

# SYSTEM PROVISIONING AND CONFIGURATION MANAGEMENT

## LAB FILE

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# EXPERIMENT 11:

## CONFIGURE ANSIBLE SETUP

1. Login to your AWS account and launch an EC2 instance of Linux named - Ansible Server.

[EC2](#) > [Instances](#) > Launch an instance

### Launch an instance [Info](#)

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

 [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

[Quick Start](#)

2. Create a new key during the creation of the instance.

### Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

☒ RSA  
RSA encrypted private and public key pair

☐ ED25519  
ED25519 encrypted private and public key pair

Private key file format

☒ .pem  
For use with OpenSSH

☐ .ppk  
For use with PuTTY

**⚠** When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#)

Cancel Create key pair

3. Select the security group and create 2 instances of this type.

**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](#)**

default sg-0d343e70c8cafeec2 ✕  
VPC: vpc-044fcb3db5f862e95

[Compare security group rules](#)

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

4. Rename one of the instances as - Ansible Node.

<input type="checkbox"/>	Ansible-Server	i-0aa68b8faa2bbb1e1	<span>Running</span>	<a href="#">🔍</a> <a href="#">🔍</a>	t2.micro	-	<a href="#">View alarms</a> <a href="#">+</a>	ap-south-1a	ec2-13-234-59
<input type="checkbox"/>	Ansible-Node	i-08e974a9dc12c488b	<span>Running</span>	<a href="#">🔍</a> <a href="#">🔍</a>	t2.micro	-	<a href="#">View alarms</a> <a href="#">+</a>	ap-south-1a	ec2-13-127-15

5. Connect to your AnsibleoServer Ec2 instance.

[EC2](#) > [Instances](#) > i-0aa68b8faa2bbb1e1

### Instance summary for i-0aa68b8faa2bbb1e1 (Ansible-Server) [Info](#)

Updated less than a minute ago

[🔄](#) [Connect](#) [Instance state ▼](#) [Actions ▼](#)

<b>Instance ID</b> 📄 i-0aa68b8faa2bbb1e1 (Ansible-Server)	<b>Public IPv4 address</b> 📄 13.234.59.178   <a href="#">open address</a> <a href="#">🔗</a>	<b>Private IPv4 addresses</b> 📄 172.31.39.151
<b>IPv6 address</b> -	<b>Instance state</b> <span>Running</span>	<b>Public IPv4 DNS</b> 📄 ec2-13-234-59-178.ap-south-1.compute.amazonaws.com   <a href="#">open address</a> <a href="#">🔗</a>


EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID


 i-0aa68b8faa2bbb1e1 (Ansible-Server)

Connection Type

☒ Connect using EC2 Instance Connect  
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 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 IP address


 13.234.59.178

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, ec2-user.

 ec2-user

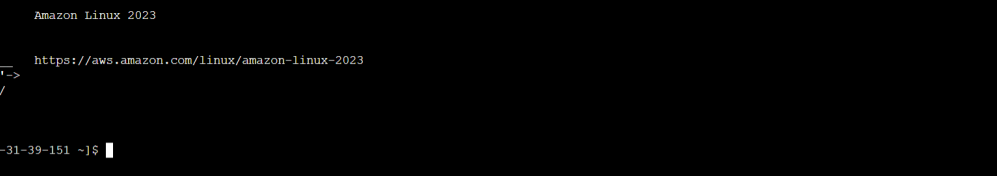


 **Note:** In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

Cancel

Connect

6. Now you have been connected to the server.



The screenshot shows an AWS CloudShell terminal window. The top bar includes the AWS logo, 'Services', a search bar, and navigation icons. The terminal content shows the command 'amazon-linux-2023' being entered, followed by the URL 'https://aws.amazon.com/linux/amazon-linux-2023'. The prompt '[ec2-user@ip-172-31-39-151 ~]\$' is visible at the bottom of the terminal window.

