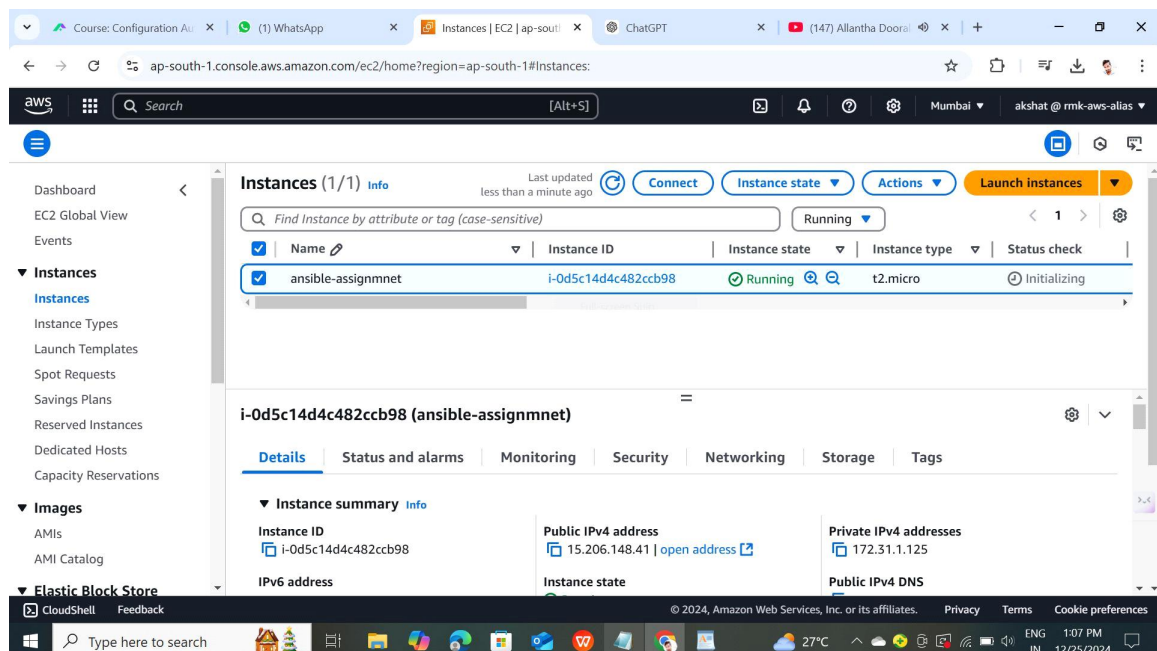


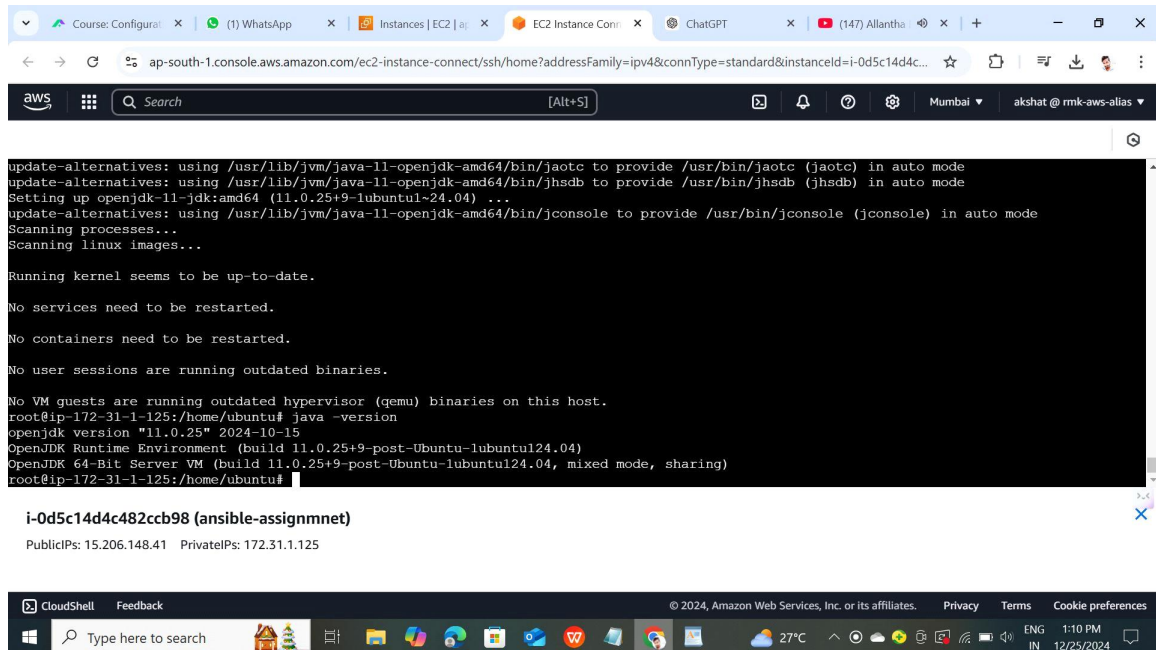
Configuration Automation using Ansible Assignments

