Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

Department of Information Technology

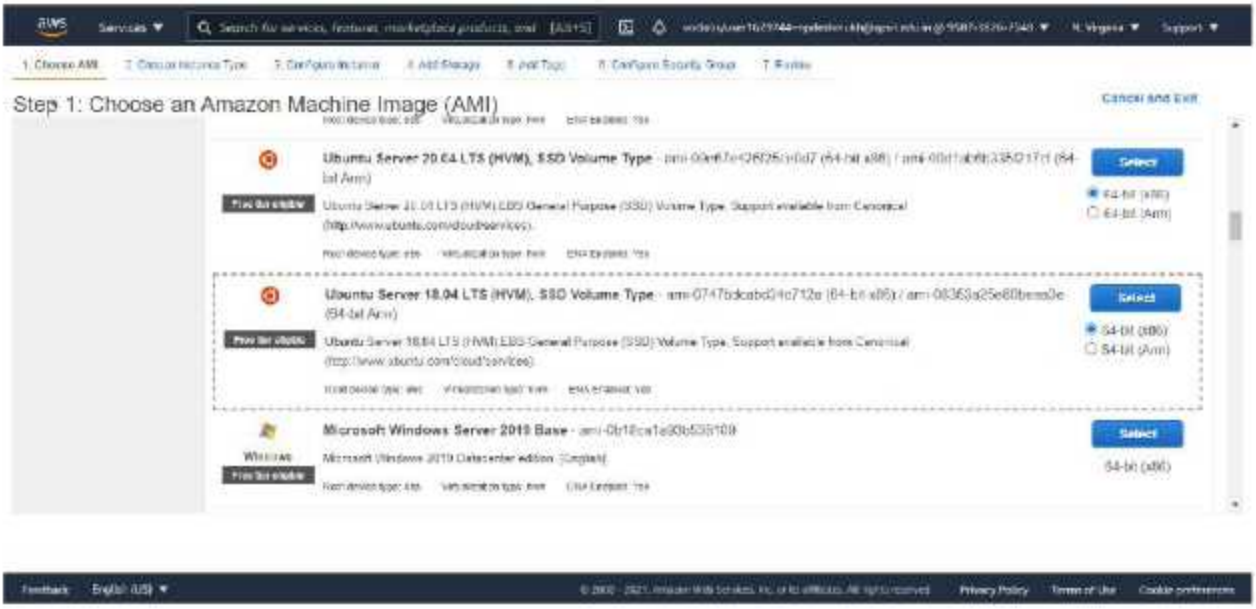
Academic Year: 2021-22
Semester: V
Class / Branch: IT
Subject: DevOps Lab
Name of Instructor: Prof. Sonal Jain

Name of Student: Soham Dalvi
Student ID: 21104010
Date of Performance: 5/10/23
Date of Submission: 5/10/23

