



Module 8: Configuration Automation using Ansible



~ ABHIJIT ZENDE

- Install and setup Ansible on AWS with an Ansible controller and 2 or more client nodes



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



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



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



Detailed notes, Guide & playbooks on my GitHub #
<https://github.com/Abhiz2411/ansible-automation-mastery>

1. L1 – Install and setup Ansible on AWS with 1 Ansible controller and 2 or more client nodes

Ans.

(*** Note: Screen shots attached to end of each question ***)

- 1) Launch EC2 Instances:** Create one EC2 instance for the Ansible controller and two or more EC2 instances as client nodes.
- 2) Install Ansible on Controller:** SSH into the controller instance and install Ansible using sudo apt install ansible.
- 3) Configure SSH Key Pair:** Generate SSH keys on the controller and configure them on all client nodes for password less access.
- 4) Update Ansible Hosts File:** Edit the /etc/ansible/hosts file on the controller to define the client nodes.
- 5) Test Connectivity:** Run ansible all -m ping to ensure the controller can communicate with all client nodes.
- 6) Install Ansible on Clients:** SSH into each client node and install Ansible (optional, if managing clients directly from the controller).
- 7) Verify Setup:** Run a simple Ansible command (e.g., ansible all -m ping) to verify the setup is working correctly.

ap-south-1.console.aws.amazon.com/ec2/home/?region=ap-south-1#LaunchInstances:

aws EC2 Instances Launch an instance

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type
ami-09b0a86a2c84101e1 (64-bit (x86)) / ami-0a87daabd88e93b1f (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs Free tier eligible

Description
Ubuntu Server 22.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Canonical, Ubuntu, 22.04 LTS, amd64 jammy image build on 2024-09-27

Architecture	AMI ID	Username	Provider
64-bit (x86)	ami-09b0a86a2c84101e1	ubuntu	Verified provider

▼ Instance type Info | Get advice

Instance type
t2.micro
Family: t2. 1 vCPU 1 GiB Memory Current generation: true Free tier eligible
On-Demand Linux base pricing: 0.0124 USD per Hour
On-Demand Windows base pricing: 0.017 USD per Hour
On-Demand RHEL base pricing: 0.0268 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour
On-Demand SUSE base pricing: 0.0124 USD per Hour

All generations Compare instance types

Additional costs apply for AMIs with pre-installed software

▼ Key pair (login) Info

Summary Number of instances | Info 3 When launching more than 1 instance, consider EC2 Auto Scaling

Software Image (AMI)
Canonical, Ubuntu, 22.04 LTS, ...read more ami-09b0a86a2c84101e1

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public

Cancel Launch instance Preview code

The screenshot shows the AWS EC2 'Launch an instance' wizard. The first step, 'Name and tags', has a name 'My Web Server' and an option to 'Add additional tags'. The second step, 'Application and OS Images (Amazon Machine Image)', lists various AMI categories like Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Microsoft. It includes a search bar and a link to 'Browse more AMIs'. The third step, 'Summary', shows 3 instances, the software image as Canonical, Ubuntu, 22.04 LTS, and the virtual server type as t2.micro. It also lists a new security group and 1 volume(s) - 8 GiB. A note about the free tier is displayed, stating that the first year includes 750 hours of t2.micro usage in specific regions. Buttons for 'Cancel', 'Launch instance', and 'Preview code' are at the bottom.

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name
e.g. My Web Server [Add additional tags](#)

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

[Recent](#) [Quick Start](#)

Amazon Linux	macOS	Ubuntu	Windows	Red Hat	SUSE Linux	View more

[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Summary

Number of instances [Info](#)
3

When launching more than 1 instance, consider [EC2 Auto Scaling](#)

Software Image (AMI)
Canonical, Ubuntu, 22.04 LTS, ... [read more](#)
ami-09b0a86a2c84101e1

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[Cancel](#) [Launch instance](#) [Preview code](#)

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

EC2 > Instances > Launch an instance

Create security group Select existing security group

Common security groups | Info

Select security groups

MySSHSecurityGroup sg-096ee8a1bc2bd54d6 X

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

Configure storage Info

Advanced

1x 8 GiB gp2 Root volume (Encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage X

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details Info

Summary

Number of instances Info

3

When launching more than 1 instance, consider EC2 Auto Scaling

Software Image (AMI)

Canonical, Ubuntu, 22.04 LTS, ...read more ami-09b0a86a2c84101e1

Virtual server type (instance type)

t2.micro

Firewall (security group)

MySSHSecurityGroup

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) Instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel Launch instance Preview code

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ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

EC2 > Instances > Launch an instance

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

aws_instance_safe_key_pair Create new key pair

Network settings Info

Edit

Network | Info

vpc-067c947592b5dacbe

Subnet | Info

No preference (Default subnet in any availability zone)

Auto-assign public IP | Info

Enable

Additional charges apply when outside of free tier allowance

Firewall (security groups) | Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group Select existing security group

Common security groups | Info

Select security groups

MySSHSecurityGroup sg-096ee8a1bc2bd54d6 X

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

Summary

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t2.micro

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MySSHSecurityGroup

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Cancel Launch instance Preview code

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Screenshot of the AWS EC2 Instances page showing three running instances: Ansible_controller, client_server_1, and client_server_2.

The table displays the following information:

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Publ
<input type="checkbox"/>	Ansible_controller	i-01ccb2836fefe754c	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-*
<input type="checkbox"/>	client_server_1	i-071ec75f54b597e63	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-*
<input type="checkbox"/>	client_server_2	i-0764692821bcfa58c	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-*

Filter buttons: Instance state = running, Clear filters.

Action buttons: Connect, Instance state, Actions, Launch instances.

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<input type="checkbox"/>	Ansible_controller	i-01ccb2836fefe754c	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-*
<input type="checkbox"/>	client_server_1	i-071ec75f54b597e63	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-*
<input type="checkbox"/>	client_server_2	i-0764692821bcfa58c	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-*

Filter buttons: Instance state = running, Clear filters.

Action buttons: Connect, Instance state, Actions, Launch instances.

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Screenshot of the AWS EC2 Instances page showing two selected instances: Ansible_controller, i-01ccb2836fefe754c (Running, t2.micro, 2/2 checks passed) and client_server_1, i-077ec75f54b597e63 (Running, t2.micro, 2/2 checks passed). A red arrow points to the 'All states' dropdown menu.

Instances (2/3) Info

Last updated 1 minute ago

Connect Instance state Actions Launch instances

All states

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
Ansible_controller	i-01ccb2836fefe754c	Running	t2.micro	2/2 checks passed	View alarms +
client_server_1	i-077ec75f54b597e63	Running	t2.micro	2/2 checks passed	View alarms +
client_server_2	i-0764692821bccaa58c	Running	t2.micro	2/2 checks passed	View alarms +

2 instances selected

Monitoring

Configure CloudWatch agent

Alarm recommendations

CPU utilization (%) Network in (bytes) Network out (bytes) Network packets in (co...)