1. L1 - Create and Execute Ansible Playbook to Setup Java Maven Application Build Server

- Successfully launch the instance with name ansible-assignment



- install java for running maven and update default packages



The screenshot shows a terminal window within the AWS CloudShell interface. The terminal output displays the process of updating alternatives for Java, setting up openjdk-11-jdk:amd64, and scanning linux images. It confirms that no services or containers need to be restarted and that no user sessions are running outdated binaries. The output also notes that no VM guests are running outdated hypervisor (qemu) binaries. Finally, it shows the command `java -version` being executed, resulting in the following output:

```
openjdk version "11.0.25" 2024-10-15
OpenJDK Runtime Environment (build 11.0.25+9-post-Ubuntu-lubuntu124.04)
OpenJDK 64-Bit Server VM (build 11.0.25+9-post-Ubuntu-lubuntu124.04, mixed mode, sharing)
```

Below the terminal output, the instance ID `i-0d5c14d4c482ccb98` is listed, along with the public and private IP addresses: `PublicIPs: 15.206.148.41` and `PrivateIPs: 172.31.1.125`.

The bottom of the screenshot shows the AWS CloudShell interface with the search bar, navigation icons, and the system tray displaying the date and time as 1:10 PM on 12/25/2024.

- Successfully install maven and version of apache maven 3.8.7

The screenshot shows a web browser window with multiple tabs, including 'Course: Configur...', '(1) WhatsApp', 'Instances | EC2 | a...', 'EC2 Instance Con...', 'ChatGPT', and '(147) Allanth...'. The address bar shows the URL 'ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-0d5c14d4c...'. The AWS CloudShell interface is visible, with a search bar and a terminal window. The terminal output shows the following commands and results:

```
Setting up maven (3.8.7-2) ...
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-1-125:/home/ubuntu# mvn -version
Apache Maven 3.8.7
Maven home: /usr/share/maven
Java version: 11.0.25, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "6.8.0-1018-aws", arch: "amd64", family: "unix"
root@ip-172-31-1-125:/home/ubuntu#
```

Below the terminal output, the instance ID 'i-0d5c14d4c482ccb98 (ansible-assignmnet)' is displayed, along with its Public IP '15.206.148.41' and Private IP '172.31.1.125'.

- Successfully install ansible server with version ansible [core 2.16.3]