7. Then install Ansible in it.

8. To install Ansible, run the following command

```
wget https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm

yum install epel-release-latest-7.noarch.rpm

yum update -y

yum install git python python-pip openssl -y
|
yum install ansible

The other application is: yum
  Memory : 112 M RSS (406 MB VSZ)
  Started: Wed Apr 24 06:25:12 2024 - 00:21 ago
  State   : Sleeping, pid: 3810

Another app is currently holding the yum lock; waiting for it to exit...
  The other application is: yum
    Memory : 112 M RSS (406 MB VSZ)
    Started: Wed Apr 24 06:25:12 2024 - 00:23 ago
    State   : Sleeping, pid: 3810
Another app is currently holding the yum lock; waiting for it to exit...
  The other application is: yum
    Memory : 112 M RSS (406 MB VSZ)
    Started: Wed Apr 24 06:25:12 2024 - 00:25 ago
    State   : Sleeping, pid: 3810
Another app is currently holding the yum lock; waiting for it to exit...
  The other application is: yum
    Memory : 112 M RSS (406 MB VSZ)
    Started: Wed Apr 24 06:25:12 2024 - 00:27 ago
    State   : Sleeping, pid: 3810
Another app is currently holding the yum lock; waiting for it to exit...
  The other application is: yum
    Memory : 112 M RSS (406 MB VSZ)
    Started: Wed Apr 24 06:25:12 2024 - 00:29 ago
    State   : Sleeping, pid: 3810
epel/x86_64/primary db 16% [=====
```

```
--> Processing Dependency: python-paramiko for package: ansible-2.9.27-1.el7.noarch
--> Processing Dependency: sshpass for package: ansible-2.9.27-1.el7.noarch
--> Running transaction check
--> Package python-paramiko.noarch 0:2.1.1-0.10.el7 will be installed
--> Package python2-httpplib.noarch 0:0.18.1-3.el7 will be installed
--> Package sshpass.x86_64 0:1.06-1.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                               Arch             Version           Repository        Size
=====
Installing:
ansible                               noarch            2.9.27-1.el7      epel               17 M
Installing for dependencies:
python-paramiko                       noarch            2.1.1-0.10.el7    epel               269 k
python2-httpplib2                     noarch            0.18.1-3.el7      epel               125 k
sshpass                               x86_64            1.06-1.el7        epel               21 k
=====

Transaction Summary
-----
Install 1 Package (+3 Dependent packages)

Total download size: 17 M
Installed size: 105 M
Is this ok [y/d/N]: y
```

9. Check if Ansible was properly installed.

```
[root@ip-172-31-38-16 ec2-user]# ansible --version
ansible 2.9.27
  config file = /etc/ansible/ansible.cfg
  configured module search path = [u'/root/.ansible/plugins/modules', u'/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python2.7/site-packages/ansible
  executable location = /bin/ansible
  python version = 2.7.18 (default, Dec 18 2023, 22:08:43) [GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]
[root@ip-172-31-38-16 ec2-user]#
```

10. Make a host file in ansible server.

```
[ec2-user@ip-172-31-38-16 ~]$ vi /etc/ansible/hosts
```

11. Specify the group name and IP address of node

```
[upes]
172.31.41.250
```

12. Make user in ansible-server

```
[root@ip-172-31-38-16 ec2-user]# adduser ansible
[root@ip-172-31-38-16 ec2-user]# passwd ansible
Changing password for user ansible.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: The password fails the dictionary check - it is too simplistic/systematic
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ip-172-31-38-16 ec2-user]#
```

13. Open Ansible Node Console.



```
aws Services 🔍 📄 🔔 ⓘ ⚙️ Mumbai ▼ Smriti-iam @ 243sm ▼
```

```

#_
~\_ #####_ Amazon Linux 2
~~\_ #####\
~~ \###| AL2 End of Life is 2025-06-30.
~~ \#/
~~ V~' '->
~~~ /
~~~_./_ / A newer version of Amazon Linux is available!
~~~_/_/_ / Amazon Linux 2023, GA and supported until 2028-03-15.
_/_/_/_ / https://aws.amazon.com/linux/amazon-linux-2023/
_/_/_/_ /