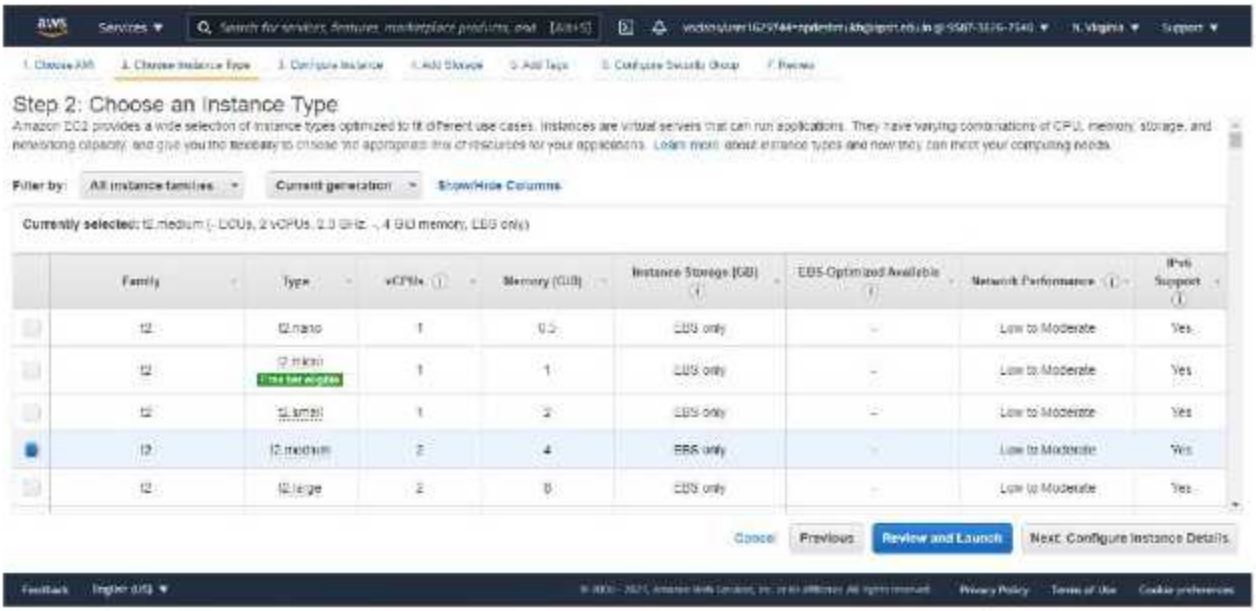
Experiment No. 10

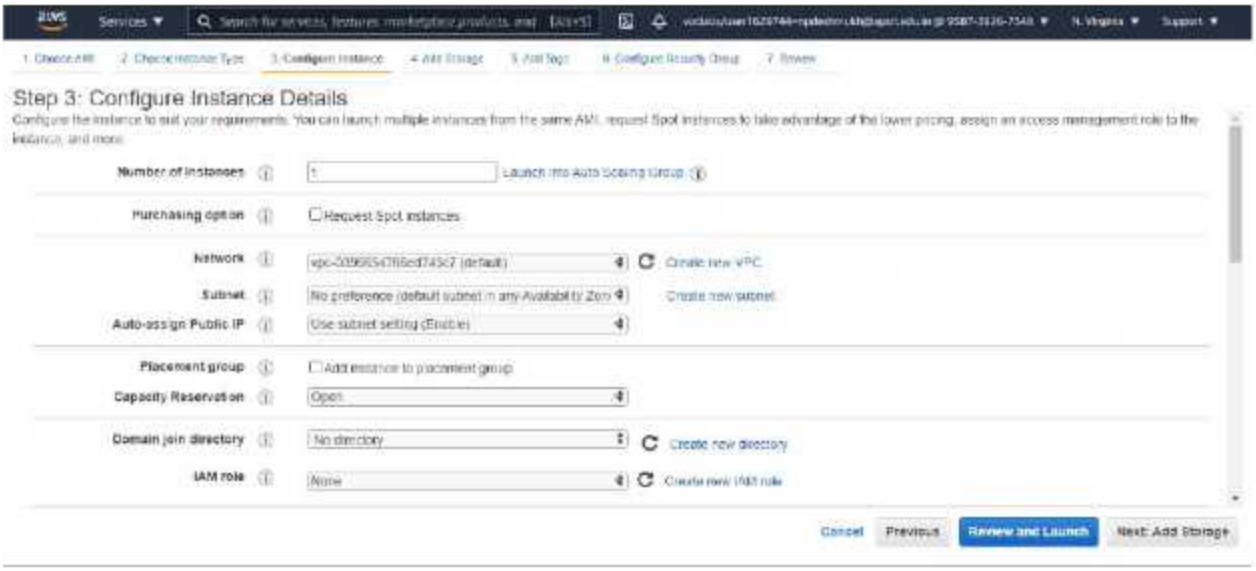
Aim: To install and Configure Pull based Software Configuration Management and provisioning tools using Puppet