The screenshot shows the same AWS CloudShell interface as the previous one, but with a different terminal output. The terminal output shows the following commands and results:

```
Running kernel seems to be up-to-date.

No services need to be restarted.

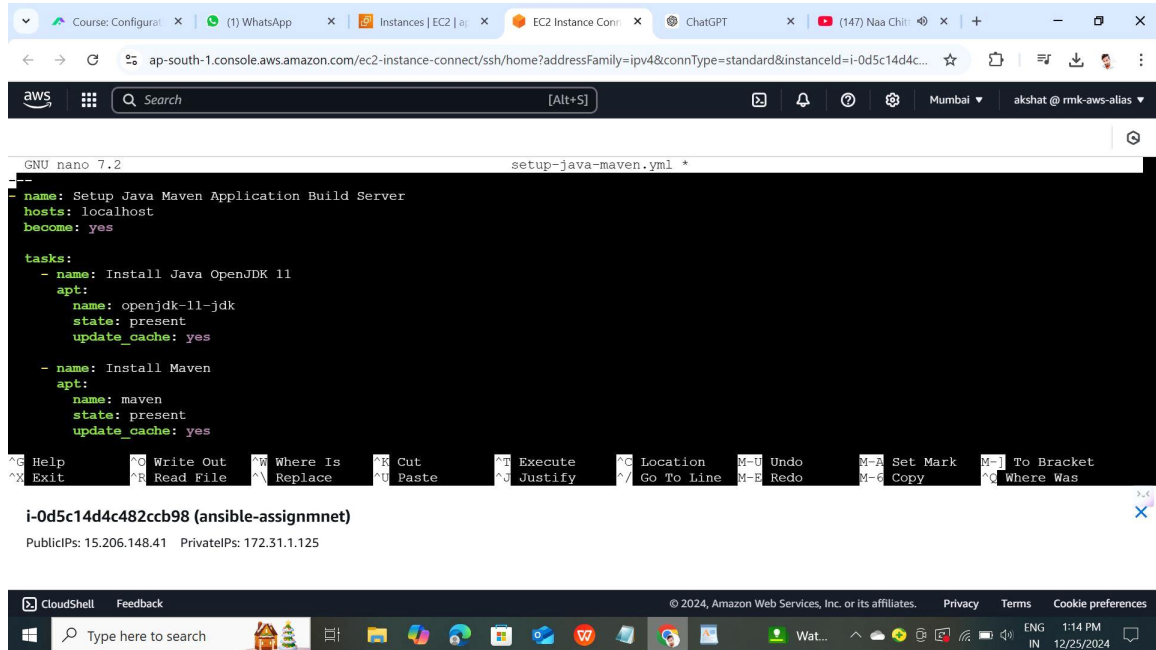
No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-1-125:/home/ubuntu# ansible --version
ansible [core 2.16.3]
  config file = None
  configured module search path = ['/root/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /root/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.12.3 (main, Sep 11 2024, 14:17:37) [GCC 13.2.0] (/usr/bin/python3)
  jinja version = 3.1.2
  libyaml = True
root@ip-172-31-1-125:/home/ubuntu#
```

Below the terminal output, the instance ID 'i-0d5c14d4c482ccb98 (ansible-assignmnet)' is displayed, along with its Public IP '15.206.148.41' and Private IP '172.31.1.125'.

- Ansible Playbook to Setup Java Maven Application Build Server at below file



```
GNU nano 7.2 setup-java-maven.yml *
--
- name: Setup Java Maven Application Build Server
  hosts: localhost
  become: yes

  tasks:
    - name: Install Java OpenJDK 11
      apt:
        name: openjdk-11-jdk
        state: present
        update_cache: yes

    - name: Install Maven
      apt:
        name: maven
        state: present
        update_cache: yes

^G Help      ^O Write Out  ^W Where Is   ^T Cut        ^I Execute    ^C Location   ^U Undo       ^M Set Mark   ^_] To Bracket
^X Exit      ^R Read File  ^N Replace    ^V Paste      ^J Justify    ^G Go To Line ^B Redo       ^_ Copy      ^C Where Was

i-0d5c14d4c482ccb98 (ansible-assignmnet)
PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

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Type here to search 1:14 PM 12/25/2024
```

- Successfully playbook run and install apache maven

Course: Configur... x (1) WhatsApp x Instances | EC2 | a... x EC2 Instance Conn... x ChatGPT x (147) Naa Chit... x +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-0d5c14d4c...

aws Search [Alt+S] Mumbai akshat @ rmk-aws-alias

```
PLAY [Setup Java Maven Application Build Server] *****
TASK [Gathering Facts] *****
ok: [localhost]
TASK [Install Java OpenJDK 11] *****
ok: [localhost]
TASK [Install Maven] *****
ok: [localhost]
TASK [Verify Java Installation] *****
ok: [localhost]
TASK [Verify Maven Installation] *****
ok: [localhost]
PLAY RECAP *****
localhost : ok=5 changed=0 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

root@ip-172-31-1-125:/home/ubuntu/ansible-maven-setup#
```

i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

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Type here to search 27°C 1:15 PM 12/25/2024

create a xml file for build java-maven application with
ansible play book

Course: Configur... x (1) WhatsApp x Instances | EC2 | a... x EC2 Instance Conn... x ChatGPT x (147) Naa Chit... x +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-0d5c14d4c...