[ec2-user@ip-172-31-41-250 ~]$
```

i-0c2439bc0a0e79bb6 (Ansible-Node) ✕

PublicIPs: 13.201.27.123 PrivateIPs: 172.31.41.250

14. Make a user in ansible-node

```
[root@ip-172-31-41-250 ec2-user]# adduser ansible
[root@ip-172-31-41-250 ec2-user]# passwd ansible
Changing password for user ansible.
New password:
BAD PASSWORD: The password fails the dictionary check - it is too simplistic/systematic
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ip-172-31-41-250 ec2-user]#
```

15. Go to visudo file

```
root    ALL=(ALL)    ALL
ansible ALL=(ALL)    NOPASSWD:|
```

16. Do the same in ansible-server



17. Connect to ansible user in ansible-server

```
[root@ip-172-31-38-16 ec2-user]# exit
exit
[ec2-user@ip-172-31-38-16 ~]$ su - ansible
Password:
[ansible@ip-172-31-38-16 ~]$
```

18. Create SSH key

```
[ansible@ip-172-31-38-16 ~]$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ansible/.ssh/id_rsa):
Created directory '/home/ansible/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ansible/.ssh/id_rsa.
Your public key has been saved in /home/ansible/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:0r3Hd9kxkC0iTvuBzjnfRe9DyRvLORJ/hG/OHGa6UrA ansible@ip-172-31-38-16.ap-
south-1.compute.internal
The key's randomart image is:
+---[RSA 2048]-----+
|
|      o
|    o . + o
|  .o.+.. = .
| . S+..o .Oo|
| .o oE..oX%|
|   =..+ BO@|
|    oo.o.B+|
|     ..o. o|
+----[SHA256]-----+
[ansible@ip-172-31-38-16 ~]$ ls -a
.  .. .bash_logout .bash_profile .bashrc .ssh
[ansible@ip-172-31-38-16 ~]$ cd .ssh
```

19. Copy the key to ansible-node

```
-h|-?: print this help
[ansible@ip-172-31-38-16 .ssh]$ ssh-copy-id ansible@172.31.41.250
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ansible/.
ssh/id_rsa.pub"
```

20. Change permission in ansible node

## 21. Restart service

```
Press ENTER or type command to continue
[No write since last change]
/bin/bash: wq: command not found

shell returned 127

Press ENTER or type command to continue
[ansible@ip-172-31-45-217 home]$ service ssh restart
Redirecting to /bin/systemctl restart ssh.service
Failed to restart ssh.service: The name org.freedesktop.PolicyKit1 was not provided by any .service files
See system logs and 'systemctl status ssh.service' for details.
[ansible@ip-172-31-45-217 home]$ vi /etc/ssh/sshd_config
[ansible@ip-172-31-45-217 home]$ sudo su
[root@ip-172-31-45-217 home]# ^C
[root@ip-172-31-45-217 home]# vi /etc/ssh/sshd config
[root@ip-172-31-45-217 home]# ssh service restart
ssh: Could not resolve hostname service: Name or service not known
[root@ip-172-31-45-217 home]# service sshd restart
Redirecting to /bin/systemctl restart sshd.service
[root@ip-172-31-45-217 home]#
```

## 22. Key has been added

```
Number of key(s) added: 1

Now try logging into the machine, with:  "ssh 'ansible@172.31.41.250'"
and check to make sure that only the key(s) you wanted were added.

