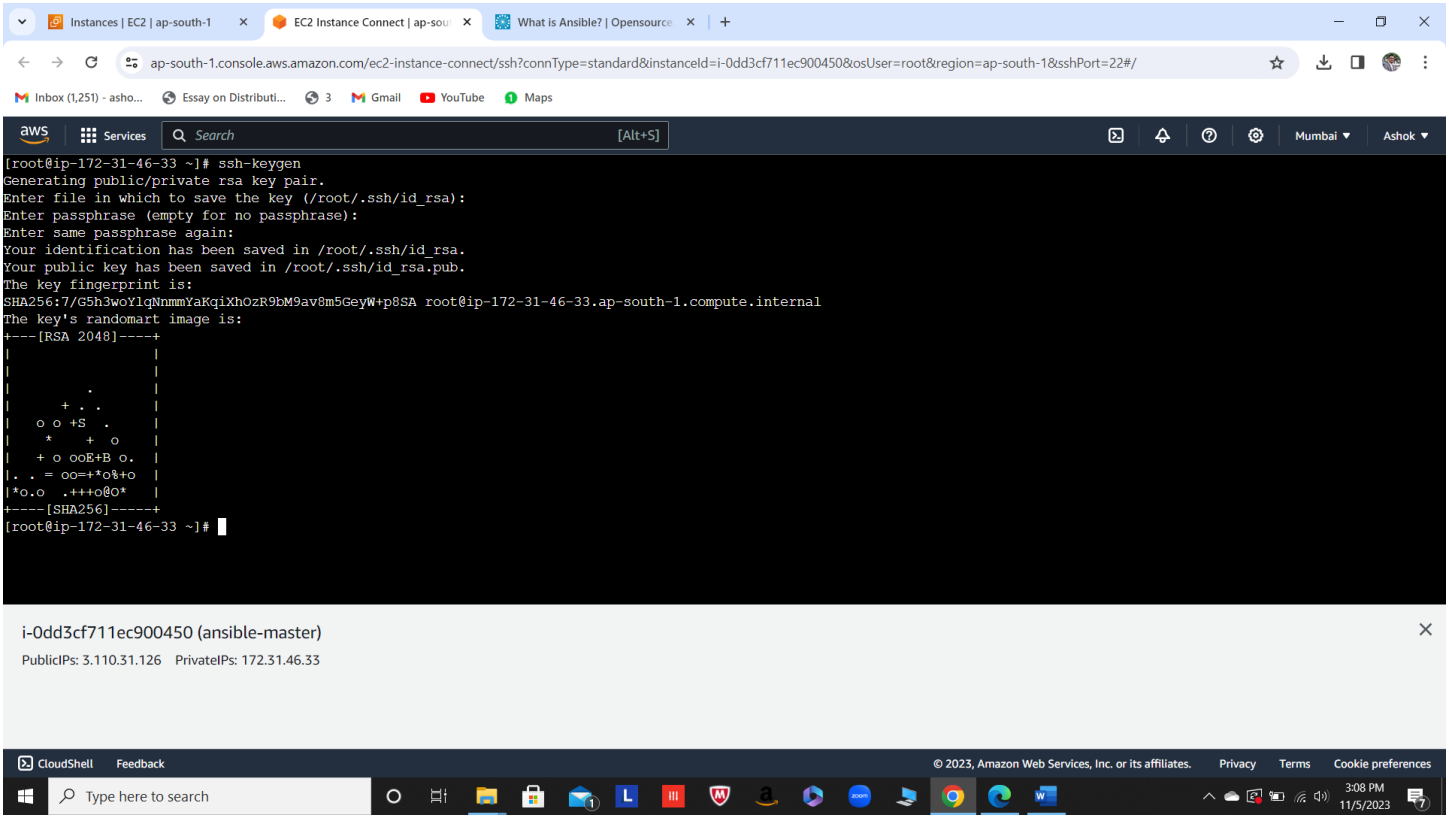
- Pip install ansible (to install ansible).

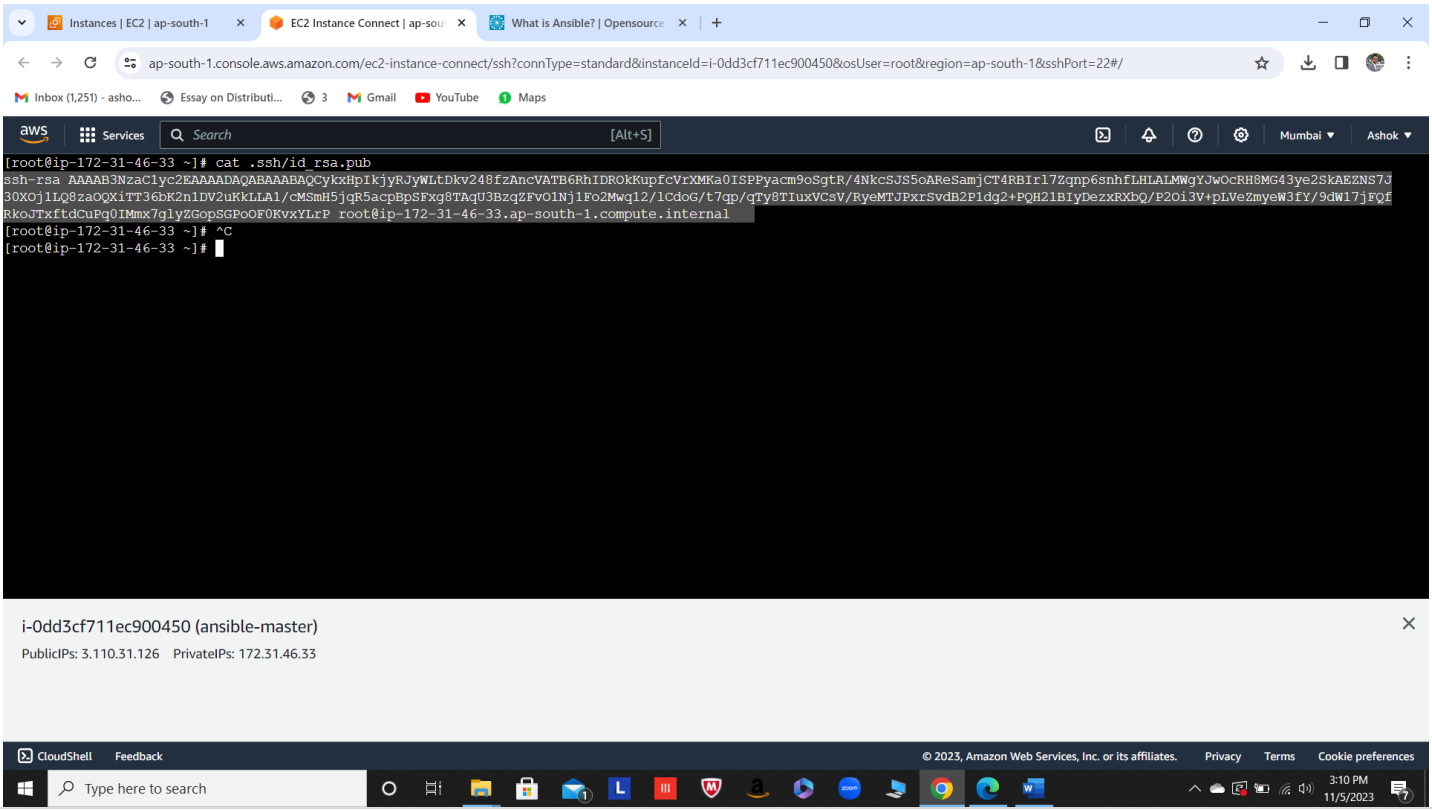


- Ansible –version (to check ansible version).

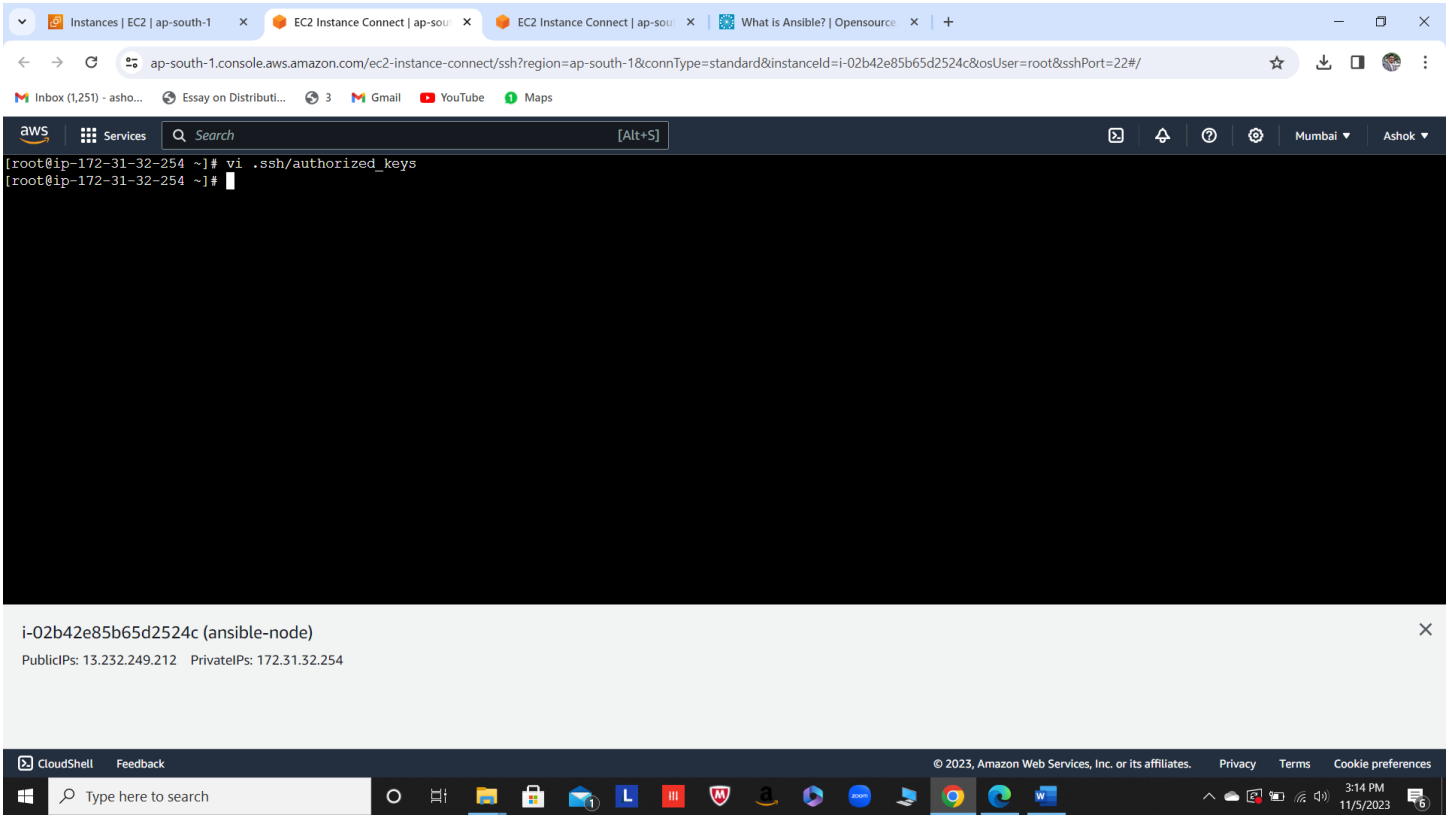


- Ssh-keygen (to generate public ip key)