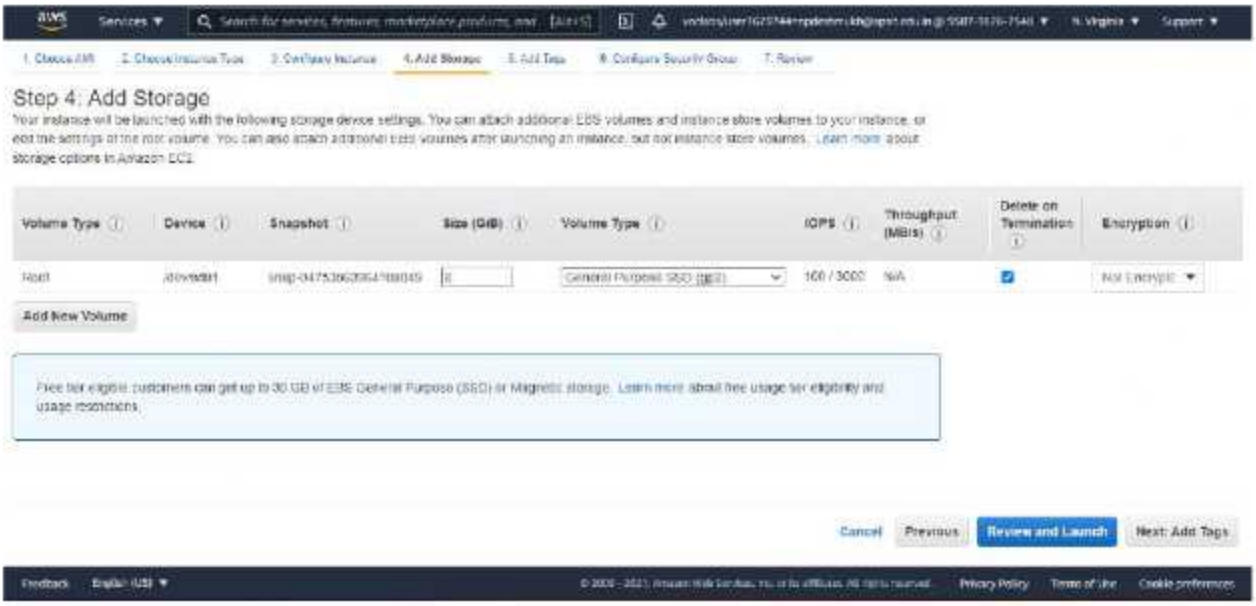
Select the OS



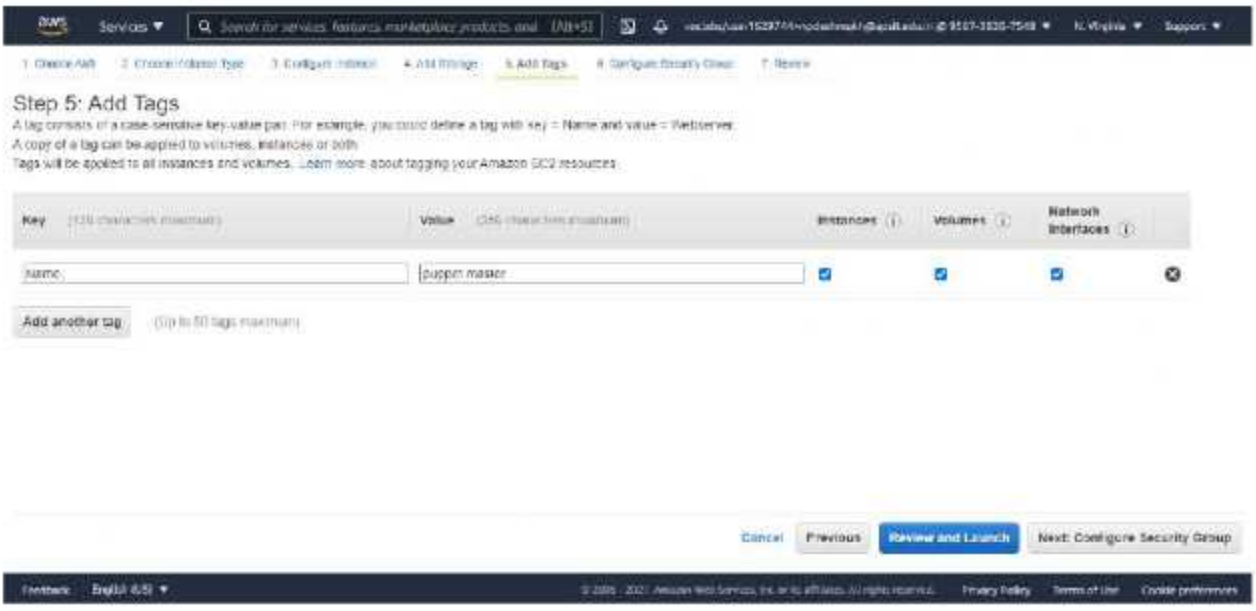
Select 4 GB RAM and click on next



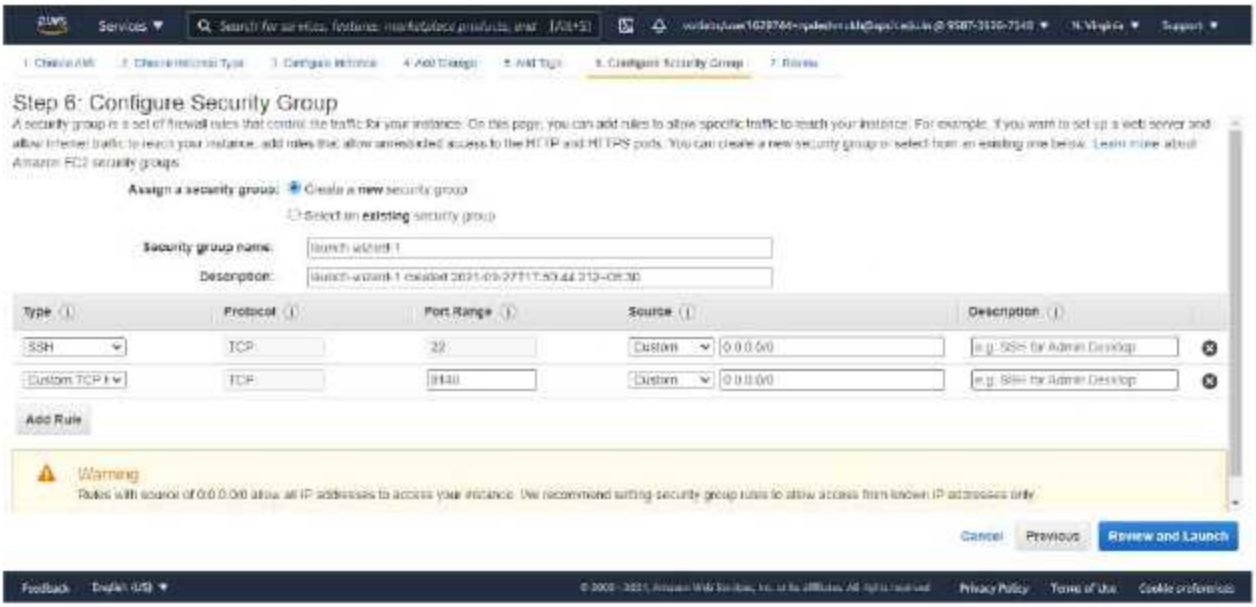




Give name as puppet master

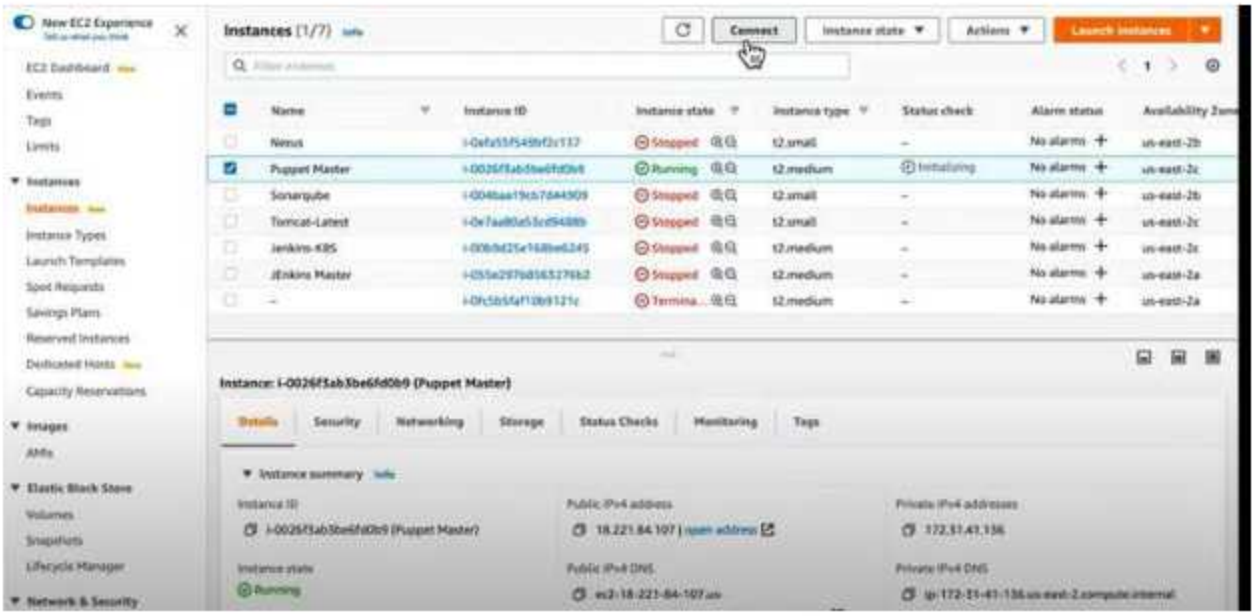


Open port 8140 for all by adding entry and click on review and launch