Percent Bytes Bytes Count

3h 1d 1w 1h UTC timezone C Add to dashboard

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Screenshot of the AWS Security Groups page showing the details for the security group sg-096ee8a1bc2bd54d6 - MySSHSecurityGroup. The Inbound rules tab is selected, displaying two entries:

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-0fa7d2d8ed8148d4b	IPv6	SSH	TCP	22
-	sgr-04549e710ecd26d33	IPv4	SSH	TCP	22

Actions

Details

Security group name: MySSHSecurityGroup

Security group ID: sg-096ee8a1bc2bd54d6

Description: Allows SSH access to developers

VPC ID: vpc-067c947592b5dacbe

Inbound rules Outbound rules Sharing - new VPC associations - new Tags

Inbound rules (2)

Manage tags Edit inbound rules

Search

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System information as of Tue Dec 10 14:02:29 UTC 2024

```
System load: 0.0          Processes:        103
Usage of /: 21.1% of 7.57GB  Users logged in:    0
Memory usage: 21%          IPv4 address for eth0: 172.31.5.85
Swap usage: 0%            
```

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-5-85:~\$

i-071ec75f54b597e63 (client_server_1)

Public IPs: 13.126.13.240 Private IPs: 172.31.5.85

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EC2 > Instances > i-071ec75f54b597e63 > Connect to instance

Connect to instance Info

Connect to your instance i-071ec75f54b597e63 (client_server_1) using any of these options

EC2 Instance Connect **Session Manager** **SSH client** **EC2 serial console**

Instance ID
 i-071ec75f54b597e63 (client_server_1)

Connection Type

Connect using EC2 Instance Connect
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 or IPv6 address.

Connect using EC2 Instance Connect Endpoint
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IPv4 address
 13.126.13.240

IPv6 address

Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ubuntu.

ubuntu

ⓘ Note: In most cases, the default username, ubuntu, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

Cancel **Connect**

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```
ubuntu@ip-172-31-5-85:~$ sudo -i
root@ip-172-31-5-85:~# apt update -y
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2188 kB]
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [373 kB]
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.9 kB]
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2724 kB]
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [473 kB]
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [612 B]
Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1179 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [287 kB]
Get:19 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.4 kB]
Get:20 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [44.5 kB]
Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [11.5 kB]
Get:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [440 B]
Get:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.7 kB]
Get:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.1 kB]
Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.9 kB]
Get:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [672 B]

i-071ec75f54b597e63 (client_server_1)

Public IPs: 13.126.13.240 Private IPs: 172.31.5.85
```

```
System information as of Tue Dec 10 14:02:47 UTC 2024

System load: 0.08      Processes:          107
Usage of /: 21.1% of 7.57GB   Users logged in:    0
Memory usage: 22%           IPv4 address for eth0: 172.31.11.15
Swap usage: 0%           

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-11-15:~$
```

i-0764692821bcaca58c (client_server_2)

Public IPs: 3.109.121.103 Private IPs: 172.31.11.15

ubuntu@ip-172-31-11-15:~\$ sudo -i
root@ip-172-31-11-15:~# apt update -y
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
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Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1179 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [287 kB]
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Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [11.5 kB]
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Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
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Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.9 kB]
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Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [672 B]

i-0764692821bcca58c (client_server_2)

Public IPs: 3.109.121.103 Private IPs: 172.31.11.15

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root@ip-172-31-5-85:~# useradd ansibleadmin -s /bin/bash -m -d /home/ansibleadmin
root@ip-172-31-5-85:~# passwd ansibleadmin
New password:
Retype new password:
passwd: password updated successfully
root@ip-172-31-5-85:~# vi /etc/ssh/sshd_config

i-071ec75f54b597e63 (client_server_1)

Public IPs: 13.126.13.240 Private IPs: 172.31.5.85

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```
root@ip-172-31-5-85:~# useradd ansibleadmin -s /bin/bash -m -d /home/ansibleadmin
root@ip-172-31-5-85:~# passwd ansibleadmin
New password:
Retype new password:
passwd: password updated successfully
root@ip-172-31-5-85:~# vi /etc/ssh/sshd_config
root@ip-172-31-5-85:~# service ssh reload
root@ip-172-31-5-85:~# visudo
```

i-071ec75f54b597e63 (client_server_1)

Public IPs: 13.126.13.240 Private IPs: 172.31.5.85

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```
#AuthorizedPrincipalsFile none
#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody
# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts
#HostbasedAuthentication no
# Change to yes if you don't trust ~/.ssh/known_hosts for
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes
# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication yes
#PermitEmptyPasswords no
# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
#KbdInteractiveAuthentication no
# Kerberos options
#KerberosAuthentication no
#KerberosOrLocalPasswd yes
#KerberosTicketCleanup yes
#KerberosGetFSToken no
# GSSAPI options
#GSSAPIAuthentication no
#WS...
```

i-071ec75f54b597e63 (client_server_1)

Public IPs: 13.126.13.240 Private IPs: 172.31.5.85

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```
root@ip-172-31-5-85:~# useradd ansibleadmin -s /bin/bash -m -d /home/ansibleadmin
root@ip-172-31-5-85:~# passwd ansibleadmin
New password:
Retype new password:
passwd: password updated successfully
root@ip-172-31-5-85:~# vi /etc/ssh/sshd_config
root@ip-172-31-5-85:~# service ssh reload
root@ip-172-31-5-85:~# visudo
root@ip-172-31-5-85:~# visudo
root@ip-172-31-5-85:~# su - ansibleadmin
ansibleadmin@ip-172-31-5-85:~$ ls -a
.  ..  .bash_logout  .bashrc  .profile
ansibleadmin@ip-172-31-5-85:~$
```

i-071ec75f54b597e63 (client_server_1)
Public IPs: 13.126.13.240 Private IPs: 172.31.5.85

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```
GNU nano 6.2                                         /etc/sudoers.tmp *
Defaults:Defaults+=EMAIL_DEBEMAIL DEBFULLNAME"
# "sudo scp" or "sudo rsync" should be able to use your SSH agent.
Defaults:Defaults+=SSH_AGENT_PID SSH_AUTH_SOCK"

# Ditto for GPG agent
Defaults:Defaults+=GPG_AGENT_INFO

# Host alias specification

# User alias specification

# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL

# Members of the admin group may gain root privileges
%admin  ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

ansibleadmin ALL=(ALL) NOPASSWD: ALL

# See sudoers(5) for more information on "@include" directives:
```

^C Help ^C Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-[To Bracket M-Q Previous
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^G Go To Line M-B Redo M-C Copy ^Q Where Was M-W Next

i-071ec75f54b597e63 (client_server_1)
Public IPs: 13.126.13.240 Private IPs: 172.31.5.85

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```
#PermitRootLogin prohibit-password
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10

#PubkeyAuthentication yes

# Expect .ssh/authorized_keys2 to be disregarded by default in future.
#AuthorizedKeysFile      .ssh/authorized_keys .ssh/authorized_keys2

#AuthorizedPrincipalsFile none

#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody

# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts
#HostbasedAuthentication no
# Change to yes if you don't trust ~/.ssh/known_hosts for
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes

# To disable tunneled clear text passwords, change to no here!
PasswordAuthentication yes
#permitEmptyPasswords no

# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
KbdInteractiveAuthentication no
:wq
```

i-0764692821bccca58c (client_server_2)