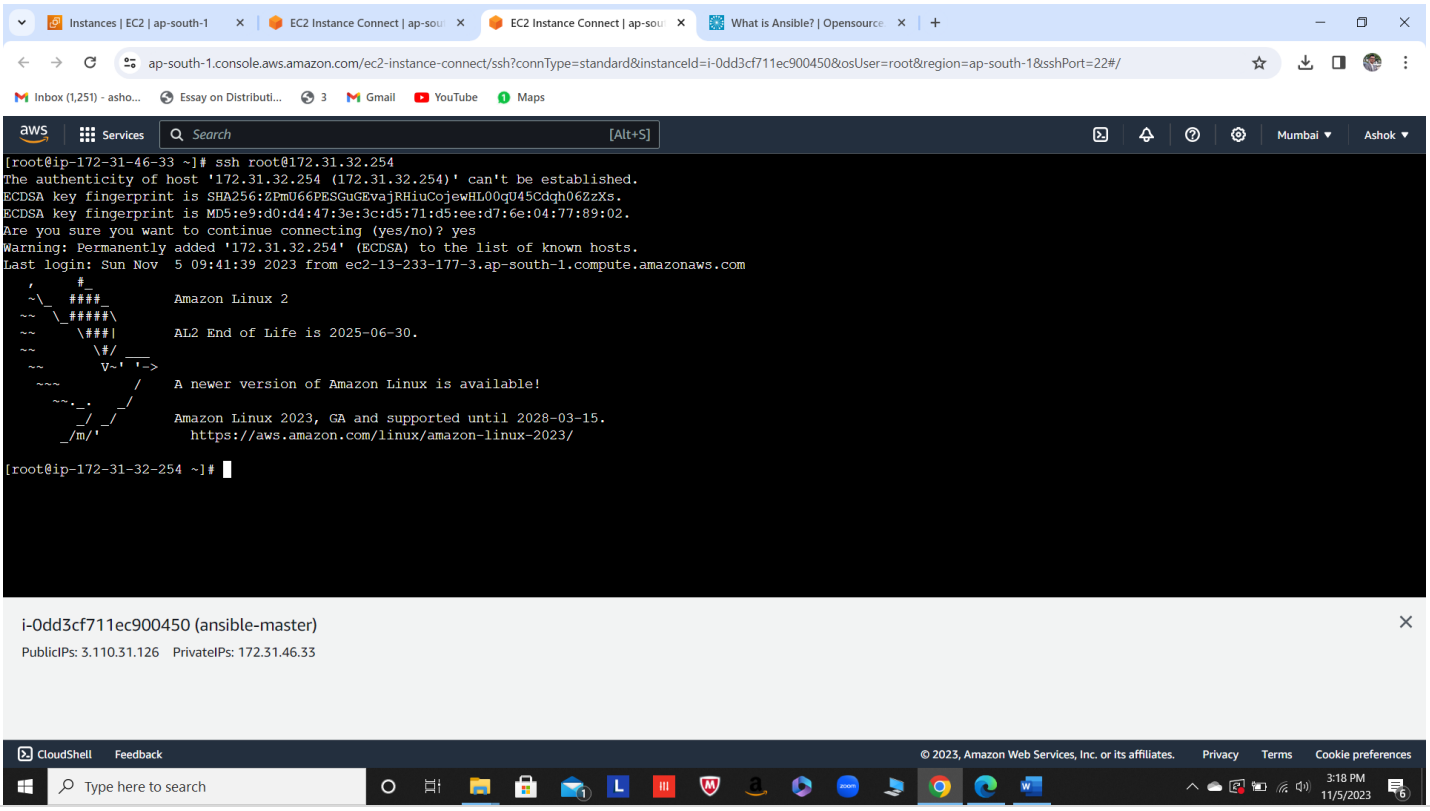




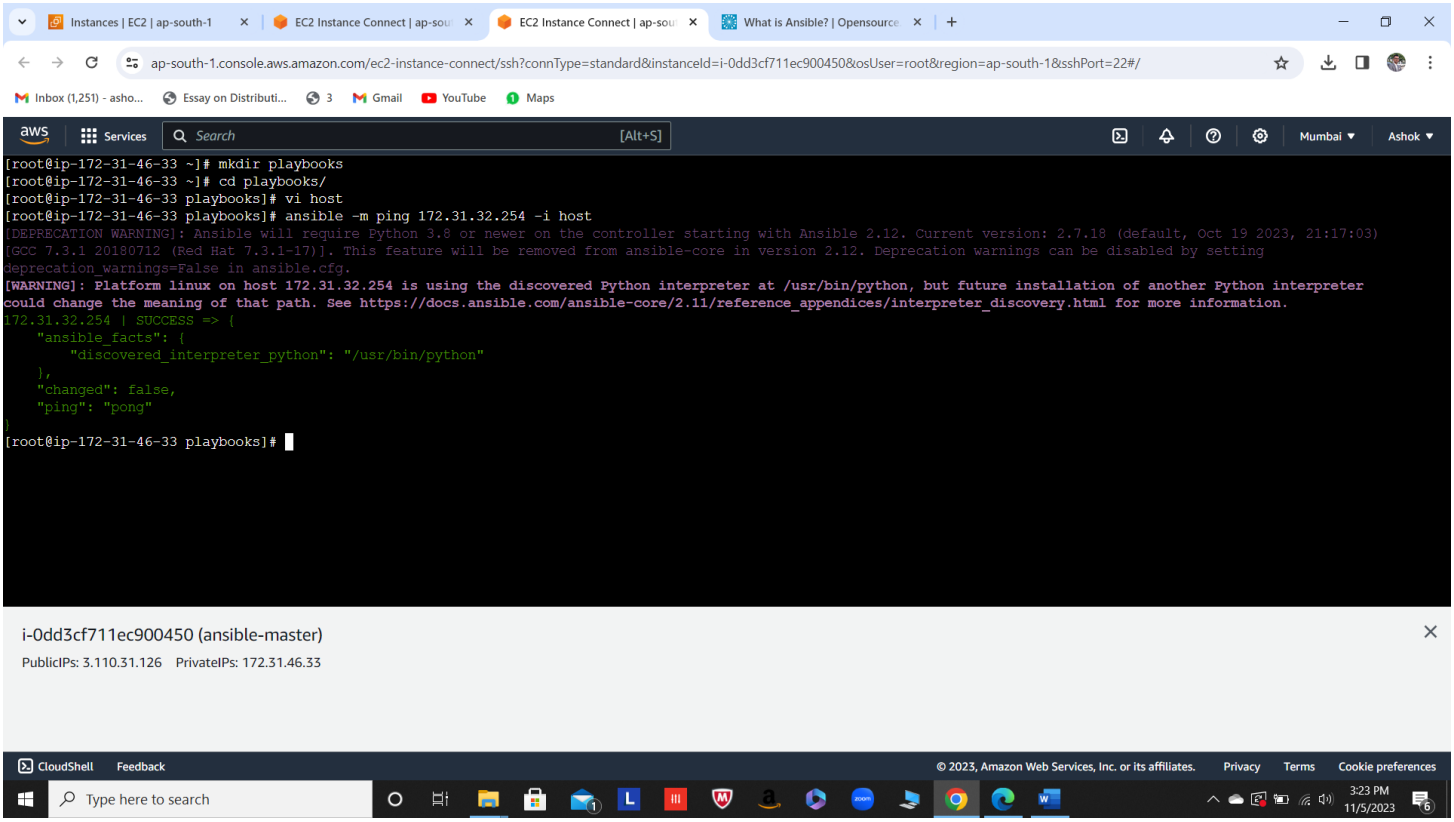
- In ansible-node add public ip key



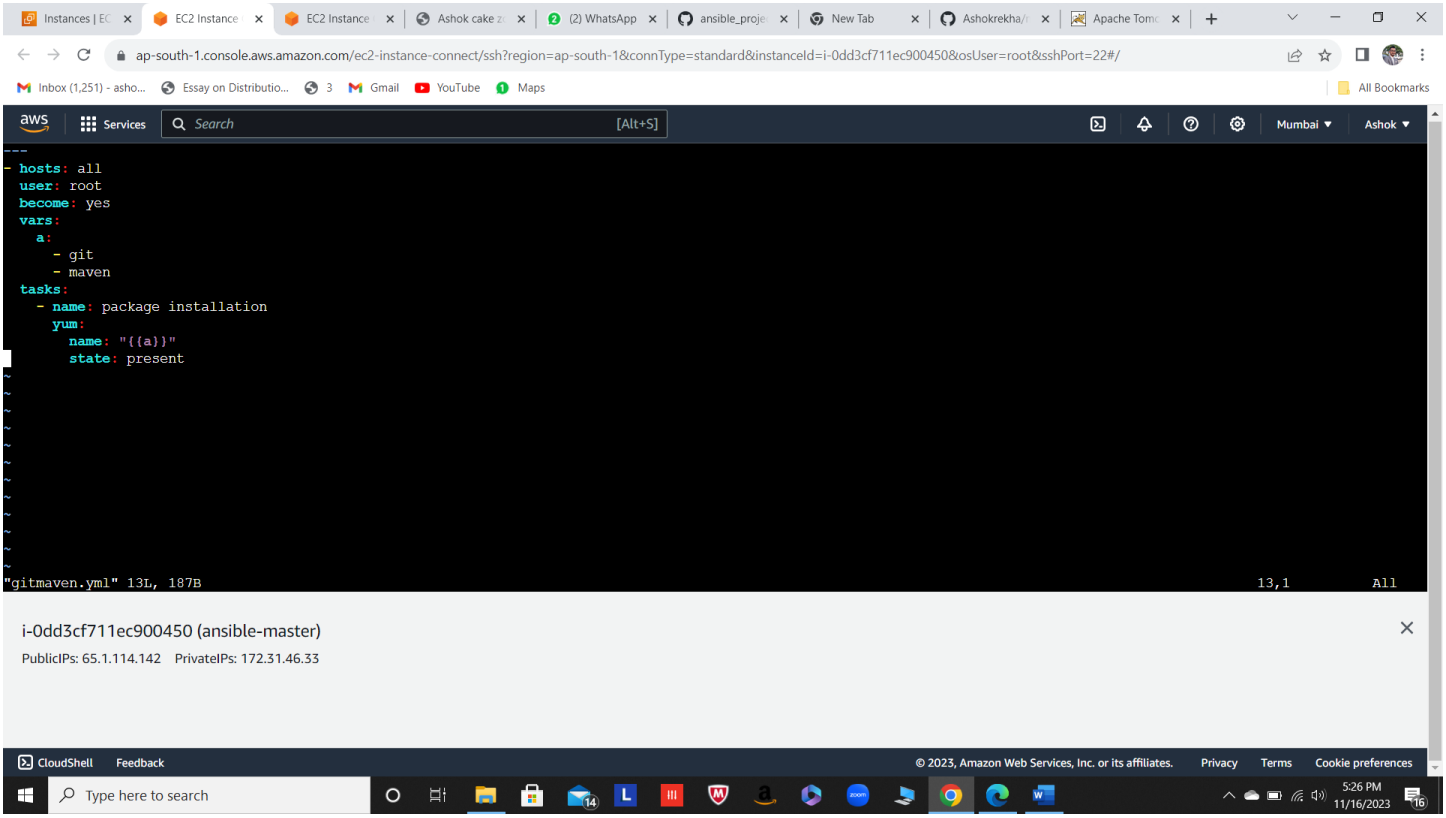
- Now check connection.