aws Search [Alt+S] Mumbai akshat @ rmk-aws-alias

```
GNU nano 7.2 pom.xml *
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>

  <groupId>com.example</groupId>
  <artifactId>my-app</artifactId>
  <version>1.0-SNAPSHOT</version>

  <dependencies>
    <dependency>
      <groupId>org.apache.commons</groupId>
      <artifactId>commons-lang3</artifactId>
      <version>3.12.0</version>
    </dependency>
  </dependencies>
</project>
```

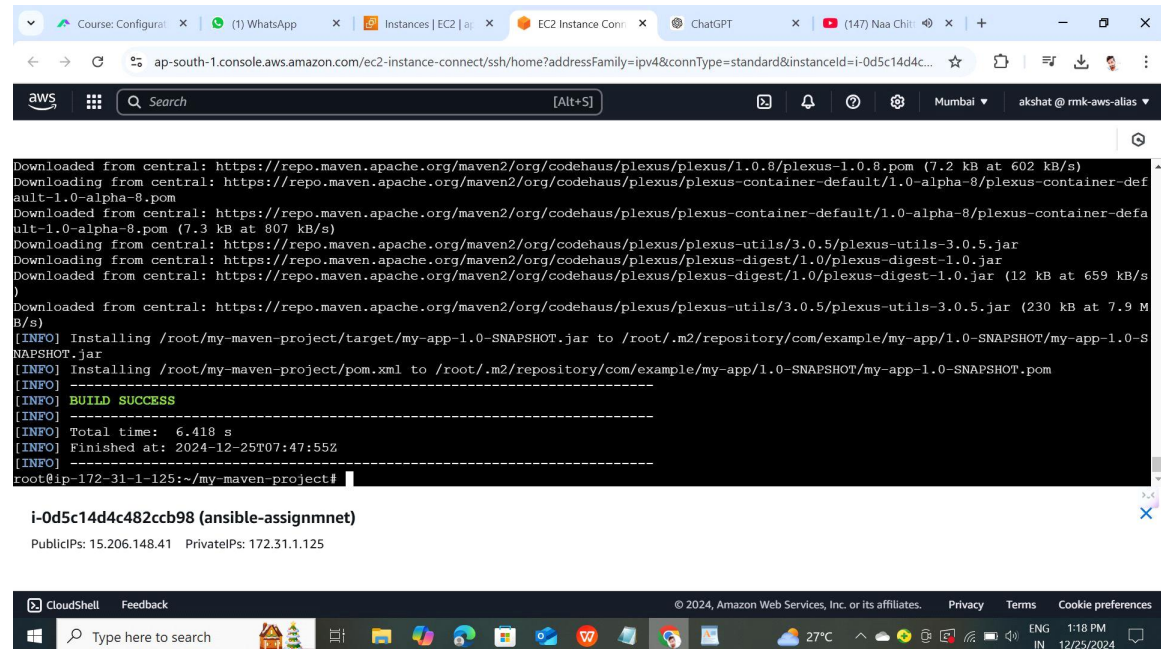
i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

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Type here to search 27°C 1:17 PM 12/25/2024

Successfully build the application



The screenshot shows an AWS CloudShell terminal window with the following output:

```
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus/1.0.8/plexus-1.0.8.pom (7.2 kB at 602 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-container-default/1.0-alpha-8/plexus-container-default-1.0-alpha-8.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-container-default/1.0-alpha-8/plexus-container-default-1.0-alpha-8.pom (7.3 kB at 807 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.0.5/plexus-utils-3.0.5.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-digest/1.0/plexus-digest-1.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-digest/1.0/plexus-digest-1.0.jar (12 kB at 659 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.0.5/plexus-utils-3.0.5.jar (230 kB at 7.9 MB/s)
[INFO] Installing /root/my-maven-project/target/my-app-1.0-SNAPSHOT.jar to /root/.m2/repository/com/example/my-app/1.0-SNAPSHOT/my-app-1.0-SNAPSHOT.jar
[INFO] Installing /root/my-maven-project/pom.xml to /root/.m2/repository/com/example/my-app/1.0-SNAPSHOT/my-app-1.0-SNAPSHOT.pom
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 6.418 s
[INFO] Finished at: 2024-12-25T07:47:55Z
[INFO] -----
root@ip-172-31-1-125:~/my-maven-project#
```

Below the terminal output, the instance ID is shown: **i-0d5c14d4c482ccb98 (ansible-assignmnet)**. Below that, the public and private IP addresses are listed: **PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125**.

