Name: Abdurrahman Qureshi

Roll No: 242466
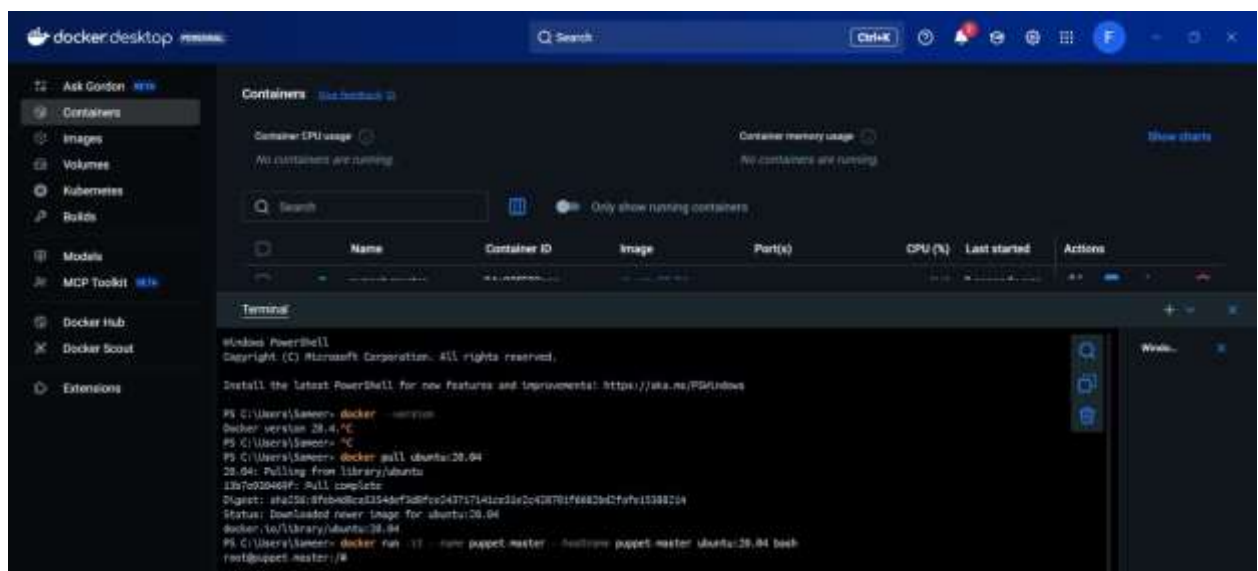
Practical No: 10

Date Of Performance: 03/10/2025

Aim: To Install and Configure, pull based software configuration management using puppet tool.

Setup Environment

- Install Docker Desktop.
- Pull Ubuntu base image:
- docker pull ubuntu:20.04

Pulling Ubuntu image and running the Puppet Master

Launch Containers:

- Start Puppet Master container:
  - docker run -it --name puppet-master --hostname puppet-master ubuntu:20.04 bash
- Start Puppet Agent container:
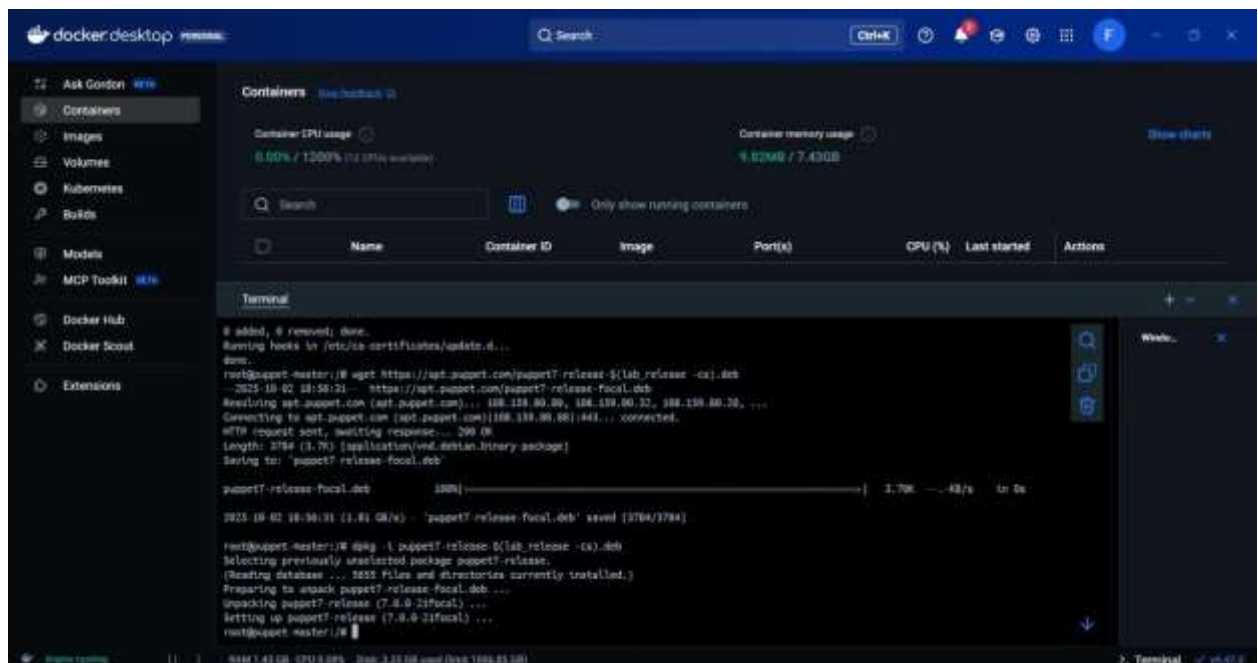 - docker run -it --name puppet-agent --hostname puppet-agent --link puppet- master ubuntu:20.04 bash
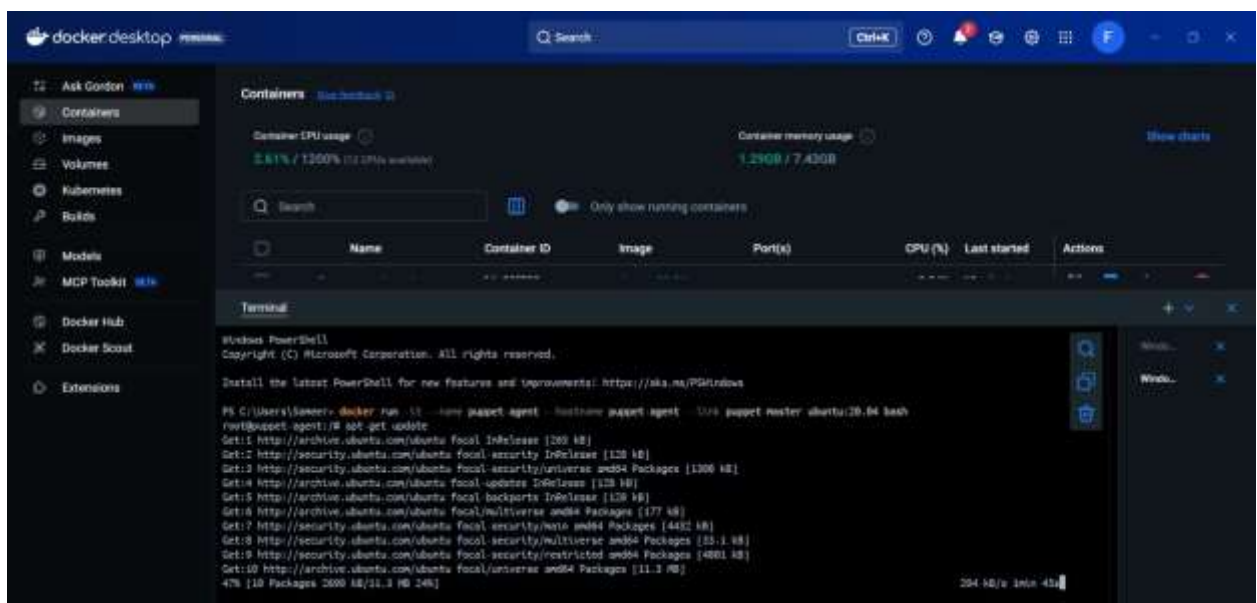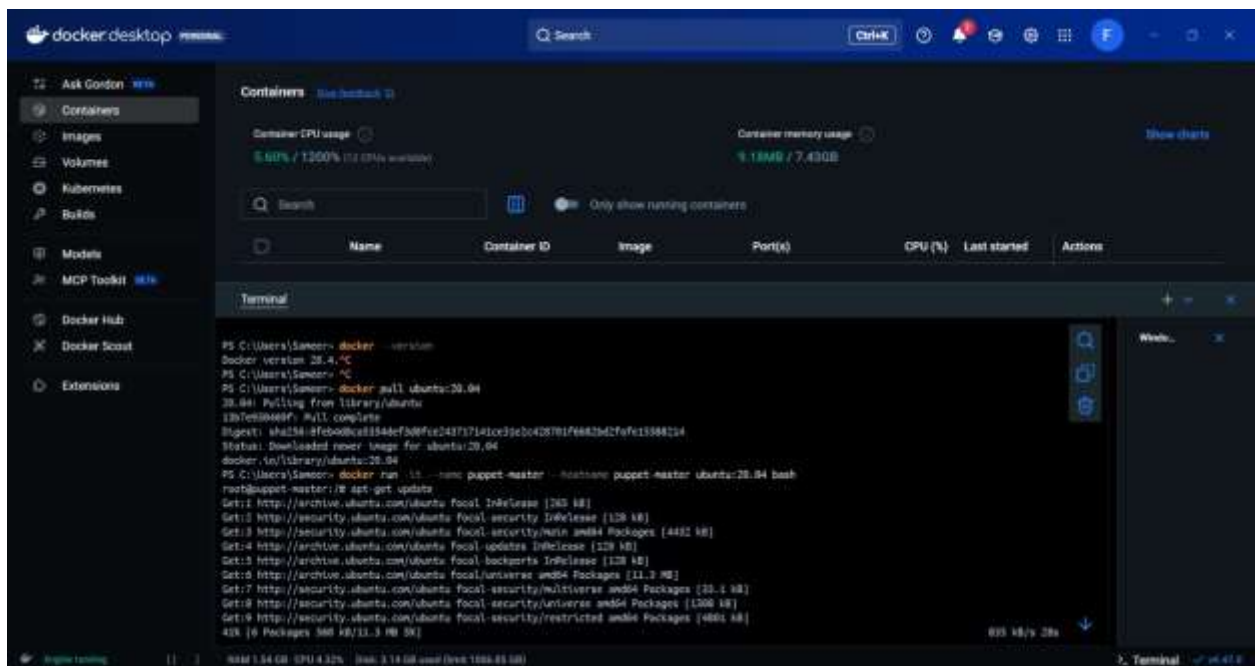
Installing packages