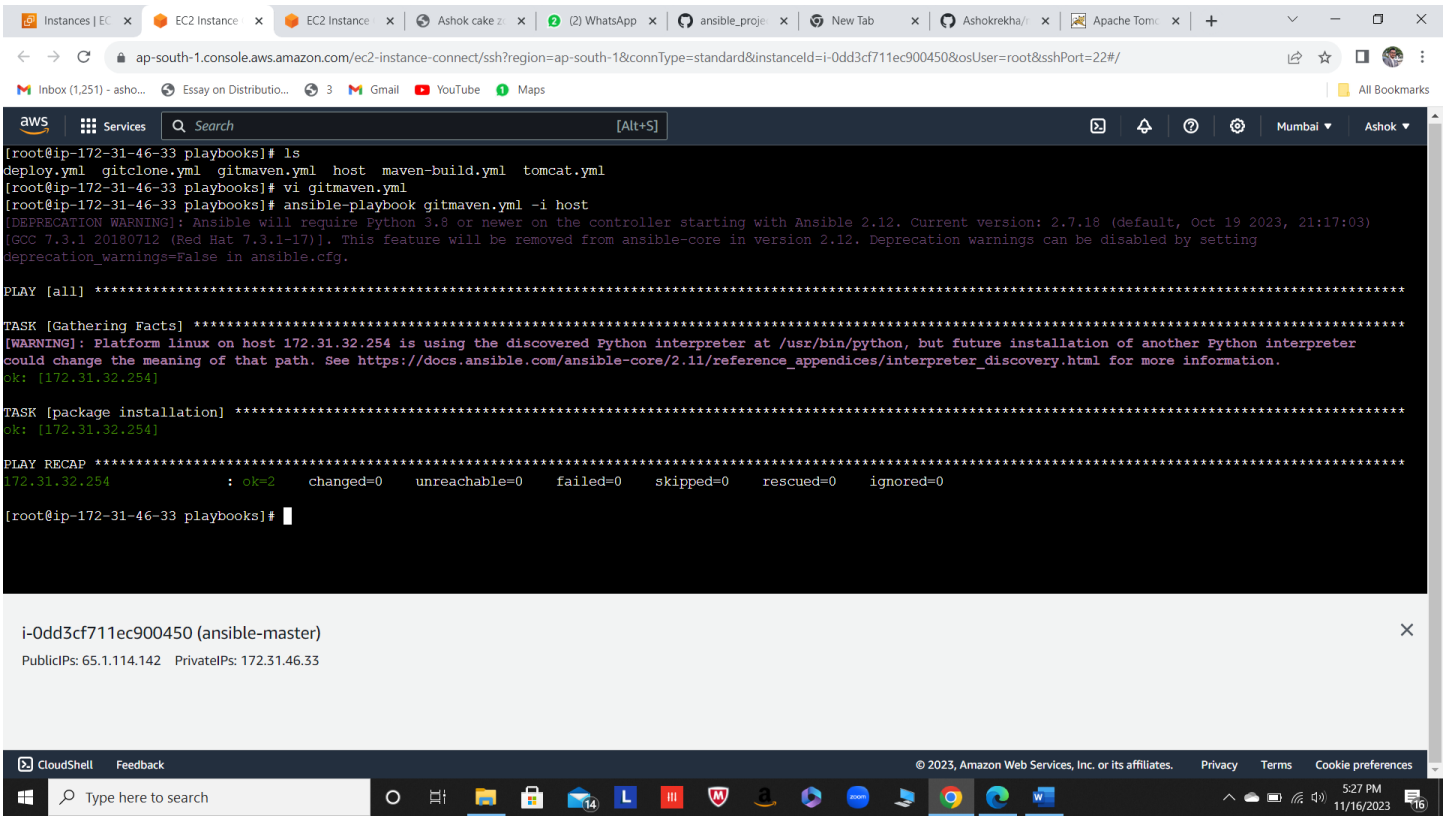


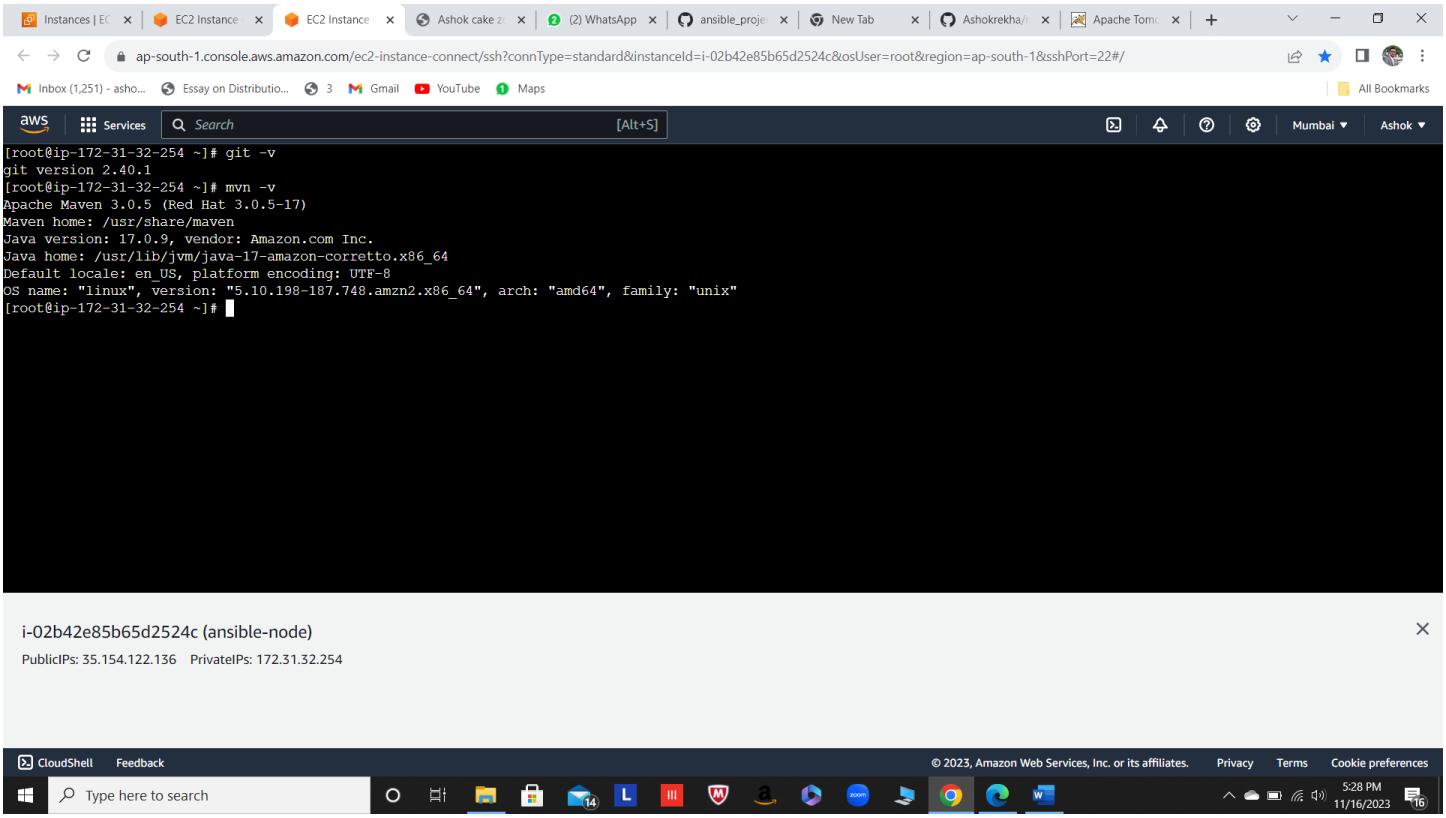
- Create a playbooks directory.



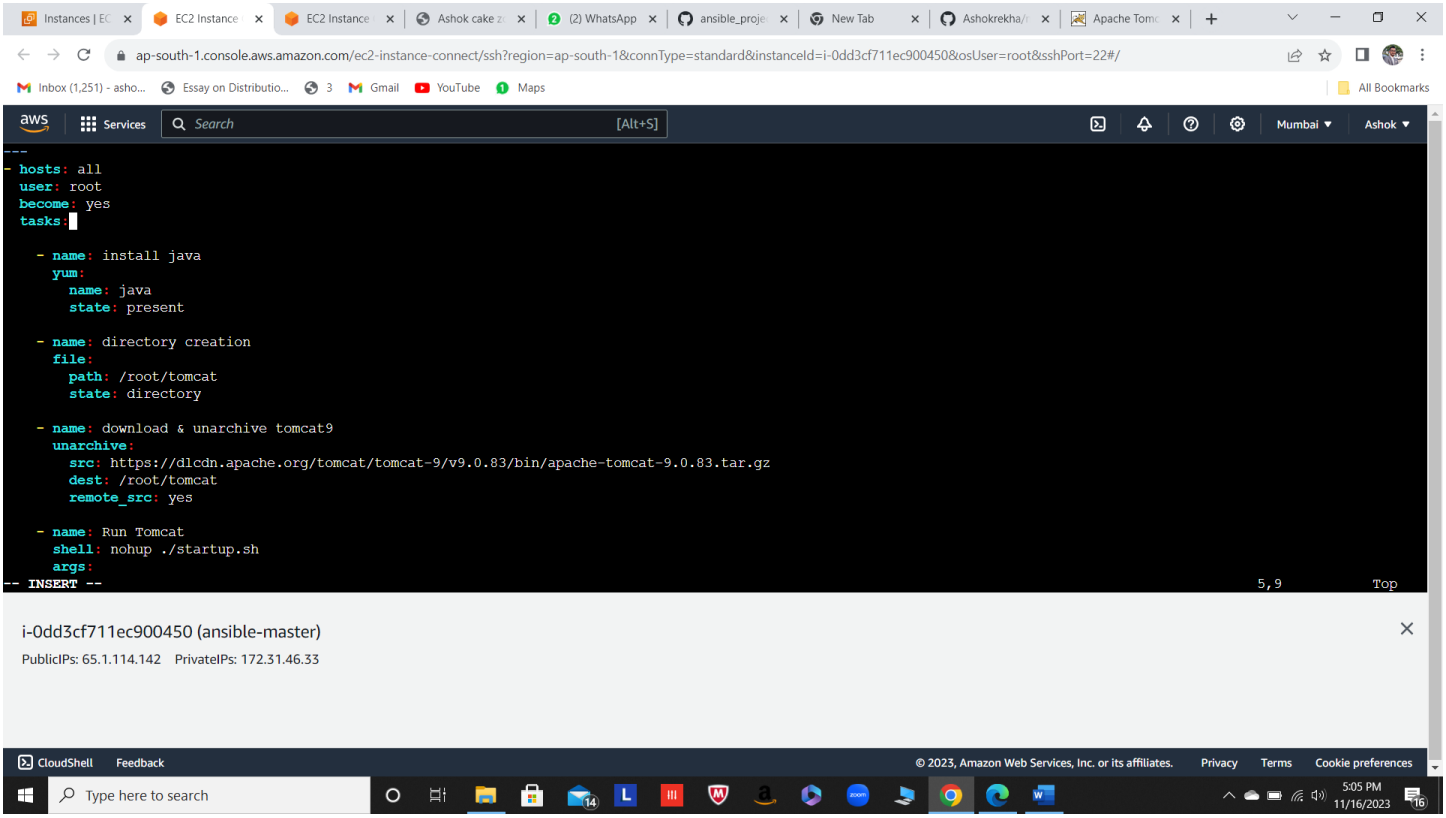
1. Create a playbook to install git and maven.



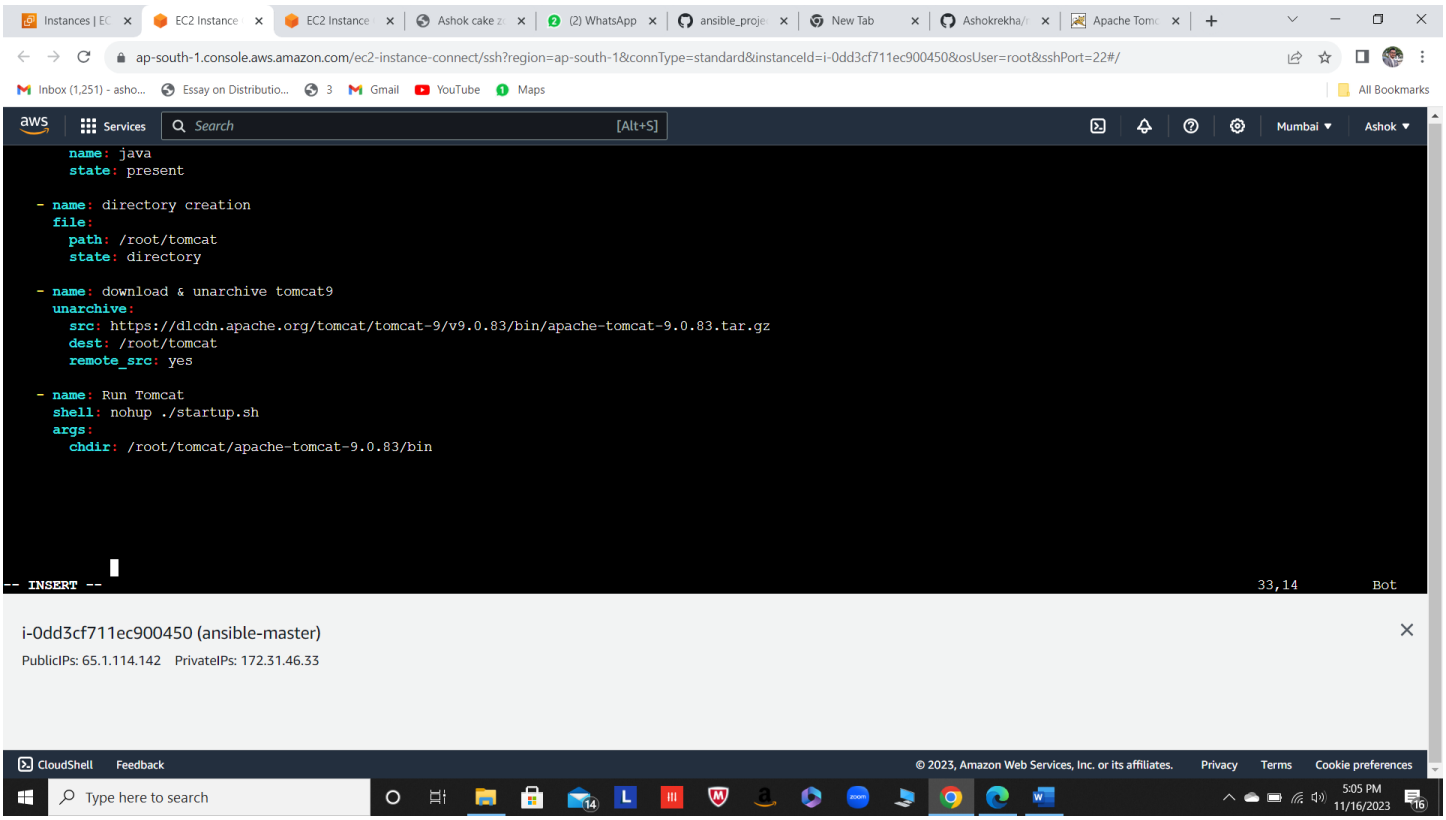



Instances | EC
EC2 Instance
EC2 Instance
Ashok cake z
(2) WhatsApp
ansible_proje
New Tab
Ashokrekha/r
Apache Tomc
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root&region=ap-south-1&sshPort=22#/
Inbox (1,251) - asho...
Essay on Distributio...
3
Gmail
YouTube
Maps
All Bookmarks
aws
Services
Search
[Alt+S]
Mumbai
Ashok
[root@ip-172-31-32-254 ~]# git -v
git version 2.40.1
[root@ip-172-31-32-254 ~]# mvn -v
Apache Maven 3.0.5 (Red Hat 3.0.5-17)
Maven home: /usr/share/maven
Java version: 17.0.9, vendor: Amazon.com Inc.
Java home: /usr/lib/jvm/java-17-amazon-corretto.x86_64
Default locale: en_US, platform encoding: UTF-8
OS name: "linux", version: "5.10.198-187.748.amzn2.x86_64", arch: "amd64", family: "unix"
[root@ip-172-31-32-254 ~]#
i-02b42e85b65d2524c (ansible-node)
PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Type here to search
5:28 PM
11/16/2023