The bottom of the screenshot shows the CloudShell interface with a search bar, a taskbar with various application icons, and a system tray showing the date and time as 1:18 PM on 12/25/2024.

2. L2 - Create and Execute Ansible Playbook to Install Docker and Run the Docker Application Image created in Docker Module

- create a docker.yml file write a script to install docker and docker image we shown in below

Course: Configur... x (1) WhatsApp x Instances | EC2 | a... x EC2 Instance Conn... x ChatGPT x (147) Varinche... x + -

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-0d5c14d4c... [Alt+S]

aws Search [Alt+S] Mumbai akshat @ rmk-aws-alias

```
GNU nano 7.2 install-docker.yml *
--
name: Install Docker and run Docker image
hosts: all
become: true
tasks:
  - name: Update apt repository cache
    apt:
      update_cache: yes

  - name: Install required dependencies
    apt:
      name:
        - apt-transport-https
        - ca-certificates
        - curl
        - software-properties-common
      state: present

^G Help      ^O Write Out  ^W Where Is   ^R Cut        ^I Execute    ^G Location   M-U Undo      M-A Set Mark  M-J To Bracket
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^Y Go To Line M-B Redo      M-C Copy      ^K Where Was
```

i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

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Type here to search 27°C 1:22 PM 12/25/2024

Create a inventory.ini file to write a script of docker-
hosts of ansible path

Course: Configur... x (1) WhatsApp x Connect to instanc... x EC2 Instance Conn... x ChatGPT x (147) Varinche... x + -

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-0d5c14d4c... [Alt+S]

aws Search [Alt+S] Mumbai akshat @ rmk-aws-alias

```
GNU nano 7.2 inventory.ini *
[docker_hosts]
15.206.148.41 ansible_ssh_user=ubuntu ansible_ssh_private_key_file=C:\Users\dell\Desktop\cicd-pipeline-project\new-project.pem

^G Help      ^O Write Out  ^W Where Is   ^R Cut        ^I Execute    ^G Location   M-U Undo      M-A Set Mark  M-J To Bracket
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^Y Go To Line M-B Redo      M-C Copy      ^K Where Was
```

i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

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Type here to search 27°C 1:25 PM 12/25/2024

- With the help of ansible playbook to install docker and create docker image

The screenshot displays the AWS Management Console interface for an EC2 instance. The terminal output shows the successful execution of an Ansible playbook to install Docker. The tasks performed include adding the Docker repository, installing Docker, starting and enabling the Docker service, and running a Docker image. The playbook recap indicates that 9 tasks were successful, 4 were changed, and no tasks were unreachable, failed, skipped, rescued, or ignored. A table lists the containers created, showing a container named 'hello-world' with the command '/hello' and a container named 'funny_hofstadter'.

```

ok: [15.206.148.41]
TASK [Add Docker repository] *****
changed: [15.206.148.41]
TASK [Install Docker] *****
changed: [15.206.148.41]
TASK [Start and enable Docker service] *****
ok: [15.206.148.41]
TASK [Run Docker image] *****
changed: [15.206.148.41]
PLAY RECAP *****
15.206.148.41 : ok=9  changed=4  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

root@ip-172-31-1-125:~/ansible-docker-setup# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED              STATUS              PORTS          NAMES
cde45da44a1d   hello-world    "/hello"                 About a minute ago   Exited (0) About a minute ago   -              funny_hofstadter
root@ip-172-31-1-125:~/ansible-docker-setup#
  
```

i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

3. L3 - Create Ansible Role to define the task,handler for Nginx Service Installation and invoke the role in Ansible playbook

- Nginx-role was created successfully


```
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?region=ap-south-1&connType=standard&instanceId=i-0d5c14d4c482ccb...

TASK [Add Docker repository] *****
changed: [15.206.148.41]

TASK [Install Docker] *****
changed: [15.206.148.41]

TASK [Start and enable Docker service] *****
ok: [15.206.148.41]

TASK [Run Docker image] *****
changed: [15.206.148.41]

PLAY RECAP *****
15.206.148.41 : ok=9 changed=4 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

root@ip-172-31-1-125:~/ansible-docker-setup# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS          PORTS          NAMES
cde45da44a1d   hello-world    "/hello"                 About a minute ago    Exited (0) About a minute ago    funny_hofstadter
root@ip-172-31-1-125:~/ansible-docker-setup# ansible-galaxy init nginx-role
- Role nginx-role was created successfully
root@ip-172-31-1-125:~/ansible-docker-setup#
```

i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

- Create a .yml file for tasks file, it can be used to set a environmnet of run nginx server