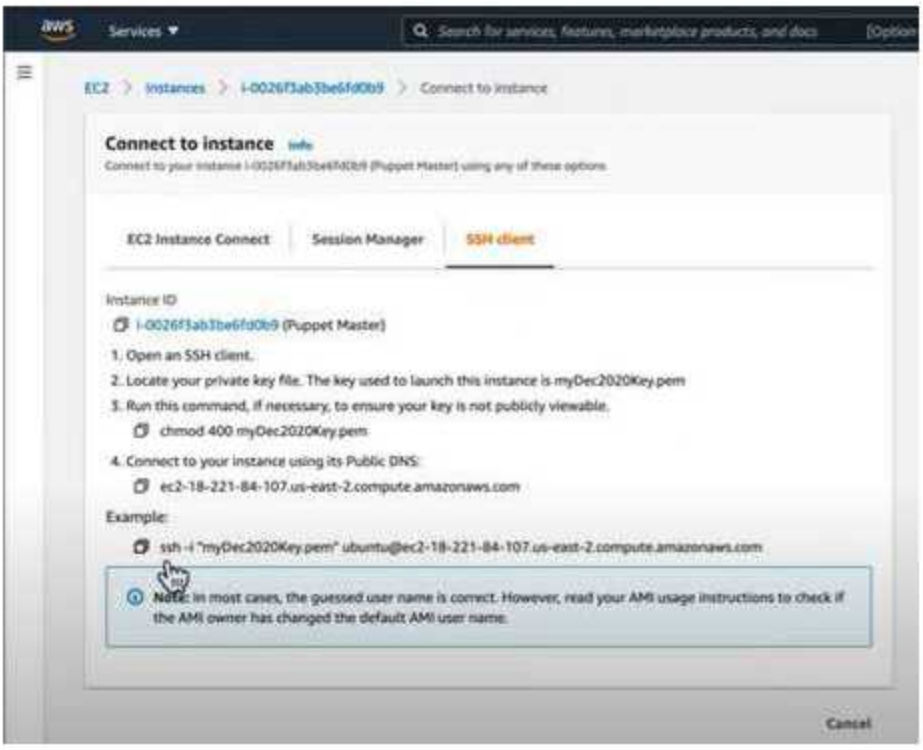



```
ddd_v1_w_e4Vd_532454@runweb38247:~$
ddd_v1_w_e4Vd_532454@runweb38247:~$ ls
ddd_v1_w_e4Vd_532454@runweb38247:~$
```

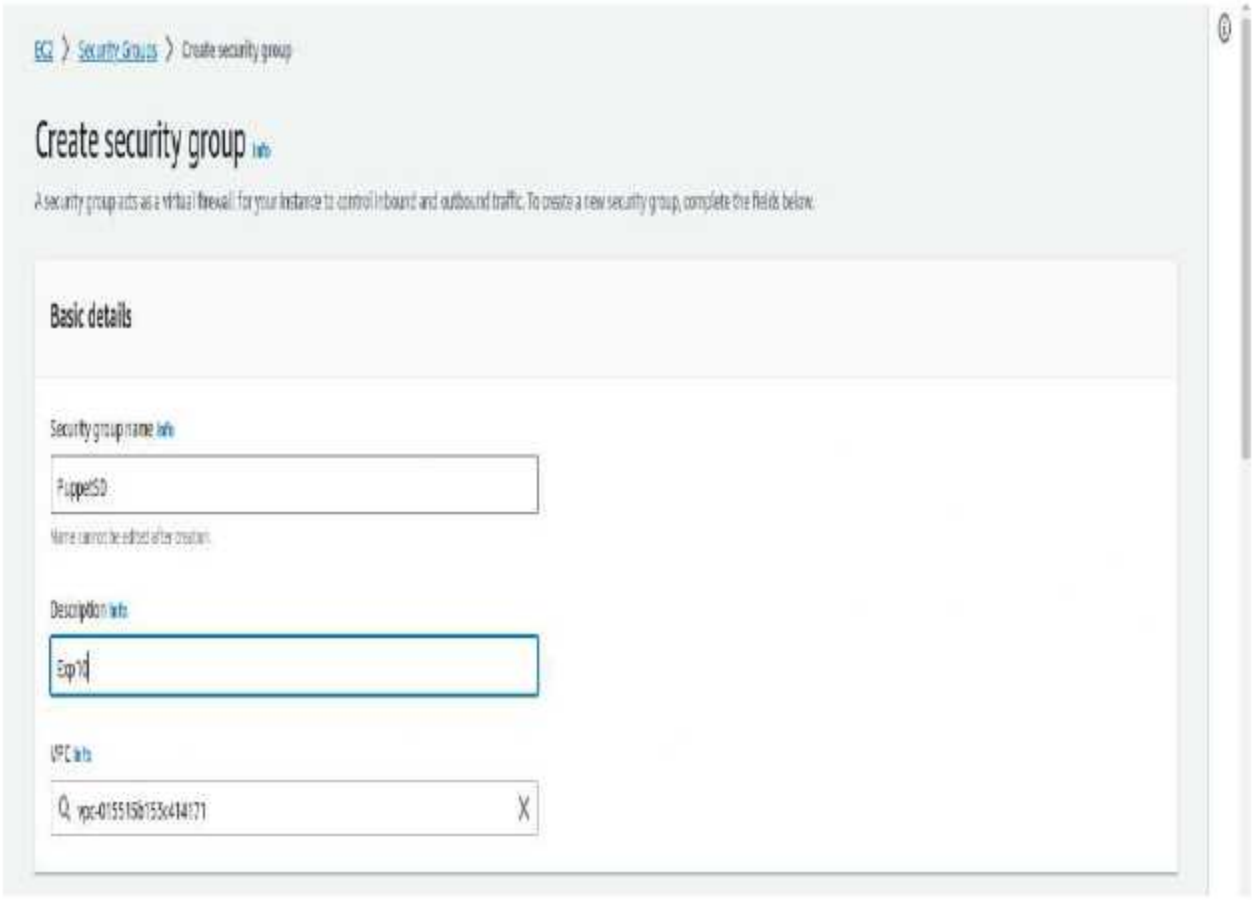
Now your instance I up and running, select your instance and click on connect