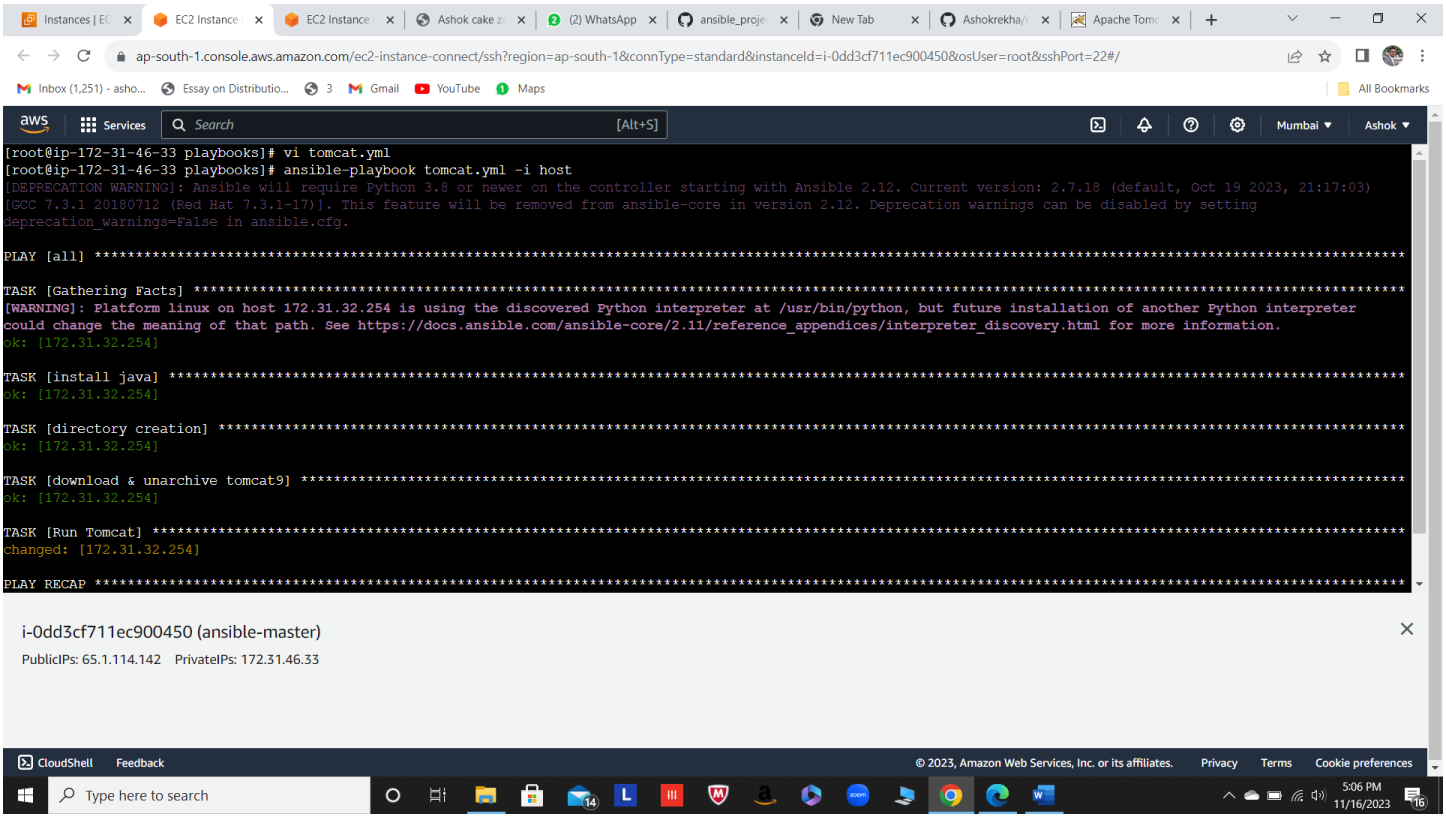
2. Create a playbook to install tomcat.

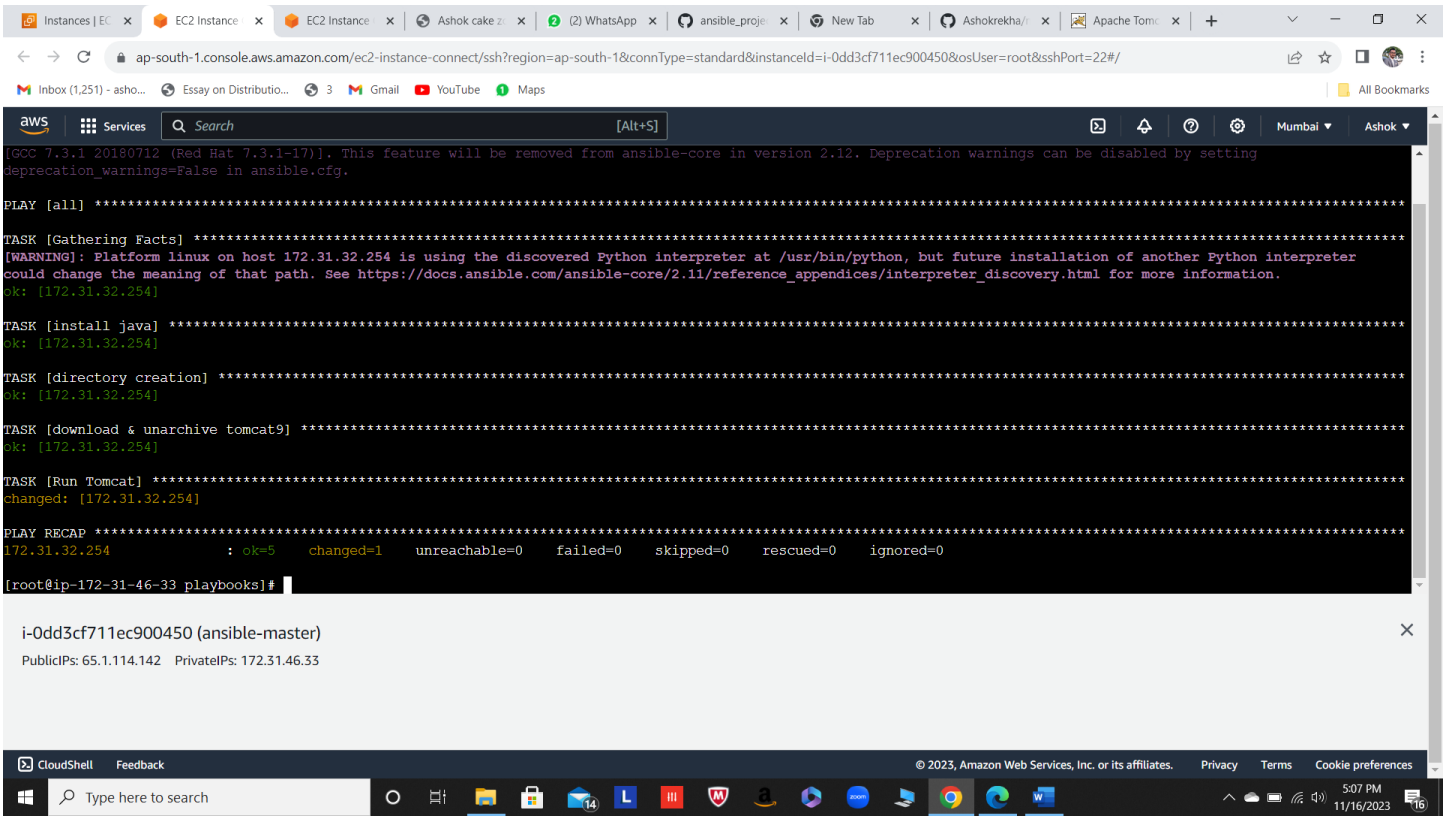


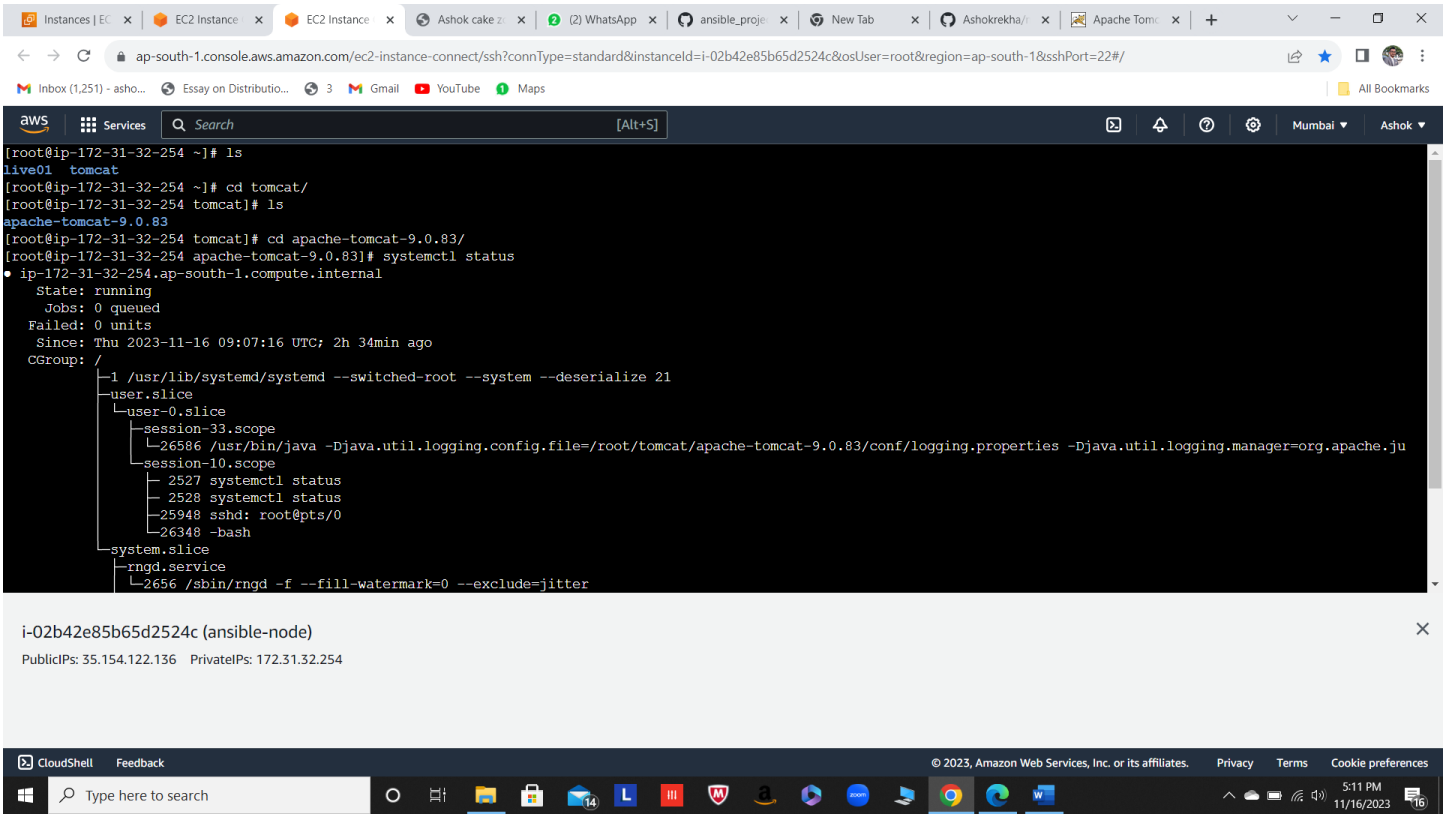
```
---
- hosts: all
  user: root
  become: yes
  tasks:

    - name: install java
      yum:
        name: java
        state: present

    - name: directory creation
      file:
        path: /root/tomcat
        state: directory

    - name: download & unarchive tomcat9
      unarchive:
        src: https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.83/bin/apache-tomcat-9.0.83.tar.gz
        dest: /root/tomcat
        remote_src: yes

    - name: Run Tomcat
      shell: nohup ./startup.sh
      args:
-- INSERT --                                                    5,9           Top
```