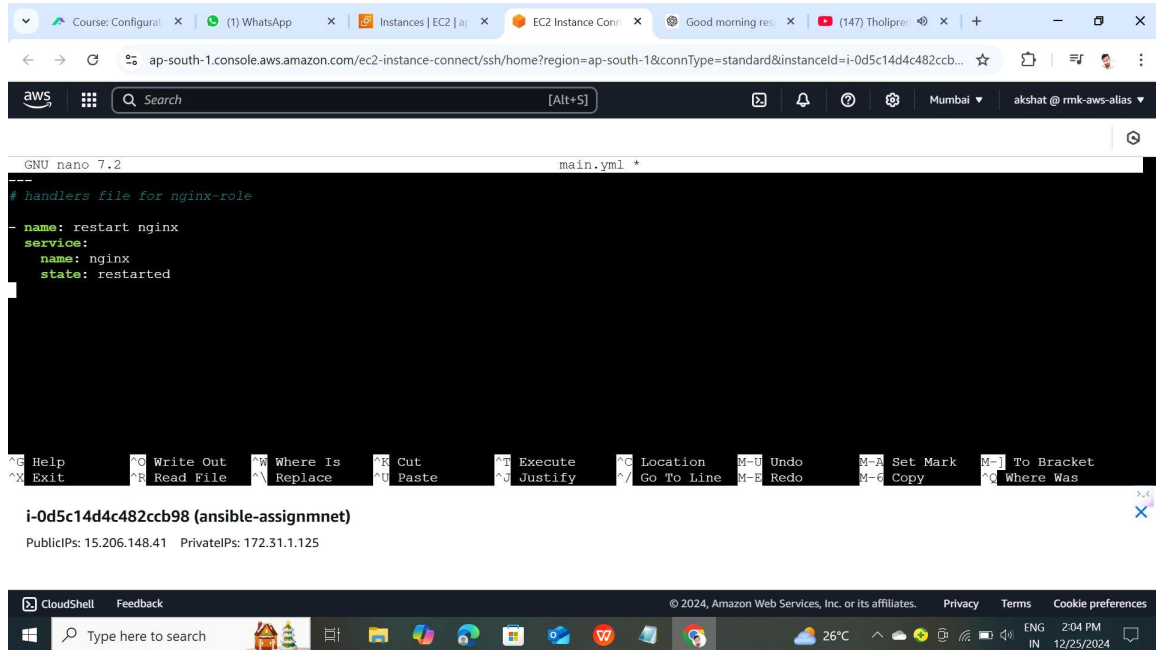
```
GNU nano 7.2 main.yml
--
# tasks file for nginx-role
- name: Install Nginx
  apt:
    name: nginx
    state: present
    update_cache: yes

- name: Ensure Nginx is running
  service:
    name: nginx
    state: started
    enabled: yes
```

i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

- Create .yml for handlers file, it can be used to restart a server when time fails



The screenshot shows the AWS Management Console interface for an EC2 instance. The browser tabs include 'Course: Configur...', '(1) WhatsApp', 'Instances | EC2 | a...', 'EC2 Instance Conn...', 'Good morning res...', and '(147) Tholipre...'. The address bar shows the URL: `ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?region=ap-south-1&connType=standard&iinstanceId=i-0d5c14d4c482ccb...`. The AWS logo and search bar are visible. The main content area displays a terminal window with the GNU nano 7.2 editor. The file being edited is `main.yml`. The content of the file is:

```
---  
# handlers file for nginx-role  
- name: restart nginx  
  service:  
    name: nginx  
    state: restarted
```

Below the editor, the instance ID `i-0d5c14d4c482ccb98` is shown, along with the name `(ansible-assignmnet)` and public/private IP addresses: `PublicIPs: 15.206.148.41` and `PrivateIPs: 172.31.1.125`. The bottom of the screen shows the Windows taskbar with the CloudShell application open, a search bar, and system tray icons including the date and time: `26°C`, `2:04 PM`, and `12/25/2024`.