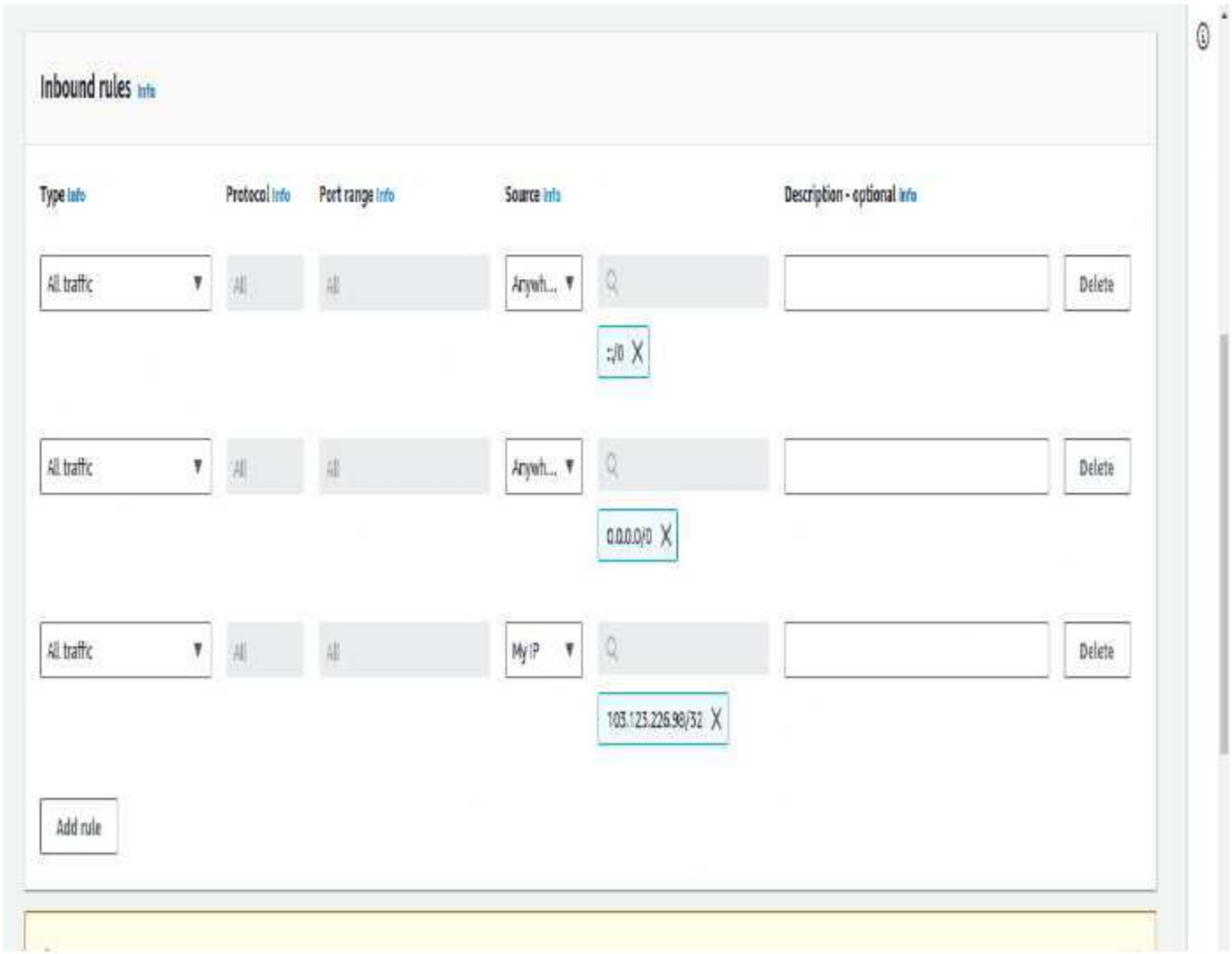


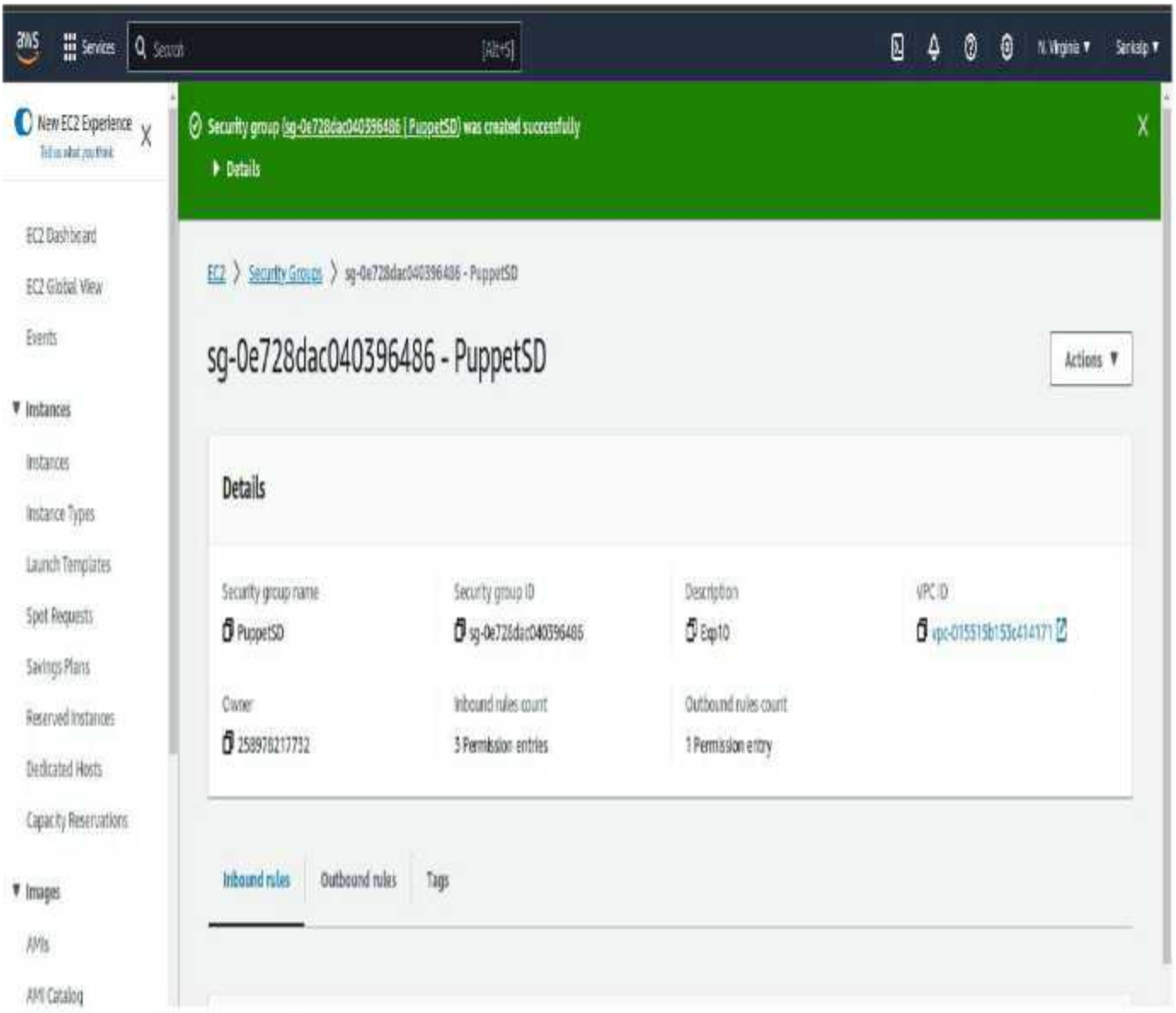
Copy the ssh command and paste it on terminal