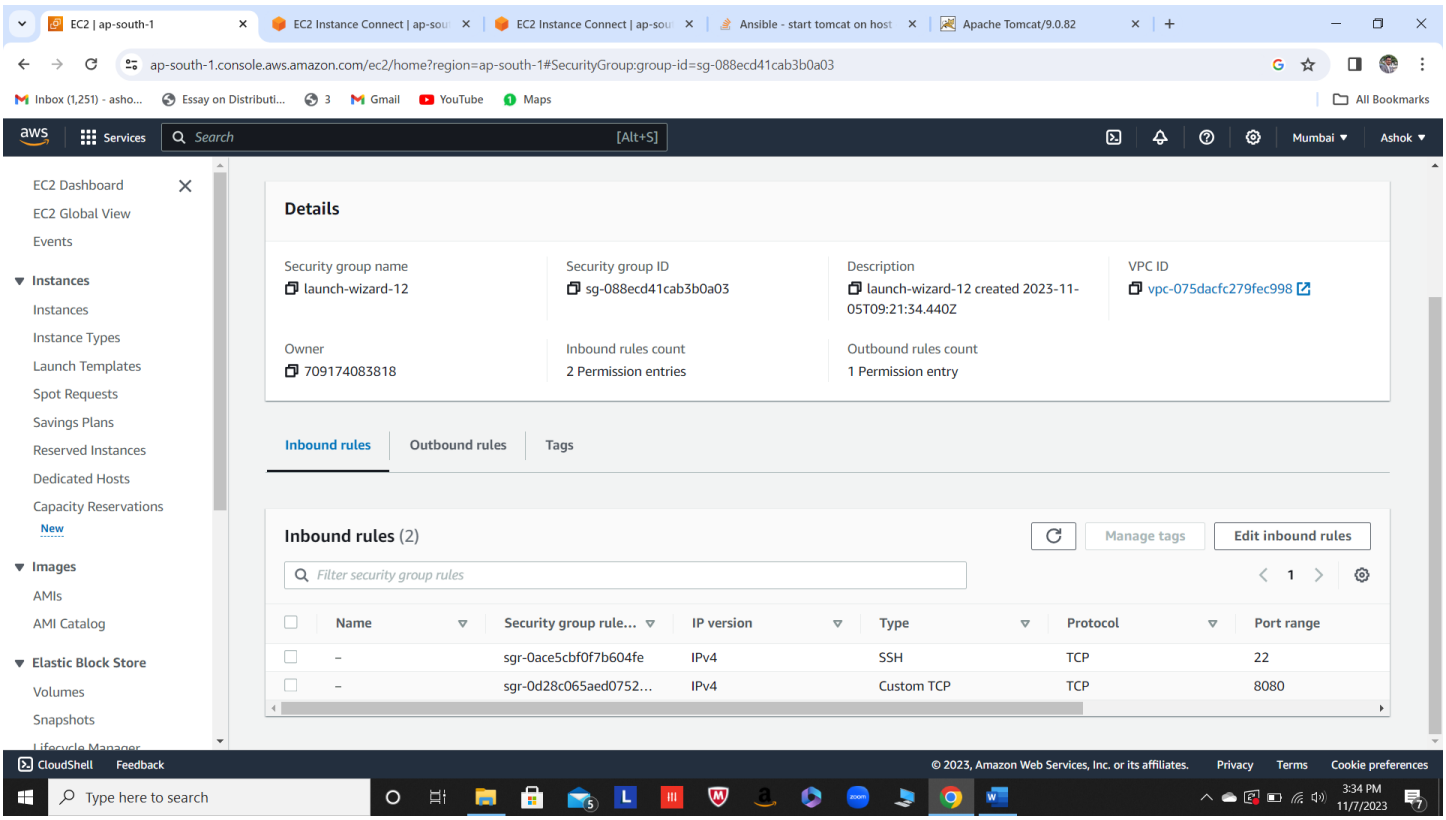



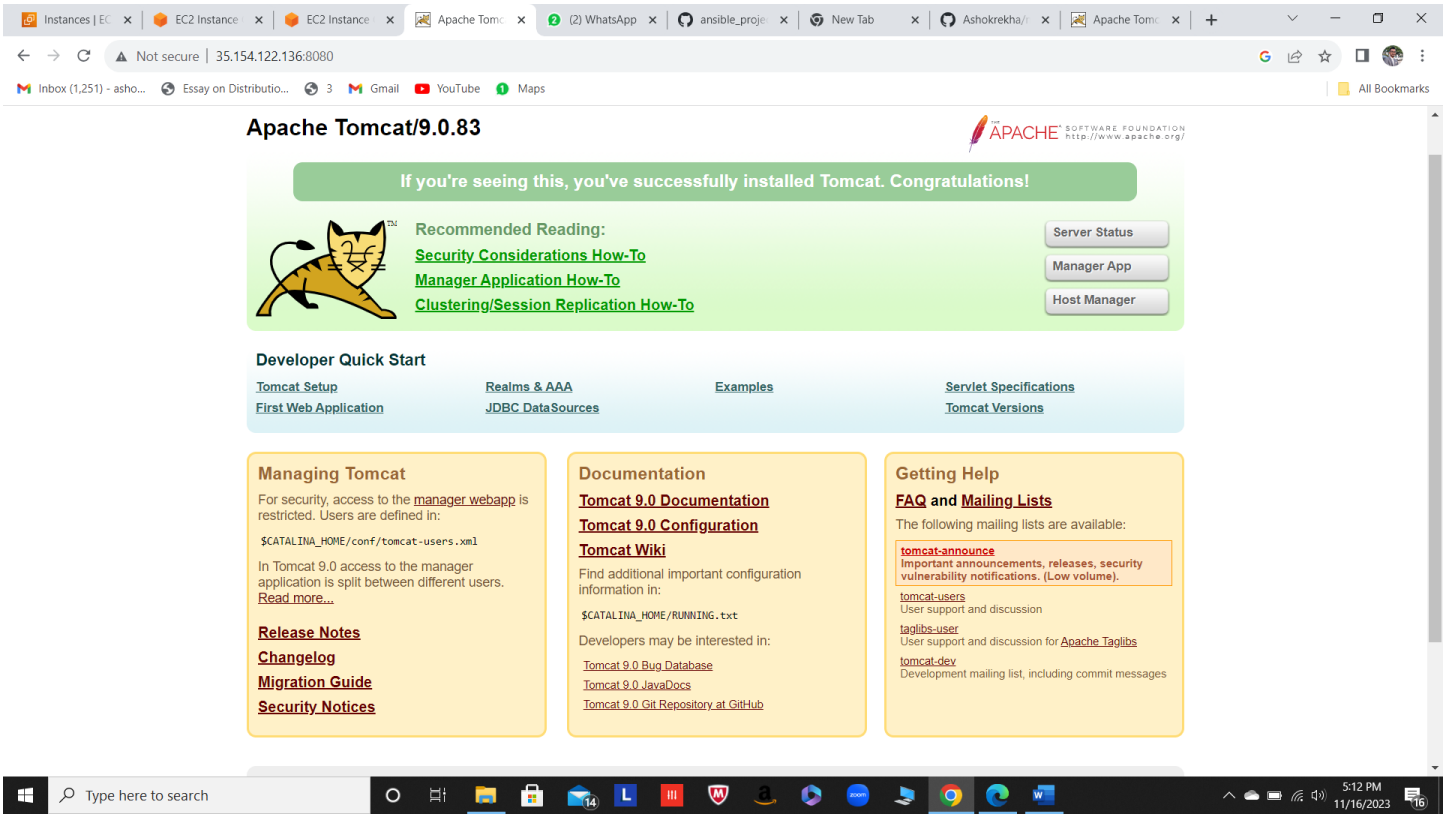
```
        name: java
        state: present

    - name: directory creation
      file:
        path: /root/tomcat
        state: directory

    - name: download & unarchive tomcat9
      unarchive:
        src: https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.83/bin/apache-tomcat-9.0.83.tar.gz
        dest: /root/tomcat
        remote_src: yes

    - name: Run Tomcat
      shell: nohup ./startup.sh
      args:
        chdir: /root/tomcat/apache-tomcat-9.0.83/bin
-- INSERT --                                                   33,14          Bot
```


[root@ip-172-31-46-33 playbooks]# vi tomcat.yml
[root@ip-172-31-46-33 playbooks]# ansible-playbook tomcat.yml -i host
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
[GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
PLAY [all] ***
TASK [Gathering Facts] ***
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]
TASK [install java] ***
ok: [172.31.32.254]
TASK [directory creation] ***
ok: [172.31.32.254]
TASK [download & unarchive tomcat9] ***
ok: [172.31.32.254]
TASK [Run Tomcat] ***
changed: [172.31.32.254]
PLAY RECAP ***
i-0dd3cf711ec900450 (ansible-master)
PublicIPs: 65.1.114.142 PrivateIPs: 172.31.46.33

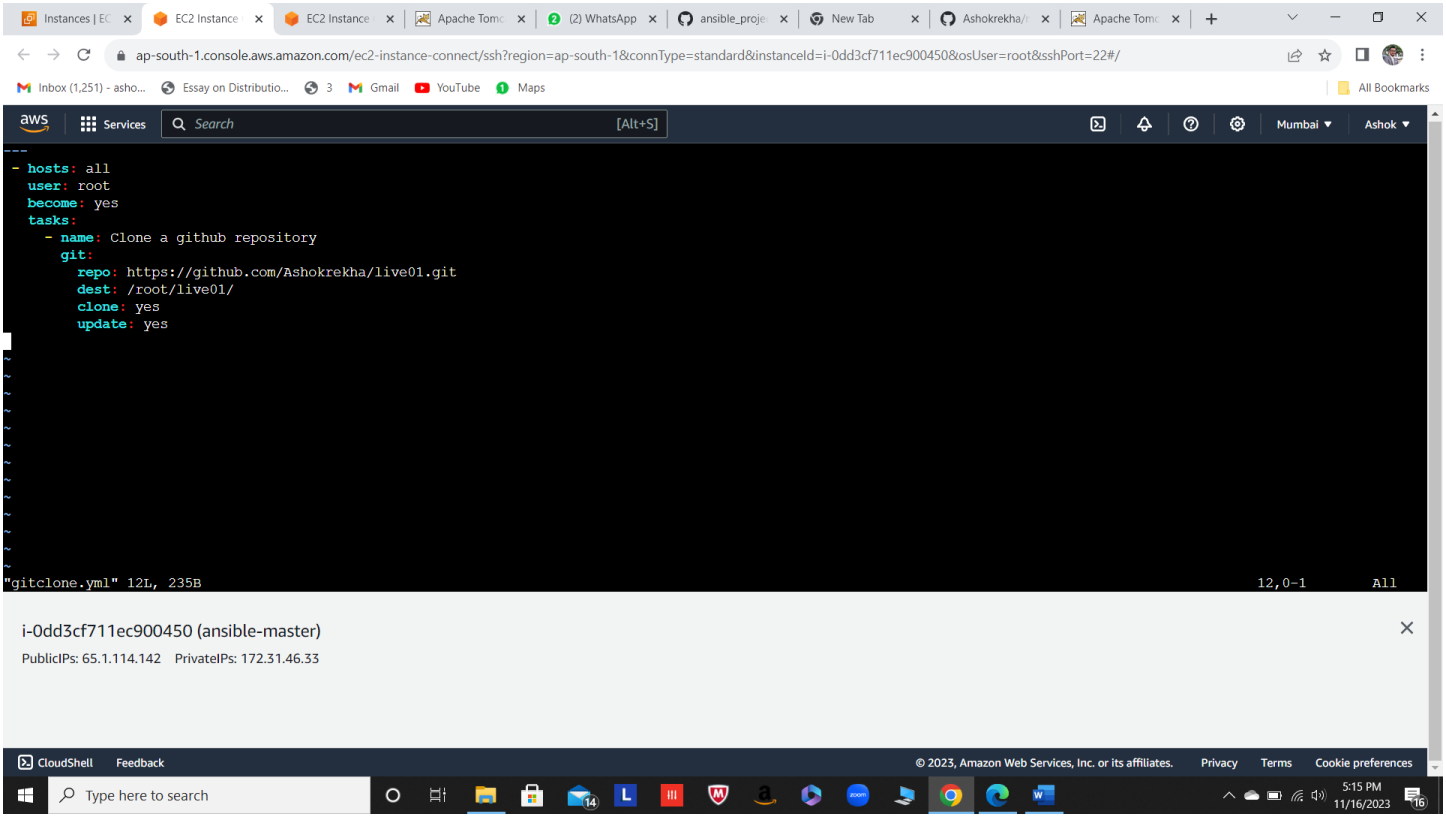

[GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
PLAY [all] ***
TASK [Gathering Facts] ***
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]
TASK [install java] ***
ok: [172.31.32.254]
TASK [directory creation] ***
ok: [172.31.32.254]
TASK [download & unarchive tomcat9] ***
ok: [172.31.32.254]
TASK [Run Tomcat] ***
changed: [172.31.32.254]
PLAY RECAP ***
172.31.32.254 : ok=5 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
[root@ip-172-31-46-33 playbooks]#
i-0dd3cf711ec900450 (ansible-master)
PublicIPs: 65.1.114.142 PrivateIPs: 172.31.46.33