PublicIPs: 3.109.121.103 PrivateIPs: 172.31.11.15

```
root@ip-172-31-11-15:~# useradd ansibleadmin -s /bin/bash -m -d /home/ansibleadmin
root@ip-172-31-11-15:~# passwd ansibleadmin
New password:
Retype new password:
passwd: password updated successfully
root@ip-172-31-11-15:~# vi /etc/ssh/sshd_config
```

i-0764692821bccca58c (client_server_2)

PublicIPs: 3.109.121.103 PrivateIPs: 172.31.11.15

GNU nano 6.2

```
# "sudo scp" or "sudo rsync" should be able to use your SSH agent.
Defaults: sudo env_keep += "SSH_AGENT_PID SSH_AUTH_SOCK"

# Ditto for GPG agent
Defaults: sudo env_keep += "GPG_AGENT_INFO"

# Host alias specification
# User alias specification
# Cmnd alias specification
# User privilege specification
root    ALL=(ALL:ALL) ALL

# Members of the admin group may gain root privileges
@admin  ALL=(ALL) ALL

# Allow members of group sudo to execute any command
@sudo   ALL=(ALL:ALL) ALL

@ansibleleadadmin  ALL=(ALL) NOPASSWD: ALL

# See sudoers(5) for more information on "@include" directives:
@include /etc/sudoers.d

^G Help          ^C Write Out      ^W Where Is      ^K Cut           ^T Execute        ^C Location      M-U Undo        M-A Set Mark     M-[ To Bracket  M-Q Previous
^X Exit         ^R Read File       ^\ Replace       ^U Paste         ^J Justify       ^/ Go To Line    M-E Redo        M-C Copy        ^Q Where Was     M-W Next

```

i-0764692821bccca58c (client_server_2)

Public IPs: 3.109.121.103 Private IPs: 172.31.11.15

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root@ip-172-31-11-15:~# useradd ansibleleadadmin -s /bin/bash -m -d /home/ansibleleadadmin

```
root@ip-172-31-11-15:~# passwd ansibleleadadmin
New password:
Retype new password:
passwd: password updated successfully
root@ip-172-31-11-15:~# vi /etc/ssh/sshd_config
root@ip-172-31-11-15:~# service ssh reload
root@ip-172-31-11-15:~# visudo
```

i-0764692821bccca58c (client_server_2)

Public IPs: 3.109.121.103 Private IPs: 172.31.11.15

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Instances (1/3) Info

Last updated 22 minutes ago

Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

Instance state = running Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input checked="" type="checkbox"/> Ansible_controller	i-01ccb2836fefe754c	Running	t2.micro	2/2 checks passed	View alarms +
<input type="checkbox"/> client_server_1	i-071ec75f54b597e63	Running	t2.micro	2/2 checks passed	View alarms +
<input type="checkbox"/> client_server_2	i-0764692821bcc58c	Running	t2.micro	2/2 checks passed	View alarms +

i-01ccb2836fefe754c (Ansible_controller)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary

Instance ID: i-01ccb2836fefe754c
IPv6 address: -
Public IP4 address: 13.235.68.29 | [open address](#)
Private IP4 addresses: 172.31.6.7
Public IPv4 DNS: ec2-13-235-68-29.ap-south-1.compute.amazonaws.com | [open address](#)

Instance state: Running

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```
root@ip-172-31-11-15:~# useradd ansibleleadadmin -s /bin/bash -m -d /home/ansibleleadadmin
root@ip-172-31-11-15:~# passwd ansibleleadadmin
New password:
Retype new password:
passwd: password updated successfully
root@ip-172-31-11-15:~# vi /etc/ssh/sshd_config
root@ip-172-31-11-15:~# service ssh reload
root@ip-172-31-11-15:~# visudo
root@ip-172-31-11-15:~# su - ansibleleadadmin
ansibleleadadmin@ip-172-31-11-15:~$ ls -a
.  ..  .bash_logout  .bashrc  .profile
ansibleleadadmin@ip-172-31-11-15:~$
```

i-0764692821bcc58c (client_server_2)

Public IPs: 3.109.121.103 Private IPs: 172.31.11.15

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```
root@ip-172-31-6-7:~# history
1 apt update -y
2 clear5
3 clear
4 clear
5 apt install software-properties-common -y
6 add-apt-repository --yes --update ppa:ansible/ansible
7 apt update -y
8 apt install ansible -y
9 clear
10 history
root@ip-172-31-6-7:~#
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.235.68.29 Private IPs: 172.31.6.7

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```
ubuntu@ip-172-31-6-7:~$ sudo -i
root@ip-172-31-6-7:~# apt update -y
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2188 kB]
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [373 kB]
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.9 kB]
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2724 kB]
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [473 kB]
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [612 B]
Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1179 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [287 kB]
Get:19 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.4 kB]
Get:20 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [44.5 kB]
Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [11.5 kB]
Get:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [440 B]
Get:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.7 kB]
Get:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.1 kB]
Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.9 kB]
Get:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [672 B]
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.235.68.29 Private IPs: 172.31.6.7

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```
root@ip-172-31-6-7:~# useradd devopsadmin -s /bin/bash -m -d /home/devopsadmin
root@ip-172-31-6-7:~# su - devopsadmin
devopsadmin@ip-172-31-6-7:~$ pwd
/home/devopsadmin
devopsadmin@ip-172-31-6-7:~$ ssh-keygen -t ecdsa -b 521
Generating public/private ecdsa key pair.
Enter file in which to save the key (/home/devopsadmin/.ssh/id_ecdsa):
Created directory '/home/devopsadmin/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/devopsadmin/.ssh/id_ecdsa
Your public key has been saved in /home/devopsadmin/.ssh/id_ecdsa.pub
The key fingerprint is:
SHA256:FDxXuJ26079aCTDS5mH6KEY30MWxOe6eAOn8qRH4dqs devopsadmin@ip-172-31-6-7
The key's randomart image is:
+---[ECDSA 521]---+
| .... ++
| ... o...o..
| + + & oo.
| .+. & O o
| . o.= S . o
| +.+ . o .
| . . . .
| E. o++o |
+---[SHA256]---+
devopsadmin@ip-172-31-6-7:~$ ls -a
. .. .bash_logout .bashrc .profile .ssh
devopsadmin@ip-172-31-6-7:~$ cat .ssh/id_ecdsa.pub
ecdsa-sha2-nistp521 AAAAE2VjZHNhLXNOYTtbmlzdHALMjEAAAACFBACKzEc14frl/94BzpaM/a82Hx20ed43bQ0ZPUfcc3PsCNH3CUeVVtH3yK99T1jcgmIf3rtFYmILnD7mXXIIEQtp3gEcSerGU
kMoapaY8Sr+IcV8UtViM2qqY+phMB52Ju1j5DO4ajmuae:jY1M1yAK3fYM7FHRKKghgR2U2PVC4J+0jW2Q== devopsadmin@ip-172-31-6-7
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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```
root@ip-172-31-6-7:~# ansible --version
ansible [core 2.17.7]
  config file = /etc/ansible/ansible.cfg
  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 = 3.10.12 (main, Sep 11 2024, 15:47:36) [GCC 11.4.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
root@ip-172-31-6-7:~#
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.235.68.29 Private IPs: 172.31.6.7

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The screenshot shows the AWS CloudShell interface. At the top, there's a header bar with the AWS logo, a search bar containing 'Search' and an 'Alt+S' keyboard shortcut, and various navigation icons. The main area is a terminal window with a dark background. It displays a long string of characters starting with 'ecdsa-sha2-nistp521 AAAAE2VjZHNhLXNoYTItbmlzdHALMjEAAAIBmlzdHALMjEAAACFBACKzEc14frl/94BzpaM/a82Hx20ed43bQ0ZPUfcc3PsCNH3CUeVVtH3yK99TljcgmIf3rtFYmILnD7mXXIEQtP3gEcSerGUkMoapaY8Sr+IcV8UtViMZqqY+phMB52Ju1j5DO4ajmuaejY1MlyAK3fYM7FHRKKghgR2U2PVC4J+0jW2Q== devopsadmin@ip-172-31-6-7'. Below this, there's a smaller terminal window labeled ':wq' with a status message 'i-071ec75f54b597e63 (client_server_1)'. At the bottom, there are links for 'CloudShell', 'Feedback', 'Privacy', 'Terms', and 'Cookie preferences', along with a copyright notice for 2024.