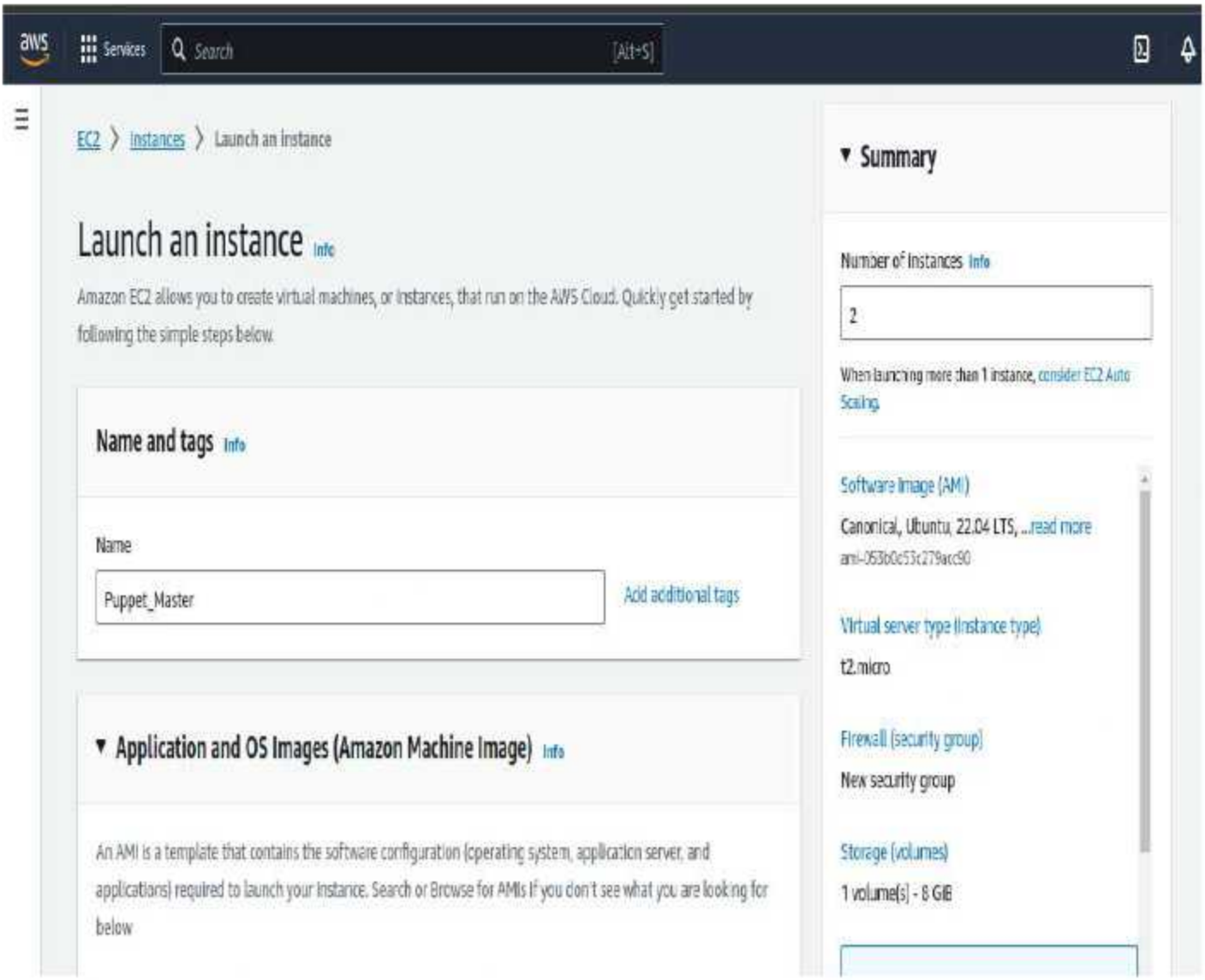


OUTPUT:


EC2 > Security Groups > Create security group
Create security group Info
A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.
Basic details
Security group name Info
PuppetSG
Name cannot be edited after creation.
Description Info
Exp10
VPC Info
vpc-0155150153c414171


Inbound rules Info
Type Info
Protocol Info
Port range Info
Source Info
Description - optional Info
All traffic
All
All
Anywh...
Delete
::/0
All traffic
All
All
Anywh...
Delete
0.0.0.0/0
All traffic
All
All
My IP
Delete
103.123.226.98/32
Add rule


Services
Search
[Alt+S]
N. Virginia
Sankalp
New EC2 Experience
Tell us what you think
Security group (sg-0e728dac040396486 | PuppetSD) was created successfully
Details
EC2 Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
EC2 > Security Groups > sg-0e728dac040396486 - PuppetSD
sg-0e728dac040396486 - PuppetSD
Actions
Details
Security group name
PuppetSD
Security group ID
sg-0e728dac040396486
Description
Exp10
VPC ID
vpc-015515b153c414171
Owner
258978217732
Inbound rules count
3 Permission entries
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Tags


aws
Services
Search
[Alt+S]
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
Puppet_Master
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
Summary
Number of instances Info
2
When launching more than 1 instance, consider EC2 Auto Scaling.
Software Image (AMI)
Canonical, Ubuntu, 22.04 LTS, ...read more
ami-053b0d53c279acc90
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB