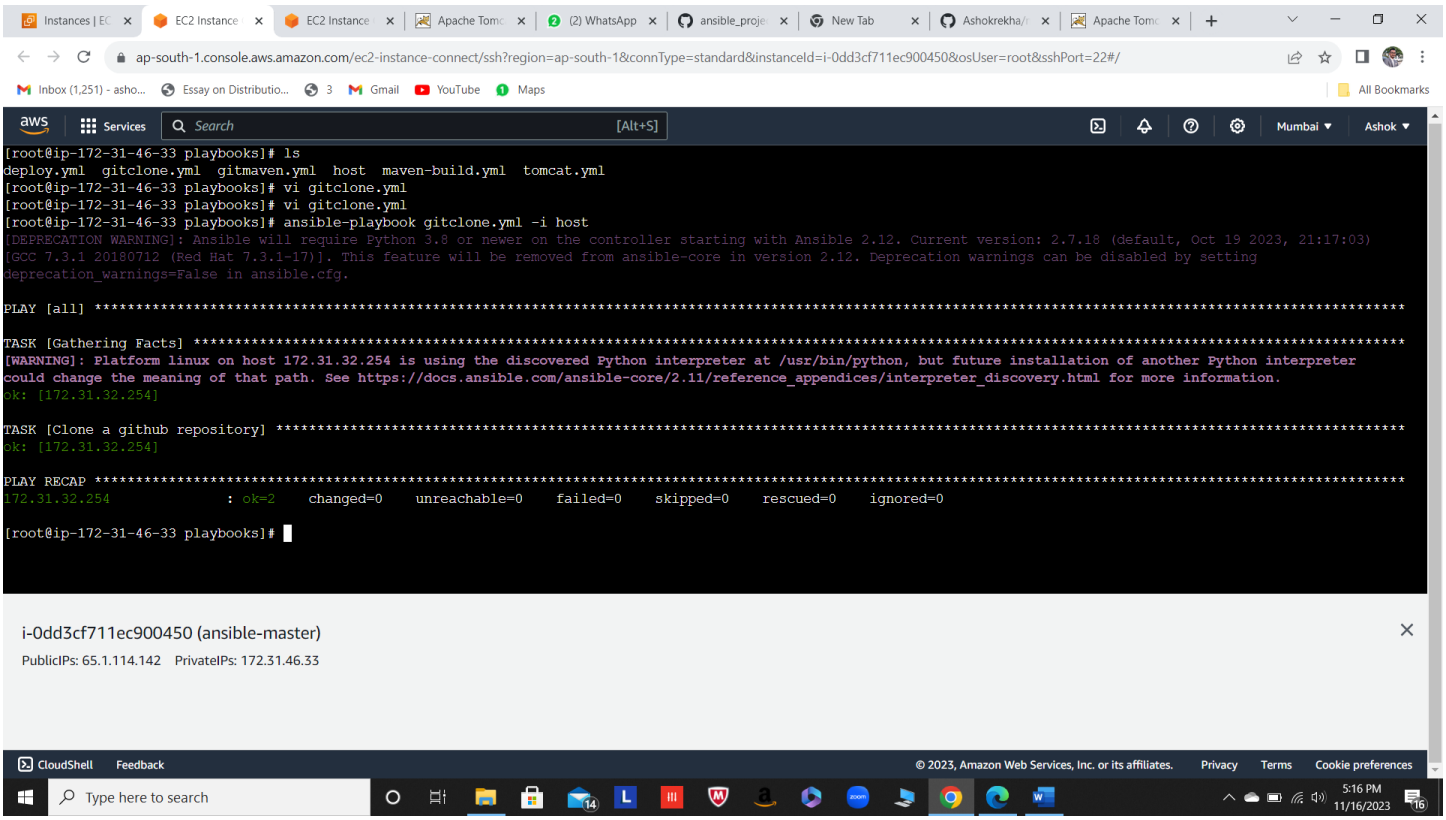

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root&region=ap-south-1&sshPort=22#/
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]# cd tomcat/
[root@ip-172-31-32-254 tomcat]# ls
apache-tomcat-9.0.83
[root@ip-172-31-32-254 tomcat]# cd apache-tomcat-9.0.83/
[root@ip-172-31-32-254 apache-tomcat-9.0.83]# systemctl status
● ip-172-31-32-254.ap-south-1.compute.internal
State: running
Jobs: 0 queued
Failed: 0 units
Since: Thu 2023-11-16 09:07:16 UTC; 2h 34min ago
CGroup: /
├─1 /usr/lib/systemd/systemd --switched-root --system --deserialize 21
├─user.slice
│ └─user-0.slice
│ ├─session-33.scope
│ │ └─26586 /usr/bin/java -Djava.util.logging.config.file=/root/tomcat/apache-tomcat-9.0.83/conf/logging.properties -Djava.util.logging.manager=org.apache.ju
│ └─session-10.scope
│ ├─ 2527 systemctl status
│ ├─ 2528 systemctl status
│ ├─25948 sshd: root@pts/0
│ └─26348 -bash
└─system.slice
├─rngd.service
└─2656 /sbin/rngd -f --fill-watermark=0 --exclude=jitter
i-02b42e85b65d2524c (ansible-node)
PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254

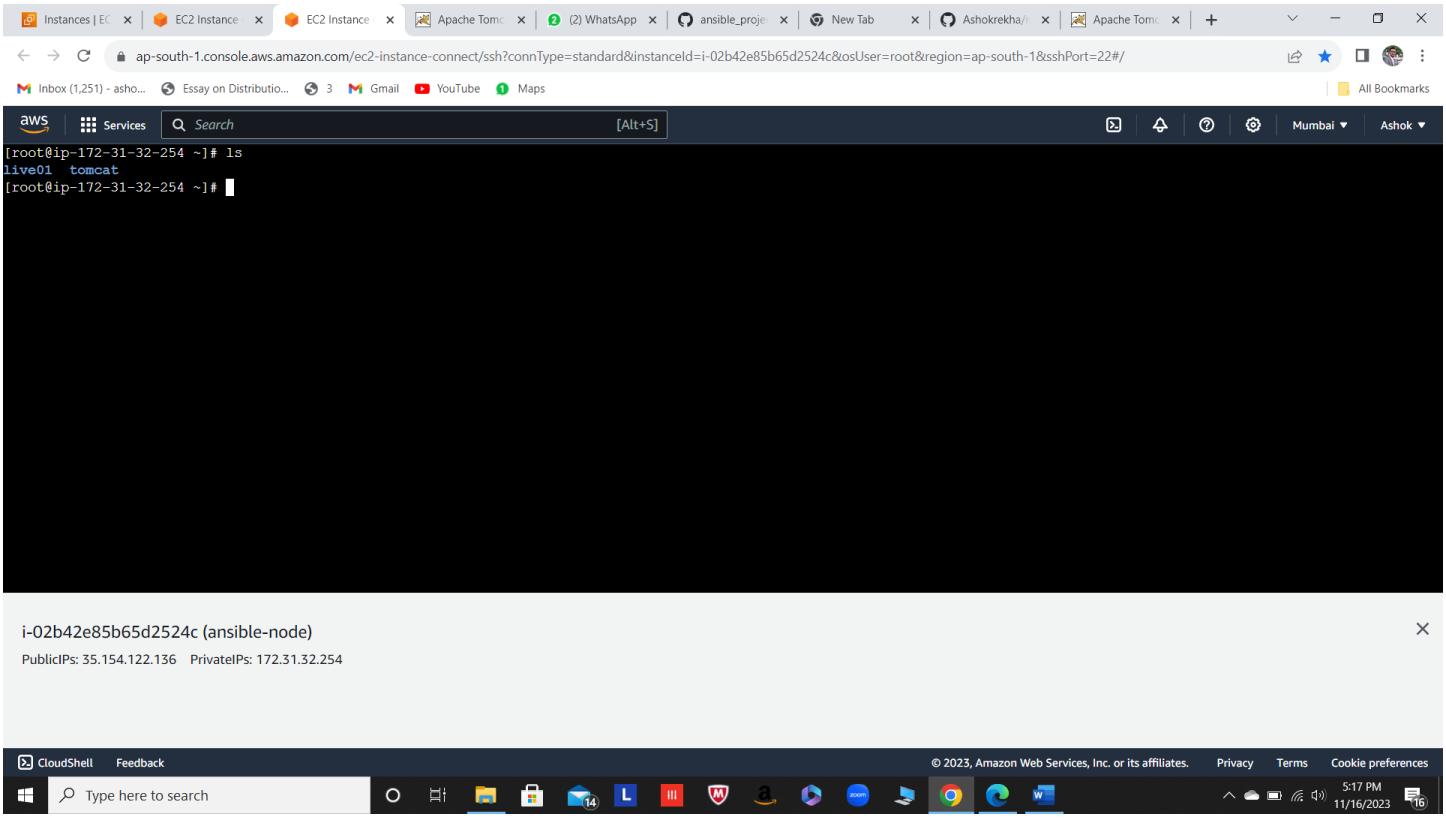

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#SecurityGroup:group-id=sg-088ecd41cab3b0a03
EC2 Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Details
Security group name
launch-wizard-12
Security group ID
sg-088ecd41cab3b0a03
Description
launch-wizard-12 created 2023-11-05T09:21:34.440Z
VPC ID
vpc-075dacfc279fec998
Owner
709174083818
Inbound rules count
2 Permission entries
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Tags
Inbound rules (2)
Manage tags
Edit inbound rules
Filter security group rules
Name
Security group rule...
IP version
Type
Protocol
Port range
sgr-0ace5cbf0f7b604fe
IPv4
SSH
TCP
22
sgr-0d28c065aed0752...
IPv4
Custom TCP
TCP
8080


Not secure | 35.154.122.136:8080
Apache Tomcat/9.0.83
APACHE SOFTWARE FOUNDATION http://www.apache.org/
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
Server Status
Manager App
Host Manager
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
Changelog
Migration Guide
Security Notices
Documentation
Tomcat 9.0 Documentation
Tomcat 9.0 Configuration
Tomcat Wiki
Find additional important configuration information in:
$CATALINA_HOME/RUNNING.txt
Developers may be interested in:
Tomcat 9.0 Bug Database
Tomcat 9.0 JavaDocs
Tomcat 9.0 Git Repository at GitHub
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
User support and discussion for Apache Taglibs
tomcat-dev
Development mailing list, including commit messages
Type here to search
5:12 PM
11/16/2023

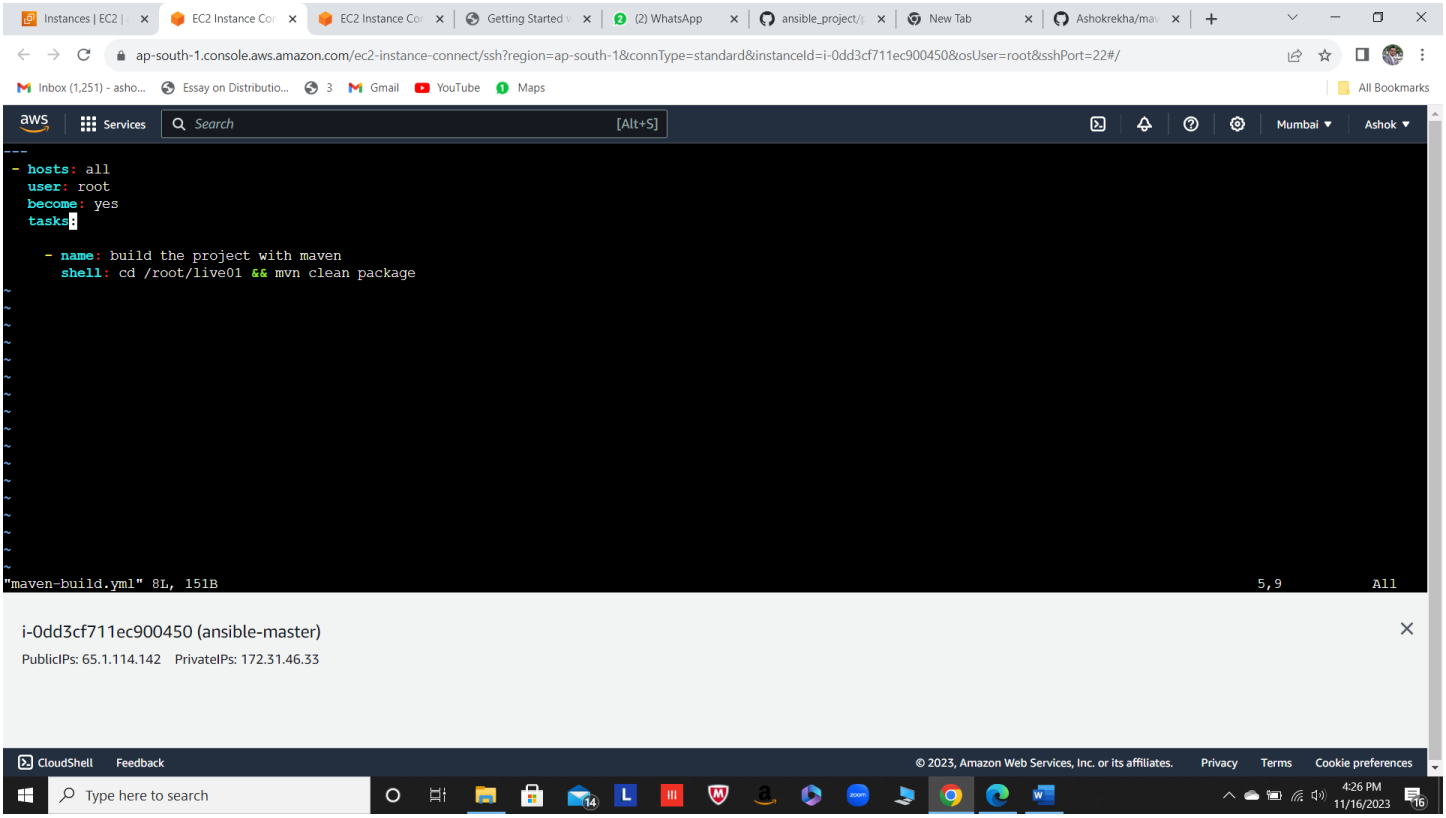
3. Create a playbook to clone or pull the code from git hub.