```
ubuntu@ip-172-31-5-85:~$ sudo -i  
root@ip-172-31-5-85:~# su - ansibleadmin  
ansibleadmin@ip-172-31-5-85:~$ pwd  
/home/ansibleadmin  
ansibleadmin@ip-172-31-5-85:~$ mkdir .ssh  
ansibleadmin@ip-172-31-5-85:~$ vi authorized_keys
```

i-071ec75f54b597e63 (client_server_1) ↓

PublicIPs: 13.203.104.29 PrivateIPs: 172.31.5.85

```
ubuntu@ip-172-31-11-15:~$ sudo -i
root@ip-172-31-11-15:~# su - ansibleadmin
ansibleadmin@ip-172-31-11-15:~$ ls
ansibleadmin@ip-172-31-11-15:~$ mkdir .ssh
ansibleadmin@ip-172-31-11-15:~$ cd .ssh/
ansibleadmin@ip-172-31-11-15:~/ssh$ vi authorized_keys
ansibleadmin@ip-172-31-11-15:~/ssh$ chmod 600 /home/ansibleadmin/.ssh/*
ansibleadmin@ip-172-31-11-15:~/ssh$ ll
total 12
drwxrwxr-x 2 ansibleadmin ansibleadmin 4096 Dec 11 08:26 .
drwxr-x--- 3 ansibleadmin ansibleadmin 4096 Dec 11 08:26 ..
-rw----- 1 ansibleadmin ansibleadmin 279 Dec 11 08:26 authorized_keys
ansibleadmin@ip-172-31-11-15:~/ssh$ cat authorized_keys
edrsa-sha2-nistp521 AAAAEZVjZHNhLXNoYT1tbmlzdHA1MjEAAA1bmldzHAI1MjEAAACFBACKzEc14fr1/94BzpaM/a82HxZ0ed43bQ0ZPUfcc3PsCNH3CUEVVtH3yK99T1jcgmIf3rtFYmILnD7mXXIEQtP3gEcSerGU
kMoapaY85r+Icv8UtViMzqqY+phMB52Ju1j5DO4aJmwaejYIM1yAK3fYM7FHRKKhgR2U2PVC4J+0jW2Q== devopsadmin@ip-172-31-6-7
ansibleadmin@ip-172-31-11-15:~/ssh$
```

i-0764692821bcca58c (client_server_2)

Public IPs: 65.0.199.134 Private IPs: 172.31.11.15

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```
ubuntu@ip-172-31-5-85:~$ sudo -i
root@ip-172-31-5-85:~# su - ansibleadmin
ansibleadmin@ip-172-31-5-85:~$ pwd
/home/ansibleadmin
ansibleadmin@ip-172-31-5-85:~$ mkdir .ssh
ansibleadmin@ip-172-31-5-85:~$ vi authorized_keys
ansibleadmin@ip-172-31-5-85:~$ chmod 600 /home/ansibleadmin/.ssh/*
chmod: cannot access '/home/ansibleadmin/.ssh/*': No such file or directory
ansibleadmin@ip-172-31-5-85:~$ pwd
/home/ansibleadmin
ansibleadmin@ip-172-31-5-85:~$ ls
authorized_keys
ansibleadmin@ip-172-31-5-85:~$ mv authorized_keys .ssh/authorized_keys
ansibleadmin@ip-172-31-5-85:~$ ls
ansibleadmin@ip-172-31-5-85:~$ ls .ssh/
authorized_keys
ansibleadmin@ip-172-31-5-85:~$ cat .ssh/authorized_keys
edrsa-sha2-nistp521 AAAAEZVjZHNhLXNoYT1tbmlzdHA1MjEAAA1bmldzHAI1MjEAAACFBACKzEc14fr1/94BzpaM/a82HxZ0ed43bQ0ZPUfcc3PsCNH3CUEVVtH3yK99T1jcgmIf3rtFYmILnD7mXXIEQtP3gEcSerGU
kMoapaY85r+Icv8UtViMzqqY+phMB52Ju1j5DO4aJmwaejYIM1yAK3fYM7FHRKKhgR2U2PVC4J+0jW2Q== devopsadmin@ip-172-31-6-7
ansibleadmin@ip-172-31-5-85:~$ chmod 600 /home/ansibleadmin/.ssh/*
ansibleadmin@ip-172-31-5-85:~$ ll .ssh/
total 12
drwxrwxr-x 2 ansibleadmin ansibleadmin 4096 Dec 11 08:23 .
drwxr-x--- 3 ansibleadmin ansibleadmin 4096 Dec 11 08:23 ..
-rw----- 1 ansibleadmin ansibleadmin 279 Dec 11 08:22 authorized_keys
ansibleadmin@ip-172-31-5-85:~$
```

i-071ec75f54b597e63 (client_server_1)

Public IPs: 13.203.104.29 Private IPs: 172.31.5.85

Screenshot of the AWS EC2 Instances page showing two running instances: Ansible_controller and client_server_1. A red arrow points to the Private IP4 address section for client_server_2.