Quick Start

Amazon Linux | macOS | Ubuntu | Windows | Red Hat | SUSE Li

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type — Free tier eligible

ami-053b0d53c279acc90 (64-bit (x86)) / ami-0a0c8eebcdd6dcbd0 (64-bit (Arm))

Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Canonical, Ubuntu, 22.04 LTS, amd64 jammy image build on 2023-05-16

Architecture

64-bit (x86)

AMI ID

ami-053b0d53c279acc90

Verified provider

▼ Instance type Info

Instance type

t2.micro — Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

▼ 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*

Puppet_Keypair

Create new key pair

▼ Network settings Info

Edit

Network Info

vpc-015515b153c414171

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

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 ▼

PuppetSD sg-0e728dac040396486 ✕
VPC: vpc-015515b153c414171

Compare security group rules

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

```
apsit@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:~$ cd Downloads
apsit@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:~/Downloads$ chmod 400 Puppet_Keypair.pem
apsit@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:~/Downloads$ ssh -i 'Puppet_Keypair.pem' ubuntu@ec2-34-205-76-207.compute-1.amazonaws.com
The authenticity of host 'ec2-34-205-76-207.compute-1.amazonaws.com (34.205.76.207)' can't be established.
ED25519 key fingerprint is SHA256:CV/xj74Ro8PazM4K75lGw2bIBDfNdZnPrKlQqQpYhOM.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Pernanently added 'ec2-34-205-76-207.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)

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

  System information as of Thu Oct  5 09:19:10 UTC 2023

  System load:  0.615625          Processes:             103
  Usage of /:   20.6% of 7.57GB   Users logged in:       0
  Memory usage: 24%               IPv4 address for eth0: 172.31.85.250
  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-172-31-85-250:~$
```

```
apsit@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:~/Downloads$ chmod 400 Puppet_Keypair.pem
apsit@apsit-HP-Pro-Tower-280-G9-PCI-Desktop-PC:~/Downloads$ ssh -i "Puppet_Keypair.pem" ubuntu@ec2-44-204-89-9.compute-1.amazonaws.com
The authenticity of host 'ec2-44-204-89-9.compute-1.amazonaws.com (44.204.89.9)' can't be established.
ED25519 key fingerprint is SHA256:/HS9s1F+DEC5S2EOPFAkVBPMKVOqbA9F6BkOcb4dqLY.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-44-204-89-9.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)

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

  System information as of Thu Oct  5 09:22:53 UTC 2023

  System load:  0.0               Processes:             95
  Usage of /:   20.6% of 7.57GB   Users logged in:       0
  Memory usage: 23%               IPv4 address for eth0: 172.31.84.85
  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.

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-172-31-84-85:~$
```

```
 GNU nano 6.2                                                    /etc/hosts
127.0.0.1 localhost
172.31.85.250 Puppet

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
ff02::3 ip6-allhosts
```

```
ubuntu@ip-172-31-85-250:~$ curl -O https://apt.puppetlabs.com/puppet6-release-bionic.deb
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 11704  100 11704    0     0   126k      0 --:--:-- --:--:-- --:--:--  128k
ubuntu@ip-172-31-85-250:~$ sudo dpkg -i puppet6-release-bionic.deb
Selecting previously unselected package puppet6-release.
(Reading database ... 64295 files and directories currently installed.)
Preparing to unpack puppet6-release-bionic.deb ...
Unpacking puppet6-release (6.0.0-23bionic) ...
Setting up puppet6-release (6.0.0-23bionic) ...
ubuntu@ip-172-31-85-250:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://apt.puppetlabs.com bionic InRelease [157 kB]
```

```
ubuntu@ip-172-31-85-250:~$ sudo apt-get install puppetserver -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ca-certificates-java fontconfig-config fonts-dejavu-core java-common libavahi-client3 libavahi-common-data libavahi-common3 libcups2 libfontconfig1 libjpeg-turbo8 libjpeg8
  liblcms2-2 libpcsclite1 libxi6 libxrender1 libxtst6 net-tools openjdk-8-jre-headless puppet-agent x11-common
Suggested packages:
  default-jre cups-common liblcms2-utils pcscd libnss-mdns fonts-dejavu-extra fonts-nanum fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei fonts-wqy-zenhei
  fonts-indic
The following NEW packages will be installed:
  ca-certificates-java fontconfig-config fonts-dejavu-core java-common libavahi-client3 libavahi-common-data libavahi-common3 libcups2 libfontconfig1 libjpeg-turbo8 libjpeg8
  liblcms2-2 libpcsclite1 libxi6 libxrender1 libxtst6 net-tools openjdk-8-jre-headless puppet-agent puppetserver x11-common
0 upgraded, 21 newly installed, 0 to remove and 129 not upgraded.
Need to get 149 MB of archives.
After this operation, 359 MB of additional disk space will be used.
Get:1 http://apt.puppetlabs.com bionic/puppet6 amd64 puppet-agent amd64 6.28.0-1bionic [37.7 MB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 java-common all 0.72build2 [6782 B]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libavahi-common-data amd64 0.8-5ubuntu5.1 [23.5 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libavahi-common3 amd64 0.8-5ubuntu5.1 [23.7 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libavahi-client3 amd64 0.8-5ubuntu5.1 [28.0 kB]
```