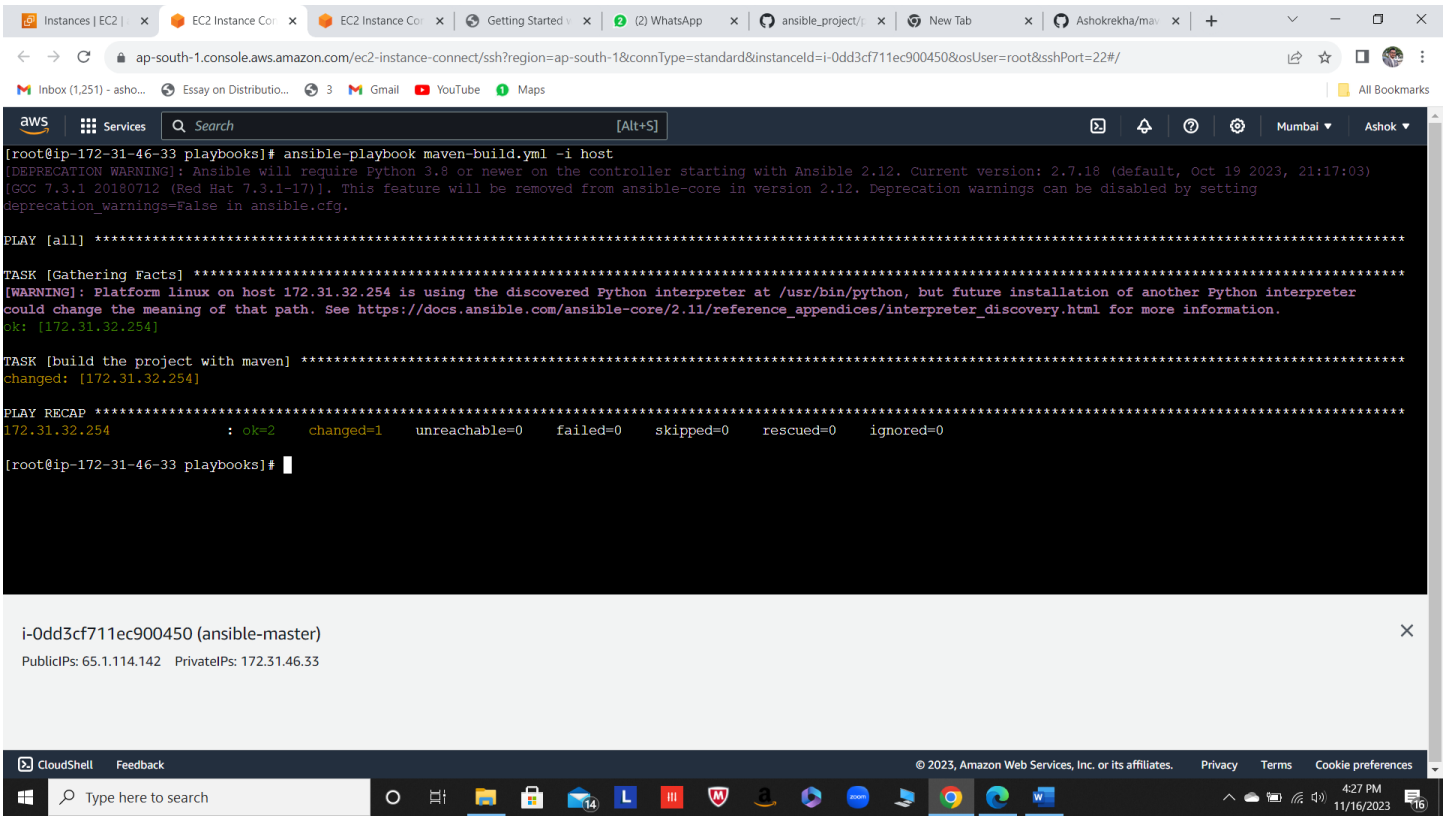


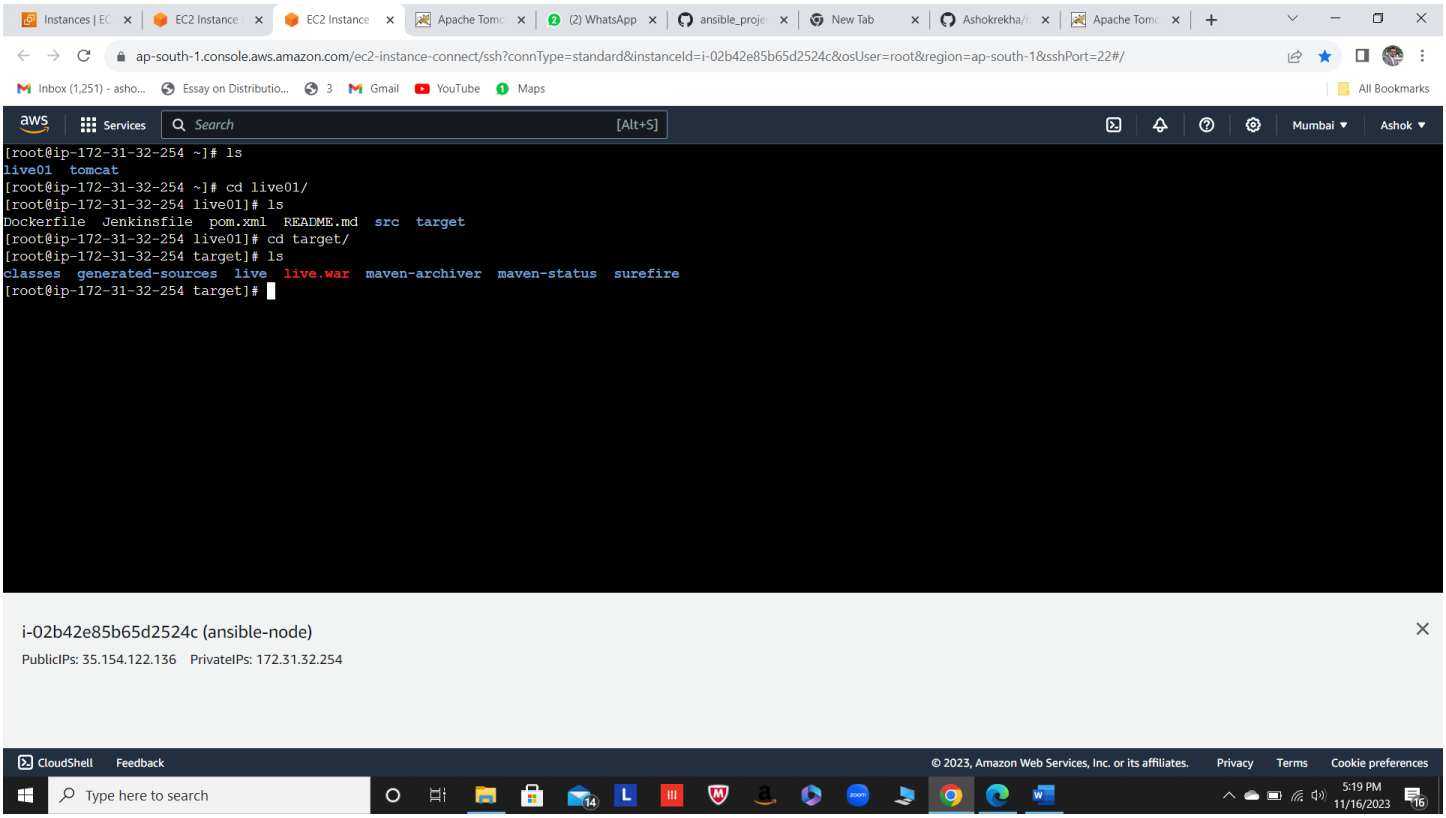



ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root&region=ap-south-1&sshPort=22#/
aws
Services
Search
[Alt+S]
Mumbai
Ashok
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]#
i-02b42e85b65d2524c (ansible-node)
PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Type here to search
5:17 PM
11/16/2023

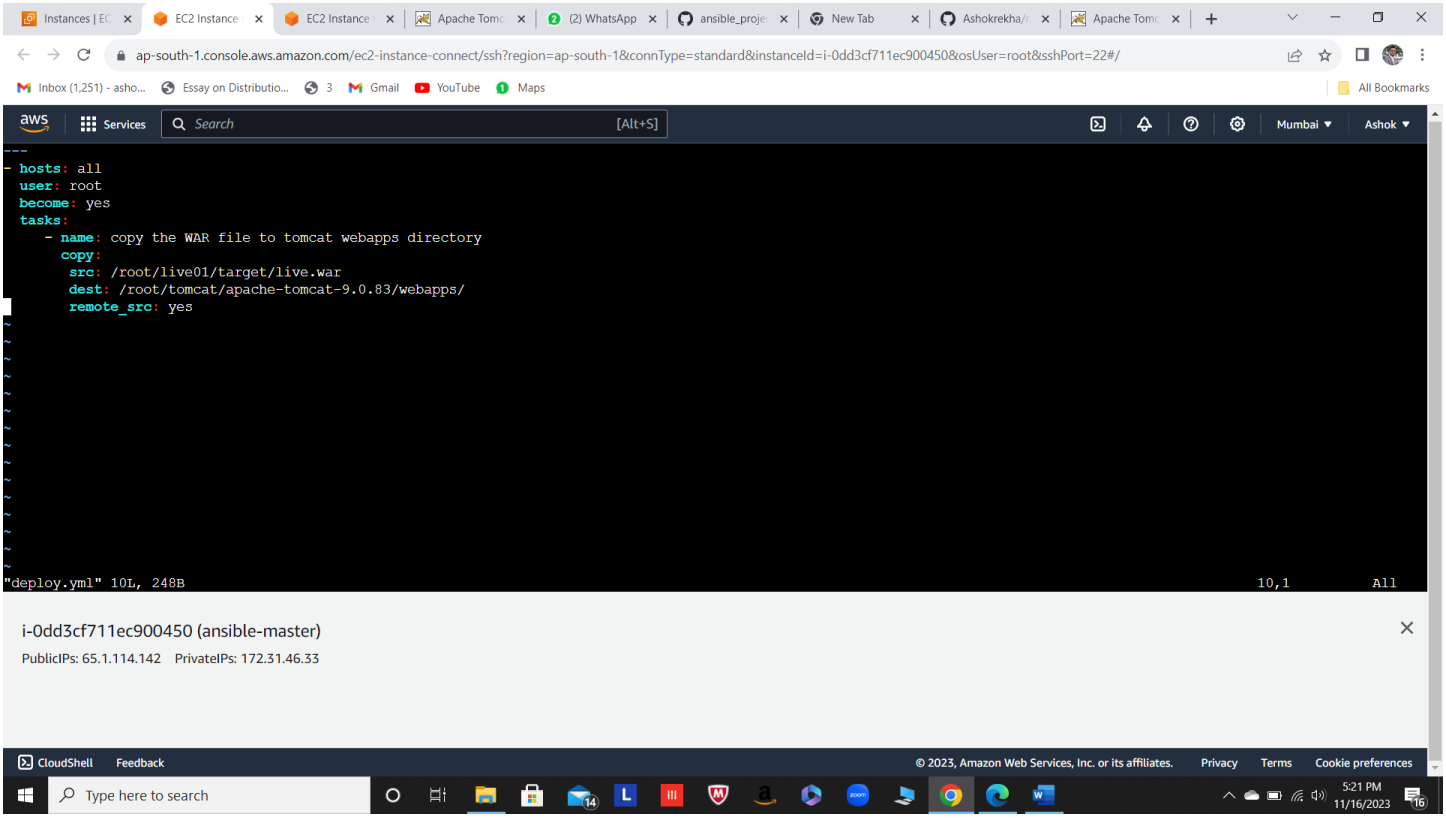
4. Create a playbook to build the code using maven.