Instances (1/3) Info

Last updated 1 minute ago

Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instance state = running

Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Available
Ansible_controller	i-01ccb2836fefe754c	Running	t2.micro	2/2 checks passed	View alarms +	ap-south
client_server_1	i-071ec75f54b597e63	Running	t2.micro	2/2 checks passed	View alarms +	ap-south
client_server_2	i-0764692821bccaa58c	Running	t2.micro	2/2 checks passed	View alarms +	ap-south

i-0764692821bccaa58c (client_server_2)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary

Instance ID i-0764692821bccaa58c	Public IPv4 address 65.0.199.154 open address	Private IPv4 addresses 172.31.11.15
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-65-0-199-134.ap-south-1.compute.amazonaws.com open address
Hostname type	Private IP DNS name (IPv4 only)	

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Screenshot of the AWS EC2 Instances page showing three running instances: Ansible_controller, client_server_1, and client_server_2. A red arrow points to the Private IP4 address section for client_server_1.

Instances (1/3) Info

Last updated less than a minute ago

Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instance state = running

Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Available
Ansible_controller	i-01ccb2836fefe754c	Running	t2.micro	2/2 checks passed	View alarms +	ap-south
client_server_1	i-071ec75f54b597e63	Running	t2.micro	2/2 checks passed	View alarms +	ap-south
client_server_2	i-0764692821bccaa58c	Running	t2.micro	2/2 checks passed	View alarms +	ap-south

i-071ec75f54b597e63 (client_server_1)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary

Instance ID i-071ec75f54b597e63	Public IPv4 address 13.203.104.29 open address	Private IPv4 addresses 172.31.5.85
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-13-203-104-29.ap-south-1.compute.amazonaws.com open address

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The screenshot shows a terminal window within the AWS CloudShell interface. The terminal displays the following text:

```
Swap usage: 0%
* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.
https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

39 updates can be applied immediately.
34 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

New release '24.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

ansibleleadadmin@ip-172-31-5-85:~$ whoami
ansibleleadadmin
ansibleleadadmin@ip-172-31-5-85:~$
```

A red arrow points from the top of the image down to the command "whoami" in the terminal output.

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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The screenshot shows a terminal window within the AWS CloudShell interface. The terminal displays the following text:

```
devopsadmin@ip-172-31-6-7:~$ ssh ansibleadmin@172.31.5.85
The authenticity of host '172.31.5.85 (172.31.5.85)' can't be established.
ED25519 key fingerprint is SHA256:1vjjsYt0pcb+ltcA5A2o8ffGcIHNiGzAUHZL/H4OzDU.
This key is not known by any other name
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '172.31.5.85' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1015-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Wed Dec 11 08:56:56 UTC 2024

System load: 0.0          Processes:           110
Usage of /: 26.8% of 7.57GB  Users logged in:   1
Memory usage: 22%          IPv4 address for eth0: 172.31.5.85
Swap usage: 0%
```

* Ubuntu Pro delivers the most comprehensive open source security and compliance features.

<https://ubuntu.com/aws/pro>

Expanded Security Maintenance for Applications is not enabled.

39 updates can be applied immediately.
34 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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```
root@ip-172-31-6-7:~# chown -R devopsadmin:devopsadmin /etc/ansible
root@ip-172-31-6-7:~# su - devopsadmin
devopsadmin@ip-172-31-6-7:~$ vi /etc/ansible/hosts
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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```
devopsadmin@ip-172-31-6-7:~$ ssh ansibleadmin@172.31.11.15
The authenticity of host '172.31.11.15 (172.31.11.15)' can't be established.
ED25519 key fingerprint is SHA256:Qd/h5rW1BxjtoWgEUFOJ3mc08mDlyYU0t.
This host is not known by any other name.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '172.31.11.15' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1015-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Wed Dec 11 08:59:50 UTC 2024

  System load: 0.0          Processes:           112
  Usage of /:   32.2% of 7.57GB   Users logged in:      1
  Memory usage: 26%           IPv4 address for eth0: 172.31.11.15
  Swap usage:  0%
* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.
  https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

5 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

New release '24.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

*** System restart required ***

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

ansibleadmin@ip-172-31-11-15:~$ ||
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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```
## [webservers]
## alpha.example.org
## beta.example.org
## 192.168.1.100
## 192.168.1.110

# If you have multiple hosts following a pattern, you can specify
# them like this:

## www[001:006].example.com

# You can also use ranges for multiple hosts:

## db-[99:101]-node.example.com

# Ex 3: A collection of database servers in the 'dbservers' group:

## [dbservers]
## db01.intranet.mydomain.net
## db02.intranet.mydomain.net
## 10.25.1.56
## 10.25.1.57

# Ex4: Multiple hosts arranged into groups such as 'Debian' and 'openSUSE':

## [Debian]
## alpha.example.org
## beta.example.org

## [openSUSE]
## green.example.com
## blue.example.com

[testservers]
testserver1 ansible_ssh_host=172.31.5.85 ansible_ssh_user=ansibleleadmin

[prodservers]
prodserver1 ansible_ssh_host=172.31.11.15 ansible_ssh_user=ansibleleadmin

:wq
```

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```
devopsadmin@ip-172-31-6-7:~$ ansible testservers -m ping
[WARNING]: Platform linux on host testserver1 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
testserver1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3.10"
  },
  "changed": false,
  "ping": "pong"
}
devopsadmin@ip-172-31-6-7:~$ ansible prodservers -m ping
[WARNING]: Platform linux on host prodserver1 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
prodserver1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3.10"
  },
  "changed": false,
  "ping": "pong"
}
devopsadmin@ip-172-31-6-7:~$
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IP: 172.31.6.7

2. L2 - Create and Execute Ansible Playbook to Setup Java Maven Application Build Server

Ans.

1. **Create EC2 Instance:** Launch 3 EC2 Ubuntu 22.04 instances on AWS to act as the Ansible controller and Build servers.

2. **Install Ansible:** SSH into the instances and install **Ansible** using `sudo apt install ansible`

3. **Install Java:** Install Java on the server using Ansible's **apt** module.

4. **Install Maven:** Install Maven using Ansible's **apt** module.

5. **Set Up SSH Key Pair:** Create and configure SSH keys for remote connections.

6. **Create Ansible Playbook:** Write a playbook to install Java, Maven, and any dependencies.

7. **Execute Playbook:** Run the playbook on the Build Server using `ansible-playbook`.

8. **Verify Setup:** Verify Java and Maven installations using `'java -version'` and `'mvn -version'`

The screenshot shows a terminal session in Mobaxterm connected to an Ubuntu host at 13.126.156.149. The terminal window displays an Ansible playbook. The playbook defines a role named 'testserver' with tasks to update apt packages, install Java 11, and install Maven. It also includes verification steps for Java and Maven installations. The terminal interface includes a sidebar for sessions and a bottom status bar.