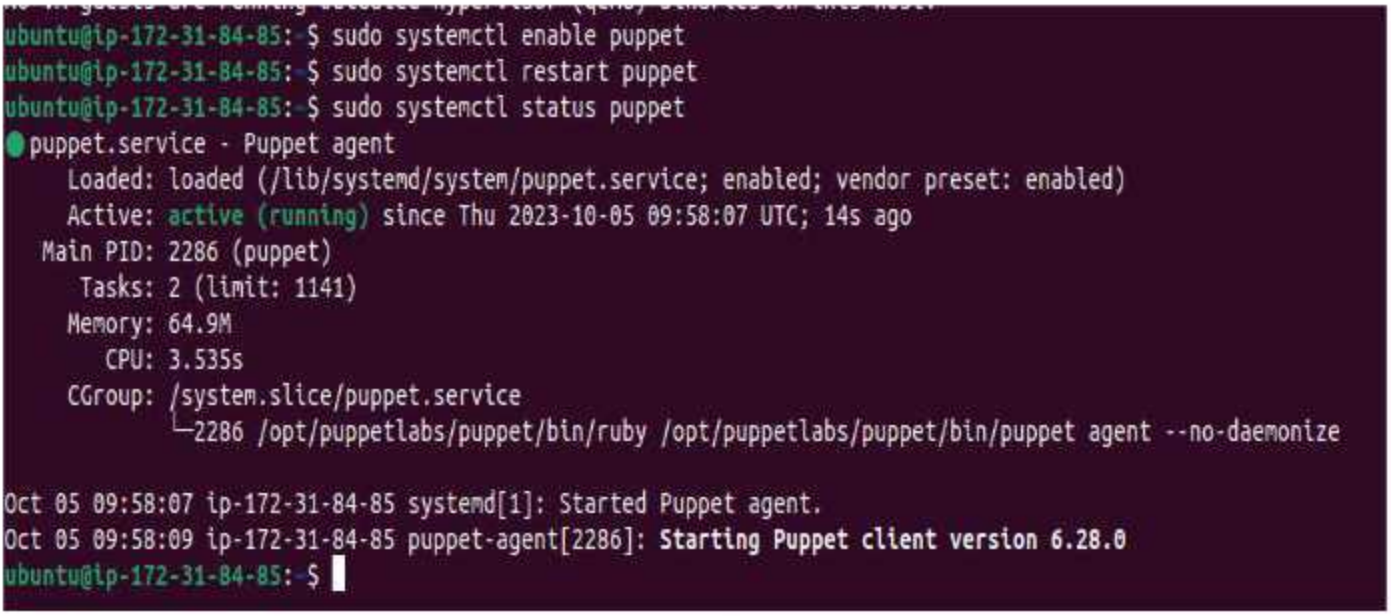
```
 GNU nano 6.2                                                    /etc/default/puppetserver
#########################################
# Init settings for puppetserver
#########################################

# Location of your Java binary (version 8)
JAVA_BIN="/usr/bin/java"

# Modify this if you'd like to change the memory allocation, enable JMX, etc
JAVA_ARGS="-Xms512m -Xmx512m -Djruby.logger.class=com.puppetlabs.jruby_utils.jruby.Slf4jLogger"
```

```
ubuntu@ip-172-31-85-250:~$ sudo ufw allow 8140
Rules updated
Rules updated (v6)
ubuntu@ip-172-31-85-250:~$ sudo systenctl enable puppetserver.service
Synchronizing state of puppetserver.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable puppetserver
Created symlink /etc/systemd/system/multi-user.target.wants/puppetserver.service → /lib/systemd/system/puppetserver.service.
ubuntu@ip-172-31-85-250:~$ sudo systenctl start puppetserver.service
ubuntu@ip-172-31-85-250:~$ sudo systenctl status puppetserver.service
● puppetserver.service - puppetserver Service
     Loaded: loaded (/lib/systemd/system/puppetserver.service; enabled; vendor preset: enabled)
     Active: active (running) since Thu 2023-10-05 09:51:13 UTC; 1min 19s ago
    Process: 3927 ExecStart=/opt/puppetlabs/server/apps/puppetserver/bin/puppetserver start (code=exited, status=0/SUCCESS)
   Main PID: 3952 (java)
      Tasks: 39 (limit: 4915)
     Memory: 568.1M
        CPU: 40.743s
     CGroup: /system.slice/puppetserver.service
             └─3952 /usr/bin/java -Xms512m -Xmx512m -Djruby.logger.class=com.puppetlabs.jruby_utils.jruby.Slf4jLogger "-XX:OnOutOfMemoryError=kill -9 %p" -XX:ErrorFile=/var/lo

Oct 05 09:50:31 ip-172-31-85-250 systemd[1]: Starting puppetserver Service...
Oct 05 09:51:13 ip-172-31-85-250 systemd[1]: Started puppetserver Service.
lines 1-13/13 (END)
```

```
  GNU nano 6.2
127.0.0.1 localhost
172.31.85.250 Puppet

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
ff02::3 ip6-allhosts
```

```
ubuntu@ip-172-31-84-85:~$ sudo nano /etc/hosts
ubuntu@ip-172-31-84-85:~$ curl -O https://apt.puppetlabs.com/puppet6-release-bionic.deb
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 11704  100 11704    0     0   121k      0 --:--:-- --:--:-- --:--:--  121k
ubuntu@ip-172-31-84-85:~$ sudo dpkg -i puppet6-release-bionic.deb
Selecting previously unselected package puppet6-release.
(Reading database ... 64295 files and directories currently installed.)
Preparing to unpack puppet6-release-bionic.deb ...
Unpacking puppet6-release (6.0.0-23bionic) ...
Setting up puppet6-release (6.0.0-23bionic) ...
ubuntu@ip-172-31-84-85:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://apt.puppetlabs.com bionic InRelease [157 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
```

```
ubuntu@ip-172-31-84-85:~$ sudo apt-get install puppet-agent -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  puppet-agent
0 upgraded, 1 newly installed, 0 to remove and 129 not upgraded.
Need to get 37.7 MB of archives.
After this operation, 141 MB of additional disk space will be used.
Get:1 http://apt.puppetlabs.com bionic/puppet6 amd64 puppet-agent amd64 6.28.0-1bionic [37.7 MB]
Fetched 37.7 MB in 1s (59.1 MB/s)
Selecting previously unselected package puppet-agent.
(Reading database ... 64300 files and directories currently installed.)
Preparing to unpack .../puppet-agent_6.28.0-1bionic_amd64.deb ...
Unpacking puppet-agent (6.28.0-1bionic) ...
Setting up puppet-agent (6.28.0-1bionic) ...
Created symlink /etc/systemd/system/multi-user.target.wants/puppet.service → /lib/systemd/system/puppet.service.
Created symlink /etc/systemd/system/multi-user.target.wants/pxp-agent.service → /lib/systemd/system/pxp-agent.service.
Removed /etc/systemd/system/multi-user.target.wants/pxp-agent.service.
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
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.
ubuntu@ip-172-31-84-85:~$
```



Conclusion: Hence we have learnt to install and Configure Pull based Software Configuration Management and provisioning tools using Puppet.