- Create .yml for hostfile for install-nginx.yml

The screenshot shows a terminal window in AWS CloudShell. The terminal title is "install-nginx.yml *". The content of the terminal is as follows:

```
GNU nano 7.2
--
name: Install and configure Nginx
hosts: all
become: yes
roles:
  - nginx-role
```

Below the terminal window, the instance ID is shown as "i-0d5c14d4c482ccb98 (ansible-assignmnet)". The public IP is 15.206.148.41 and the private IP is 172.31.1.125.

The bottom of the screenshot shows the AWS CloudShell interface with a search bar, a taskbar with various application icons, and a system tray showing the date and time as 2:07 PM on 12/25/2024.

- Successfully install nginx server with three sets like host,task,handlers

The screenshot shows a terminal window in AWS CloudShell. The terminal title is "install-nginx.yml *". The content of the terminal is as follows:

```
root@ip-172-31-1-125:~/ansible-docker-setup/nginx-role/tasks# cd ~/ansible-docker-setup/nginx-role/handlers
root@ip-172-31-1-125:~/ansible-docker-setup/nginx-role/handlers# nano main.yml
root@ip-172-31-1-125:~/ansible-docker-setup/nginx-role/handlers# cd ~/ansible-docker-setup
root@ip-172-31-1-125:~/ansible-docker-setup# nano install-nginx.yml
root@ip-172-31-1-125:~/ansible-docker-setup# ansible-playbook -i inventory.ini install-nginx.yml

PLAY [Install and configure Nginx] *****

TASK [Gathering Facts] *****
ok: [15.206.148.41]

TASK [nginx-role : Install nginx] *****
changed: [15.206.148.41]

TASK [nginx-role : Start nginx service] *****
ok: [15.206.148.41]

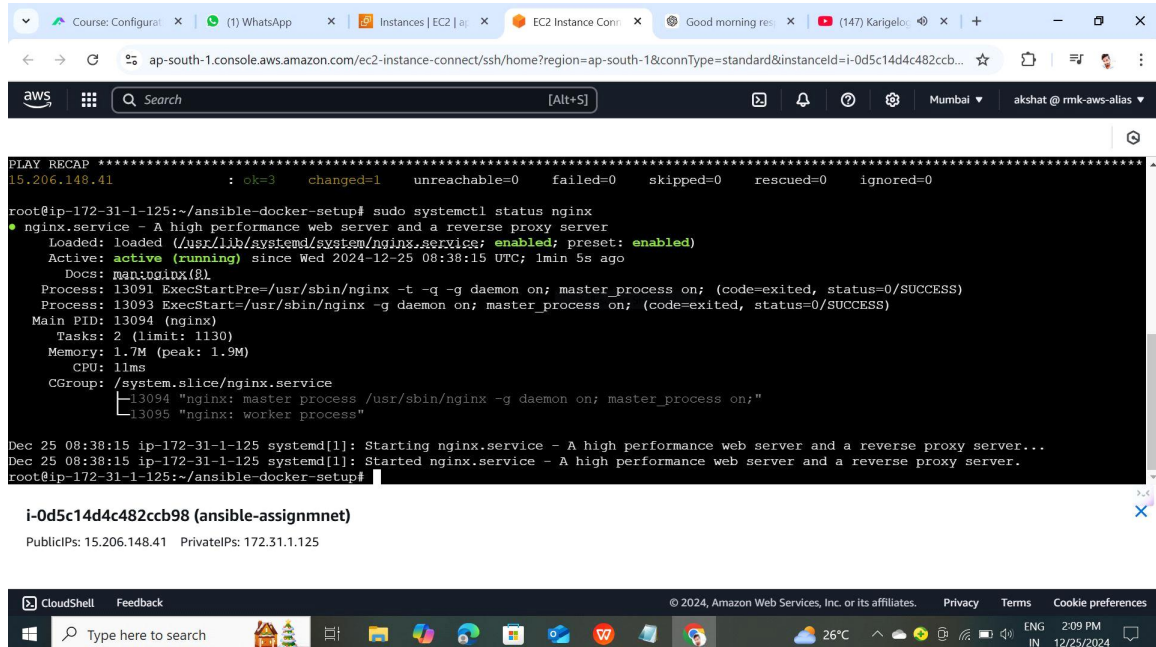
PLAY RECAP *****
15.206.148.41 : ok=3  changed=1  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

root@ip-172-31-1-125:~/ansible-docker-setup#
```

Below the terminal window, the instance ID is shown as "i-0d5c14d4c482ccb98 (ansible-assignmnet)". The public IP is 15.206.148.41 and the private IP is 172.31.1.125.