```
- name: Setup Build Server
  hosts: testservers
  become: yes
  tasks:
    - name: Update and upgrade apt packages
      apt:
        update_cache: yes
        upgrade: dist
    - name: Install Java 11
      apt:
        name: openjdk-11-jdk
        state: present
    - name: Verify Java installation
      command: java -version
      register: java_output
      ignore_errors: yes
      debug:
        msg: "{{ java_output.stdout_lines }}"
    - name: Install Maven
      apt:
        name: maven
        state: present
    - name: Verify Maven installation
      command: mvn -version
      register: maven_output
      ignore_errors: yes
      debug:
        msg: "{{ maven_output.stdout_lines }}"
```

The screenshot shows a web browser window displaying the AWS EC2 instance connect terminal session for an instance with ID i-01ccb2836fefe754c. The session is titled 'Ansible_controller'. The terminal output shows the user navigating to /etc/ansible, creating a 'roles' directory, and then creating a 'playbooks' directory. The user is currently editing a file named 'build-server-setup.yml'. The browser interface includes standard navigation and search bars, as well as AWS-specific navigation and monitoring tools.

```
devopsadmin@ip-172-31-6-7:~$ cd /etc/ansible/
devopsadmin@ip-172-31-6-7:/etc/ansible$ ls
ansible.cfg  hosts  roles
devopsadmin@ip-172-31-6-7:/etc/ansible$ mkdir playbooks
devopsadmin@ip-172-31-6-7:/etc/ansible$ cd playbooks/
devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$ vi build-server-setup.yml
```

```
devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$ ansible-playbook build-server-setup.yml
PLAY [Setup Build Server] ****
TASK [Gathering Facts] ****
[WARNING]: Platform linux on host testserver1 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [testserver1]

TASK [Update and upgrade apt packages] ****
changed: [testserver1]

TASK [Install Java 11] ****
changed: [testserver1]

TASK [Verify Java installation] ****
changed: [testserver1]

TASK [debug] ****
ok: [testserver1] => {
    "msg": []
}

TASK [Install Maven] ****
changed: [testserver1]

TASK [Verify Maven installation] ****
changed: [testserver1]

TASK [debug] ****
ok: [testserver1] => {
    "msg": [
        "\u001b[1mApache Maven 3.6.3\u001b[m",
        "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: \"6.8.0-1015-aws\", arch: \"amd64\", family: \"unix\""
    ]
}

PLAY RECAP ****
testserver1 : ok=8    changed=5    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$ i-01ccb2836fefe754c (Ansible_controller)
PublicIPs: 13.126.156.149 PrivateIPs: 172.31.6.7
```

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```
ansibeleadmin@ip-172-31-5-85:~$ java -version
openjdk version "11.0.25" 2024-10-15
OpenJDK Runtime Environment (build 11.0.25+9-post-Ubuntu-1ubuntu12.04)
OpenJDK 64-Bit Server VM (build 11.0.25+9-post-Ubuntu-1ubuntu12.04, mixed mode, sharing)
ansibeleadmin@ip-172-31-5-85:~$ mvn -version
Apache Maven 3.6.3
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: "6.8.0-1015-aws", arch: "amd64", family: "unix"
```

i-071ec75f54b597e63 (client_server_1)

PublicIPs: 13.203.104.29 PrivateIPs: 172.31.5.85

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3. L3 - Create and Execute Ansible Playbook to Install Docker and Run the Docker Application Image created in Docker Module

Ans.

- 1. Write Ansible Playbook:** Create a playbook to install Docker on the target nodes using the apt or yum module.
- 2. Start Docker Service:** Ensure Docker service starts and is enabled to run on boot.
- 3. Pull Docker Image:** Include a task in the playbook to pull the Docker image from Docker Hub (created in the Docker module).
- 4. Run Docker Container:** Add tasks to run the Docker container using the pulled image on the target nodes.
- 5. Execute Playbook:** Run the Ansible playbook with ansible-playbook.
- 6. Verify Docker Installation:** Check if Docker is installed and the container is running using docker ps on client nodes.

```
devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$ vi docker-steup-playbook.yml
```

i-01ccb2836fefe754c (Ansible_controller)
PublicIPs: 13.126.156.149 PrivateIPs: 172.31.6.7

```
13.126.156.149 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
13.126.156.149 (ubuntu) X server Exit
/home/ubuntu/
└── Name
    ├── ..
    ├── .cache
    ├── .ssh
    ├── .bash_history
    ├── .bash_logout
    ├── .bashrc
    ├── .profile
    └── sudo_as_admin_successful
    └── .Xauthority

name: Setup Docker and Run Application Image
hosts: prodservers
become: yes
tasks:
  - name: Update and upgrade apt packages
    apt:
      update_cache: yes
      upgrade: dist
  - name: Install prerequisites for Docker
    apt:
      name:
        - apt-transport-https
        - ca-certificates
        - curl
        - software-properties-common
      state: present
  - name: Add Docker GPG key
    apt_key:
      url: https://download.docker.com/linux/ubuntu/gpg
      state: present
  - name: Add Docker repository
    apt_repository:
      repo: deb [arch=amd64] https://download.docker.com/linux/ubuntu focal stable
      state: present
  - name: Install Docker
    apt:
      name: docker-ce
      state: present
  - name: Start Docker service
    service:
      name: docker
      state: started
      enabled: yes
  - name: Verify Docker installation
    command: docker --version
    register: docker_output
    - debug:
      - var: docker_output
      - INSERT --
```

The screenshot shows a MobaXterm window titled '13.126.156.149 (ubuntu)'. The terminal pane displays an Ansible playbook for setting up Docker. The command run is:

```
- software-properties-common
  state: present

- name: Add Docker GPG key
  apt_key:
    url: https://download.docker.com/linux/ubuntu/gpg
  state: present

- name: Add Docker repository
  apt_repository:
    repo: deb [arch=amd64] https://download.docker.com/linux/ubuntu focal stable
    state: present

- name: Install Docker
  apt:
    name: docker-ce
    state: present

- name: Start Docker service
  service:
    name: docker
    state: started
    enabled: yes

- name: Verify Docker installation
  command: docker --version
  register: docker_output
  - debug:
      msg: "{{ docker_output.stdout_lines }}"

- name: Pull Docker image
  docker_image:
    name: abhi2z2411/tomcat_web_img
    tag: "v"
    source: pull

- name: Run Docker container
  docker_container:
    name: tomcat_app
    image: abhi2z2411/tomcat_web_img:7
    ports:
      - "8080:8080"
    state: started
```