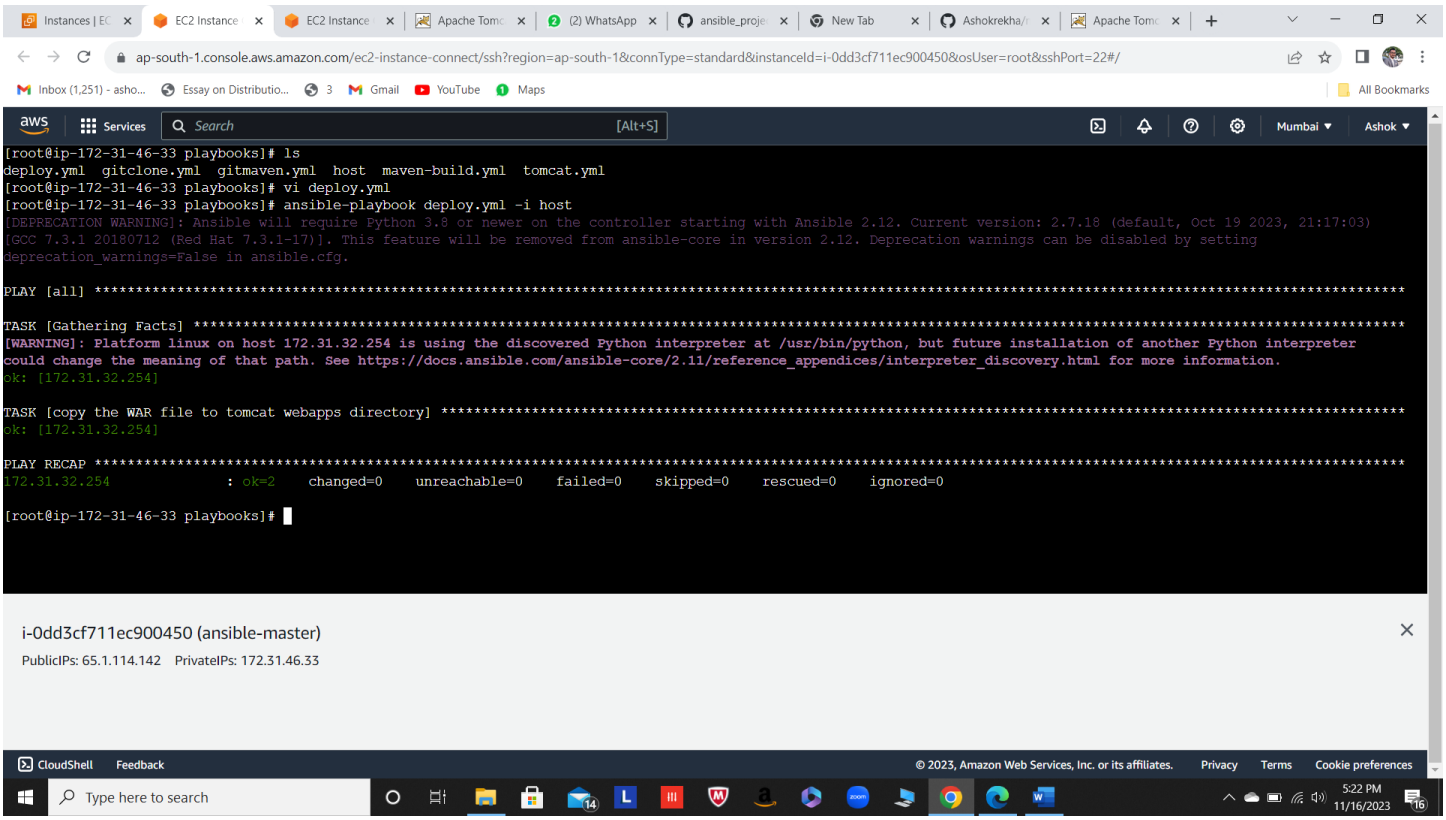


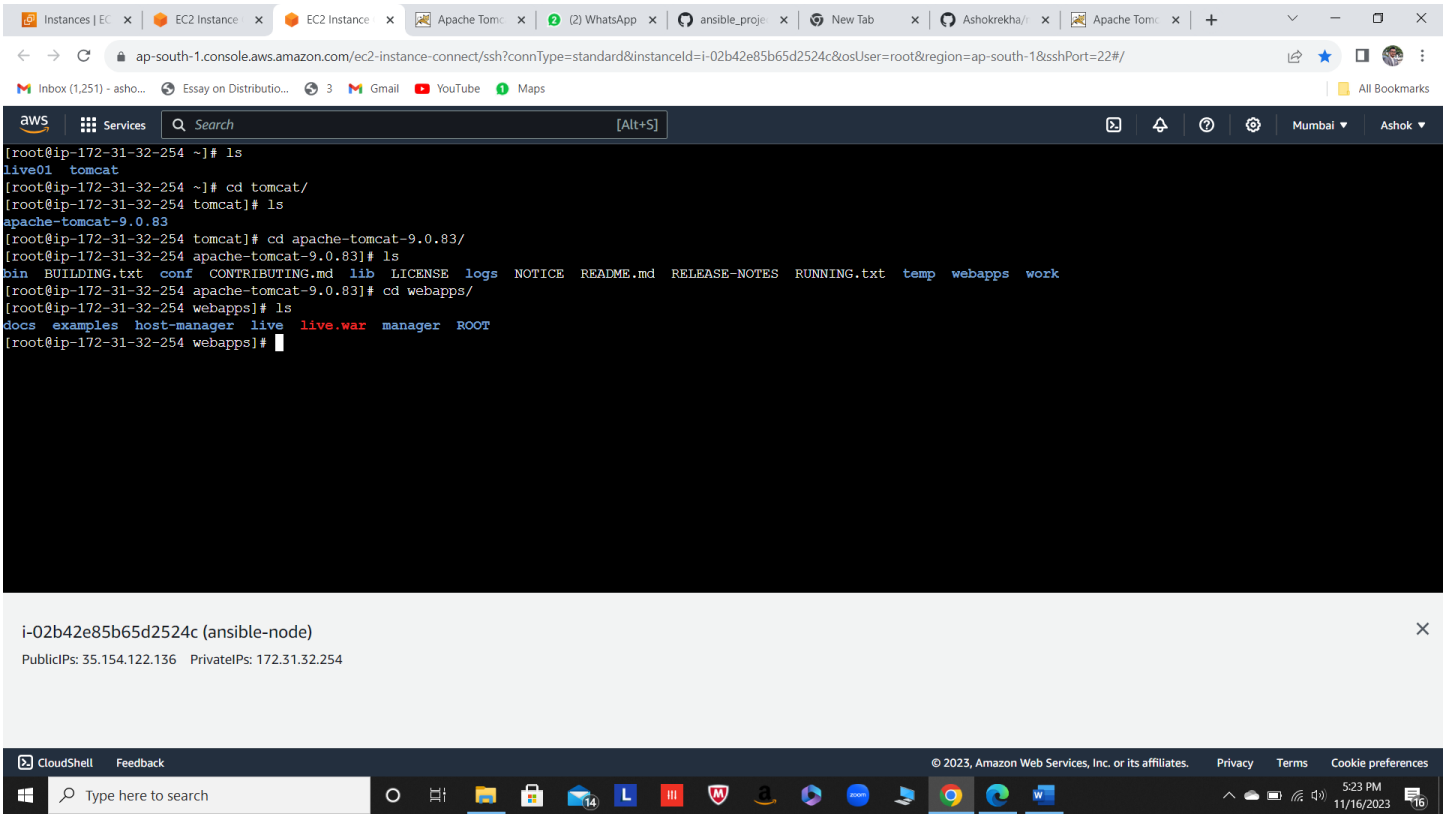



ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root&region=ap-south-1&sshPort=22#/
Services
Search
[Alt+S]
Mumbai
Ashok
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]# cd live01/
[root@ip-172-31-32-254 live01]# ls
Dockerfile Jenkinsfile pom.xml README.md src target
[root@ip-172-31-32-254 live01]# cd target/
[root@ip-172-31-32-254 target]# ls
classes generated-sources live live.war maven-archiver maven-status surefire
[root@ip-172-31-32-254 target]#
i-02b42e85b65d2524c (ansible-node)
PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Type here to search
5:19 PM
11/16/2023

5. Create a playbook to deploy the war file into tomcat.






ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root&region=ap-south-1&sshPort=22#/
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]# cd tomcat/
[root@ip-172-31-32-254 tomcat]# ls
apache-tomcat-9.0.83
[root@ip-172-31-32-254 tomcat]# cd apache-tomcat-9.0.83/
[root@ip-172-31-32-254 apache-tomcat-9.0.83]# ls
bin BUILDING.txt conf CONTRIBUTING.md lib LICENSE logs NOTICE README.md RELEASE-NOTES RUNNING.txt temp webapps work
[root@ip-172-31-32-254 apache-tomcat-9.0.83]# cd webapps/
[root@ip-172-31-32-254 webapps]# ls
docs examples host-manager live live.war manager ROOT
[root@ip-172-31-32-254 webapps]#
i-02b42e85b65d2524c (ansible-node)
PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254
CloudShell Feedback
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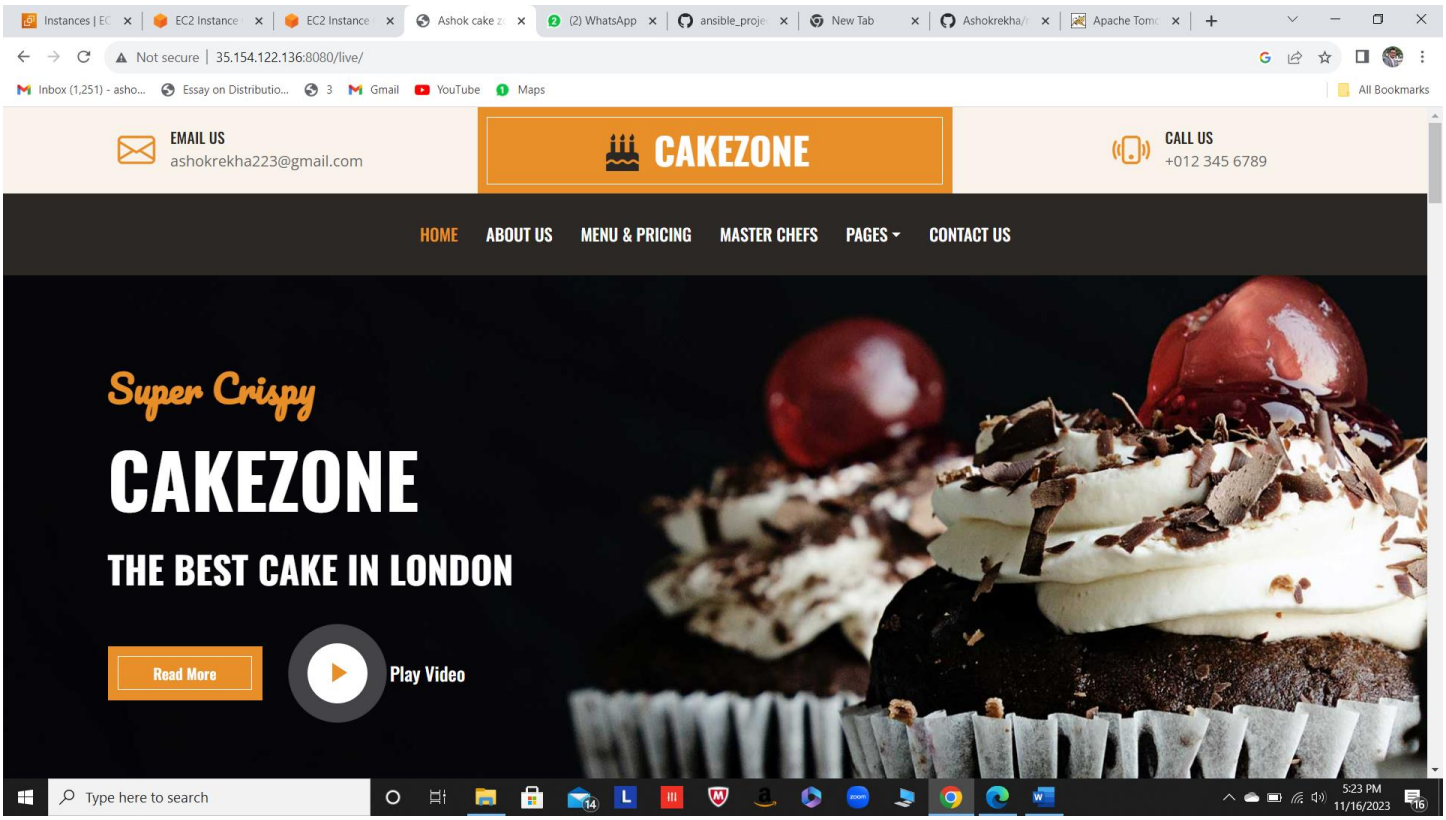
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Ansible Use Cases:

- **Provisioning**: Provisioning is creating new infrastructure. Ansible allows for application management, deployment, orchestration, and configuration management.
- **Continuous Delivery**: Ansible provides a simpler way to automatically deploy applications. All required services for a deployment can be configured from a single system. Continuous Integration (CI) tool can be used to run Ansible playbook which can be used to test and automatically deploy the application to production if tests are passed.
- **Application Deployment**: Ansible provides a simpler way to deploy applications across the infrastructure. Deployment of multi-tier applications can be simplified and the infrastructure can be easily changed over time.
- **Ansible for Cloud Computing**: Ansible makes it easy to provision instances across all cloud providers. Ansible contains multiple modules and allows to manage of large cloud infrastructure across the public-private and hybrid cloud.
- **Ansible for Security and Compliance**: You can define security policies in Ansible which will automate security policy across all machines in the network. Security roles once configured in an Ansible node will be embedded across all machines in the network automatically.

Conclusion:

Ansible is an open-source tool for provisioning, application deployment, configuration management. It enables Infrastructure as code (IaC). Ansible runs on Unix systems but it can be used to configure Windows as well as Linux. Ansible scripts are called Playbooks which consist of various modules. Ansible is an excellent tool to save time, money, and effort to automate tasks across multiple servers. Learning how to use Ansible to automate IT tasks is valuable to your Career and Organization.