The bottom of the screenshot shows the AWS CloudShell interface with a search bar, a taskbar with various application icons, and a system tray showing the date and time as 2:08 PM on 12/25/2024.

- Check the status of systemctl nginx server



The screenshot shows a terminal window within the AWS CloudShell interface. The terminal output displays the status of the nginx service using the command `sudo systemctl status nginx`. The output indicates that the service is loaded, active (running), and enabled. It also shows the process details, including the master process and worker processes. The terminal window is titled "PLAY RECAP" and shows the results of the previous command. The AWS CloudShell interface includes a search bar, a navigation pane, and a status bar at the bottom.

```
PLAY RECAP *****
15.206.148.41 : ok=3 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

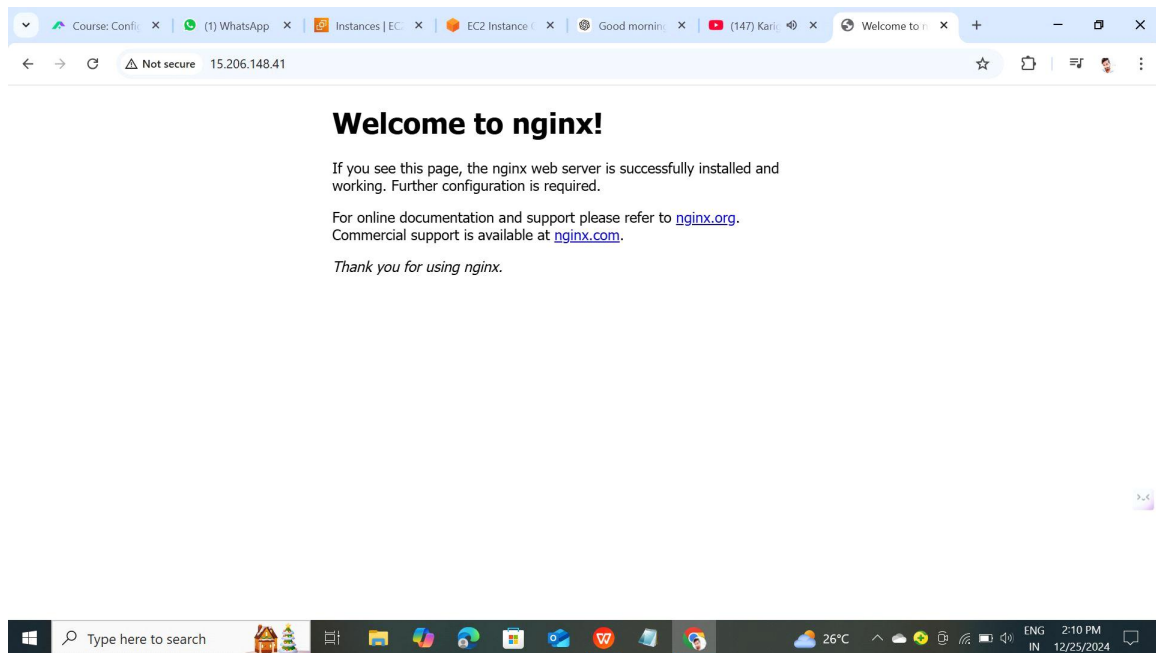
root@ip-172-31-1-125:~/ansible-docker-setup# sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-12-25 08:38:15 UTC; 1min 5s ago
     Docs: man:nginx(8)
    Process: 13091 ExecStartPre=/usr/sbin/nginx -t -g -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
    Process: 13093 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Main PID: 13094 (nginx)
      Tasks: 2 (limit: 1130)
     Memory: 1.7M (peak: 1.9M)
        CPU: 11ms
    CGroup: /system.slice/nginx.service
            └─13094 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
              └─13095 "nginx: worker process"

Dec 25 08:38:15 ip-172-31-1-125 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Dec 25 08:38:15 ip-172-31-1-125 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
root@ip-172-31-1-125:~/ansible-docker-setup#
```

i-0d5c14d4c482ccb98 (ansible-assignmnet)

PublicIPs: 15.206.148.41 PrivateIPs: 172.31.1.125

- Successfully access the nginx server through internet



THANK YOU