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The screenshot shows an AWS CloudShell terminal session with the URL 'ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=stan...'. The terminal pane displays an Ansible playbook for setting up Docker. The command run is:

```
PLAY [Setup Docker and Run Application Image] ****
TASK [Gathering Facts] ****
[WARNING]: Platform Linux on host prodserver1 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [prodserver1]

TASK [Update all and upgrade apt packages] ****
ok: [prodserver1]

TASK [Install prerequisites for Docker] ****
ok: [prodserver1]

TASK [Add Docker GPG key] ****
changed: [prodserver1]

TASK [Add Docker repository] ****
changed: [prodserver1]

TASK [Install Docker] ****
changed: [prodserver1]

TASK [Start Docker service] ****
ok: [prodserver1]

TASK [Verify Docker installation] ****
changed: [prodserver1]

TASK [debug] ****
ok: [prodserver1] => (
  "msg": [
    "Docker version 27.4.0, build bde2b89"
  ]
)

TASK [Pull Docker image] ****
changed: [prodserver1]

TASK [Run Docker container] ****
changed: [prodserver1]

PLAY RECAP ****
prodserver1 : ok=11  changed=6  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0
```

At the bottom, it shows:

```
devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$ 
+01ccb2836fefe754c (Ansible_controller)
Public IPs: 13.126.156.149  Private IPs: 172.31.6.7
```

```
ubuntu@ip-172-31-11-15:~$ sudo -i
root@ip-172-31-11-15:~# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
6a71ec7b3682 abhiz2411/tomcat_web_img:7 "catalina.sh run" About a minute ago Up About a minute 0.0.0.0:8080->8080/tcp tomcat_app
root@ip-172-31-11-15:~#
```

i-0764692821bcca58c (client_server_2)

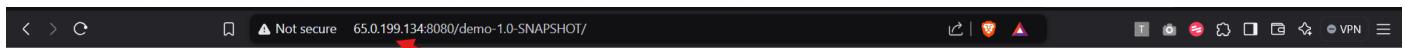
Inbound security group rules successfully modified on security group (sg-096ee8a1bc2bd54d6 | MySSHSecurityGroup)

sg-096ee8a1bc2bd54d6 - MySSHSecurityGroup

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-0fa7d2d8ed8148d4b	IPv6	SSH	TCP	22
-	sgr-025b0a28a236aa26d	IPv4	Custom TCP	TCP	8080
-	sgr-04549e710ecd26d33	IPv4	SSH	TCP	22

Screenshot of the AWS EC2 Instances page. The left sidebar shows navigation options like Dashboard, Security Groups, Images, and Network & Security. The main area displays three instances: Ansible_controller, client_server_1, and client_server_2. A red arrow points from the instance name 'client_server_2' to its corresponding row in the 'Inbound rules' table. The table lists security group rule ID, port range (8080), protocol (TCP), source (0.0.0.0/0), and security groups (MySSHSecurityGroup). The bottom right corner shows copyright information: © 2024, Amazon Web Services, Inc. or its affiliates.

Screenshot of the AWS EC2 Instance details page for 'client_server_2'. The left sidebar shows navigation options like Dashboard, Security Groups, Images, and Network & Security. The main area shows the instance details for 'client_server_2'. A red arrow points to the 'Networking' tab, which displays the Public IPv4 address (65.0.199.134) and other networking information such as Instance state (Running) and Private IP DNS name. The bottom right corner shows copyright information: © 2024, Amazon Web Services, Inc. or its affiliates.



Hello Team, Abhijit Zende here

Spring Boot Web Application - Dummy CICD Demo using pollISCM!!!!!!

Checking for webhook demonstration take number 6

Testing purpose for the assignment

4. L4 - Create Ansible Role to define the task, handler for Nginx Service Installation and invoke the role in Ansible playbook

Ans.

- 1. Create Ansible Role:** Use `ansible-galaxy init nginx` to create a new role for Nginx installation.
- 2. Define Tasks:** In the **tasks/main.yml** file, define the tasks to install Nginx using the apt or yum module.
- 3. Configure Handlers:** In **handlers/main.yml**, define a handler to restart Nginx if the service is started or restarted.
- 4. Create Playbook:** Create an Ansible playbook to invoke the Nginx role.
- 5. Link Role to Playbook:** In the playbook, use the roles section to include the Nginx role.
- 6. Execute Playbook:** Run the playbook using ansible-playbook to install Nginx.
- 7. Verify Installation:** Ensure Nginx is installed and running using systemctl status nginx on the target node.

```
devopsadmin@ip-172-31-6-7:/etc/ansible$ pwd
/etc/ansible
devopsadmin@ip-172-31-6-7:/etc/ansible$ ll
total 28
drwxr-xr-x  5 devopsadmin devopsadmin 4096 Dec 11 09:42 .
drwxr-xr-x  94 root      root     4096 Dec 11 08:24 ..
-rw-r--r--  1 devopsadmin devopsadmin 614 Dec  3 17:00 ansible.cfg
-rw-r--r--  1 devopsadmin devopsadmin 1350 Dec 11 09:15 hosts
drwxrwxr-x  2 devopsadmin devopsadmin 4096 Dec 11 09:43 inventory_files/
drwxrwxr-x  2 devopsadmin devopsadmin 4096 Dec 11 09:53 playbooks/
drwxr-xr-x  2 devopsadmin devopsadmin 4096 Dec  3 17:00 roles/
devopsadmin@ip-172-31-6-7:/etc/ansible$ cd roles/
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ ansible-galaxy init nginx
  Role nginx was created successfully
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ ls
nginx
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ ls nginx/
README.md defaults files handlers meta tasks templates tests vars
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ cd nginx/tasks/
devopsadmin@ip-172-31-6-7:/etc/ansible/roles/nginx/tasks$ vi main.yml
```

i-01ccb2836fefe754c (Ansible_controller)

PublicIPs: 13.126.156.149 PrivateIPs: 172.31.6.7

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```
# tasks file for nginx
- name: Install Nginx
  apt:
    name: nginx
    state: present
    update_cache: yes
  notify:
    - start-nginx
```

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```
devopsadmin@ip-172-31-6-7:/etc/ansible$ pwd
/etc/ansible
devopsadmin@ip-172-31-6-7:/etc/ansible$ ll
total 28
drwxr-xr-x  5 devopsadmin devopsadmin 4096 Dec 11 09:42 .
drwxr-xr-x  9 root      root     4096 Dec 11 08:24 ..
-rw-r--r--  1 devopsadmin devopsadmin 614 Dec  3 17:00 ansible.cfg
-rw-r--r--  1 devopsadmin devopsadmin 1350 Dec 11 09:15 hosts
drwxrwxr-x  2 devopsadmin devopsadmin 4096 Dec 11 09:43 inventory_files/
drwxrwxr-x  2 devopsadmin devopsadmin 4096 Dec 11 09:53 playbooks/
drwxr-xr-x  2 devopsadmin devopsadmin 4096 Dec  3 17:00 roles/
devopsadmin@ip-172-31-6-7:/etc/ansible$ cd roles/
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ ansible-galaxy init nginx
- Role nginx was created successfully
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ ls
nginx
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ ls nginx/
README.md defaults files handlers meta tasks templates tests vars
devopsadmin@ip-172-31-6-7:/etc/ansible/roles$ cd nginx/tasks/
devopsadmin@ip-172-31-6-7:/etc/ansible/roles/nginx/tasks$ vi main.yml
devopsadmin@ip-172-31-6-7:/etc/ansible/roles/nginx$ vi handlers/main.yml
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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```
# handlers file for nginx
- name: start-nginx
  service:
    name: nginx
    state: started
```

The terminal window also shows a command history at the bottom with the command ':wq' entered.