[ansible@ip-172-31-38-16 .ssh]$
```

## 23. You are connected

```
[ansible@ip-172-31-38-16 .ssh]$ ssh ansible@172.31.41.250

      #_
    ~\_  ###_      Amazon Linux 2
  ~~  \_#####\
  ~~   \###|      AL2 End of Life is 2025-06-30.
  ~~    \#/
  ~~     V~' '->
    ~~~
  ~~~  /
  ~~~./
  ~~~/_/_/_/
    _/m/'      A newer version of Amazon Linux is available!

                        Amazon Linux 2023, GA and supported until 2028-03-15.
                        https://aws.amazon.com/linux/amazon-linux-2023/

[ansible@ip-172-31-41-250 ~]$
```

## **EXPERIMENT 12:**

### **CREATE AND RUN ANSIBLE PLAYBOOK**

1. Create a playbook

```
Traget4.yml
---
- hosts: upes
  user: ansible
  become: yes
  connection: ssh
  tasks:
    - name: Debian Family
      command: apt-get install apache2 -y
      when: ansible os family == "Debian"
    - name: RedHat Family
      command: yum install httpd -y
      when: ansible os family == "RedHat"
```

```
ssh: Could not resolve hostname service: Name or service
[root@ip-172-31-45-217 home]# service sshd restart
Redirecting to /bin/systemctl restart sshd.service
[root@ip-172-31-45-217 home]# history
 1  adduser ansible
 2  passwd ansible
 3  visudo
 4  vi /etc/ssh/sshd_config
 5  ssh service restart
 6  service sshd restart
 7  history
[root@ip-172-31-45-217 home]# which httpd
/usr/bin/which: no httpd in (/sbin:/bin:/usr/sbin:/usr/
[root@ip-172-31-45-217 home]# which httpd
/sbin/httpd
[root@ip-172-31-45-217 home]#
```

```
httpd.service - The Apache HTTP Server
Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
Active: inactive (dead)
Docs: man:httpd.service(8)
[root@ip-172-31-45-217 home]# sudo systemctl start httpd
[root@ip-172-31-45-217 home]# sudo service httpd status
Redirecting to /bin/systemctl status httpd.service
* httpd.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
  Active: active (running) since Wed 2024-04-17 06:48:12 UTC; 2s ago
  Docs: man:httpd.service(8)
 Main PID: 2685 (httpd)
  Status: "Processing requests..."
  CGroup: /system.slice/httpd.service
          └─2685 /usr/sbin/httpd -DFOREGROUND
             └─2686 /usr/sbin/httpd -DFOREGROUND
                └─2687 /usr/sbin/httpd -DFOREGROUND
                   └─2688 /usr/sbin/httpd -DFOREGROUND
                      └─2689 /usr/sbin/httpd -DFOREGROUND
                         └─2690 /usr/sbin/httpd -DFOREGROUND

Apr 17 06:48:12 ip-172-31-45-217.ap-south-1.compute.internal systemd[1]: Starting The Apache HTTP Server...
Apr 17 06:48:12 ip-172-31-45-217.ap-south-1.compute.internal systemd[1]: Started The Apache HTTP Server.
[root@ip-172-31-45-217 home]#
```

## 2. Check if service started



## 3. Run the playbook

```
[ec2-user@ip-172-31-36-190 ~]$ su - ansible
Password:
Last login: Wed Apr 17 06:03:20 UTC 2024 on pts/0
[ansible@ip-172-31-36-190 ~]$ vi playbook1.yml
[ansible@ip-172-31-36-190 ~]$ ansible-playbook playbook1.yml

PLAY [upcs] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.45.217 is using the discovered Python interpreter at /usr/bin/python, but future installa
interpreter could change this. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more i
ok: [172.31.45.217]

TASK [Un-Install HTTPD] *****
```

```
[ec2-user@ip-172-31-45-217 ~]$ su - ansible
Password:
Last login: Wed Apr 17 06:56:52 UTC 2024 from ip-172-31-36-190.ap-south-1.compute.internal on pts/0
[ansible@ip-172-31-45-217 ~]$ cd ..
[ansible@ip-172-31-45-217 home]$ su - ansible
Password:
Last login: Wed Apr 17 06:58:32 UTC 2024 on pts/0
[ansible@ip-172-31-45-217 ~]$ which httpd
/usr/sbin/httpd
[ansible@ip-172-31-45-217 ~]$ █
```