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devopsadmin@ip-172-31-6-7:/etc/ansible/roles/nginx\$ cd ..
devopsadmin@ip-172-31-6-7:/etc/ansible/roles\$ cd ..
devopsadmin@ip-172-31-6-7:/etc/ansible\$ ls
ansible.cfg hosts inventory_files playbooks roles
devopsadmin@ip-172-31-6-7:/etc/ansible\$ cd playbooks/
devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks\$ vi nginx.yml

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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13.126.156.149 (ubuntu)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

X server Exit

Quick connect... 3. 13.126.156.149 (ubuntu) ×

/home/ubuntu/

Name

- ..
- .cache
- .ssh
- .bash_history
- .bash_logout
- .bashrc
- .profile
- .sudo_as_admin_successful
- .Xauthority

Remote monitoring

Follow terminal folder

nginx.yml 51 63B

32°C ENG 04:03 PM

```
devopsadmin@ip-172-31-6-7:/etc/ansible$ cd playbooks/
devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$ ls
build-server-setup.yml docker-setup-playbook.yml nginx.yml
devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$ ansible-playbook nginx.yml

PLAY [prodserver] ****
TASK [Gathering Facts] ****
[WARNING]: Platform linux on host prodserver1 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [prodserver1]

TASK [nginx : Install Nginx] ****
ok: [prodserver1]

PLAY RECAP ****
prodserver1 : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

devopsadmin@ip-172-31-6-7:/etc/ansible/playbooks$
```

i-01ccb2836fefe754c (Ansible_controller)

Public IPs: 13.126.156.149 Private IPs: 172.31.6.7

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```
root@ip-172-31-11-15:~# nginx -v
nginx version: nginx/1.18.0 (Ubuntu)
root@ip-172-31-11-15:~# systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
  Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
  Active: active (running) since Wed 2024-12-11 10:34:43 UTC; 7min ago
    Docs: man:nginx(8)
   Process: 23392 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Process: 23393 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 23487 (nginx)
    Tasks: 2 (limit: 1130)
   Memory: 6.5M
      CPU: 28ms
     CGroup: /system.slice/nginx.service
             ├─23487 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             └─23489 "nginx: worker process"

Dec 11 10:34:43 ip-172-31-11-15 systemd[1]: Starting A high performance web server and a reverse proxy server...
Dec 11 10:34:43 ip-172-31-11-15 systemd[1]: Started A high performance web server and a reverse proxy server.
root@ip-172-31-11-15:~#
```

i-0764692821bcca58c (client_server_2)

Public IPs: 65.0.199.134 Private IPs: 172.31.11.15

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Edit inbound rules Info

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

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	Info
sgr-0fa7d2d8ed8148d4b	SSH	TCP	22	Cus... <input type="button" value="Edit"/>	Allows SSH from IPv6 address anywhere from the internet	<input type="button" value="Delete"/>
sgr-025b0a28a236aa26d	Custom TCP	TCP	8080	Cus... <input type="button" value="Edit"/>	For Docker Demo	<input type="button" value="Delete"/>
sgr-04549e710ecd26d33	SSH	TCP	22	Cus... <input type="button" value="Edit"/>	Allows SSH from IPv4 address anywhere from the internet	<input type="button" value="Delete"/>
-	Custom TCP	TCP	80	An... <input type="button" value="Edit"/>	For Nginx demo	<input type="button" value="Delete"/>

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

Inbound security group rules successfully modified on security group (sg-096ee8a1bc2bd54d6 | MySSHSecurityGroup)

sg-096ee8a1bc2bd54d6 - MySSHSecurityGroup

Details

Security group name	Security group ID	Description	VPC ID
MySSHSecurityGroup	sg-096ee8a1bc2bd54d6	Allows SSH access to developers	vpc-067c947592b5dabc
Owner	Inbound rules count	Outbound rules count	
654654415533	4 Permission entries	1 Permission entry	

Inbound rules (4)

Name	Security group rule ID	IP version	Type	Protocol	Port range	Source
-	sgr-0fa7d2d8ed8148d4b	IPv6	SSH	TCP	22	::/0
-	sgr-0edca1d51f45d1244	IPv4	HTTP	TCP	80	0.0.
-	sgr-025b0a28a236aa26d	IPv4	Custom TCP	TCP	8080	0.0.
-	sgr-04549e710ecd26d33	IPv4	SSH	TCP	22	0.0.

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Screenshot of the AWS EC2 Instances page. The left sidebar shows navigation options like Dashboard, EC2 Global View, Events, Instances, Images, Elastic Block Store, Network & Security, and more. The main area displays a table of instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
Anible_controller	i-01ccb2836fefe754c	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b	ec2-13-12e
client_server_1	i-071ec75f54b597e63	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b	ec2-13-20e
client_server_2	i-0764692821bccaa58c	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b	ec2-65-0-1

A red arrow points from the 'client_server_2' row to its detailed view below. The detailed view shows:

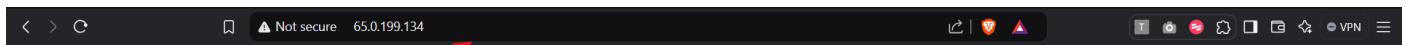
- Instance ID: i-0764692821bccaa58c (client_server_2)
- Security groups: sg-096ee8a1bc2bd54d6 (MySSHSecurityGroup)
- Inbound rules (empty)

Screenshot of the AWS EC2 Instances page. The left sidebar shows navigation options like Dashboard, EC2 Global View, Events, Instances, Images, Elastic Block Store, Network & Security, and more. The main area displays a table of instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
Anible_controller	i-01ccb2836fefe754c	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b	ec2-13-12e
client_server_1	i-071ec75f54b597e63	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b	ec2-13-20e
client_server_2	i-0764692821bccaa58c	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b	ec2-65-0-1

A red arrow points from the 'client_server_2' row to its detailed view below. The detailed view shows:

- Instance ID: i-0764692821bccaa58c (client_server_2)
- IPv4 address: 65.0.199.134 | [open address](#)
- Instance state: Running
- Private IP DNS name (IPv4 only): ip-172-31-11-15.ap-south-1.compute.internal
- Instance type: t2.micro
- VPC ID: -
- Public IPv4 DNS: ec2-65-0-199-134.ap-south-1.compute.amazonaws.com | [open address](#)
- Elastic IP addresses: -
- AWS Compute Optimizer finding: -



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.