Install Puppet

Inside both containers:

- apt-get update
- apt-get install -y wget gnupg lsb-release
- wget https://apt.puppet.com/puppet7-release-$(lsb_release -cs).deb dpkg -i puppet7-release-$(lsb_release -cs).deb
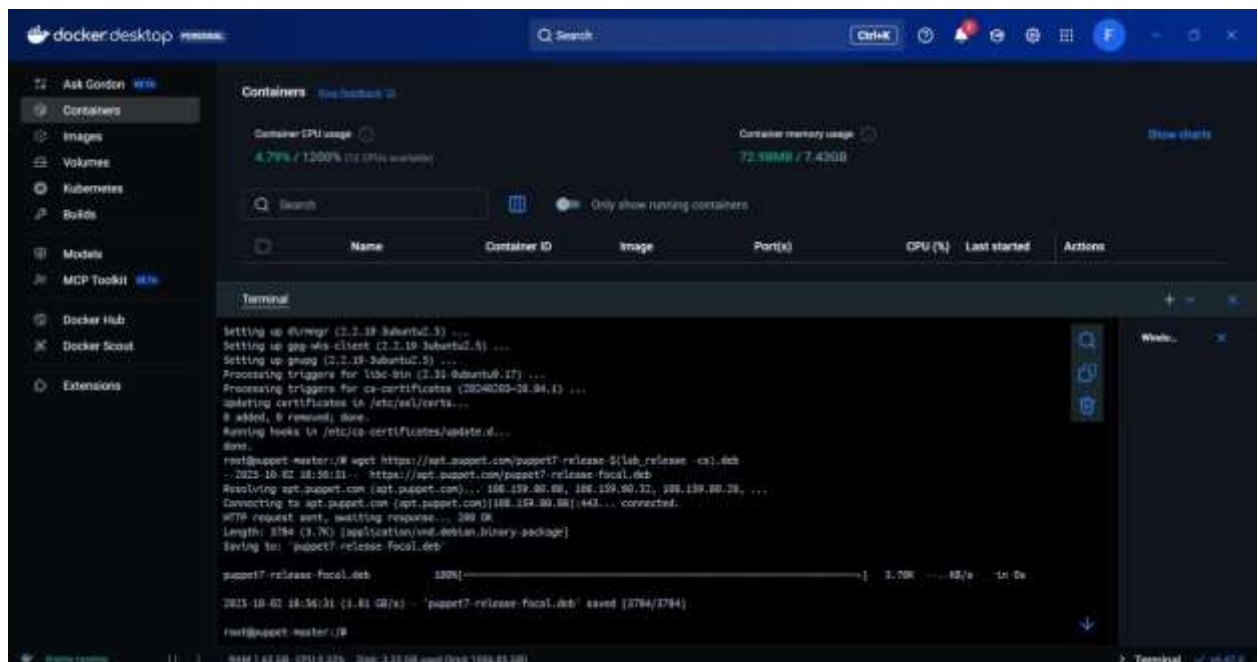- apt-get update
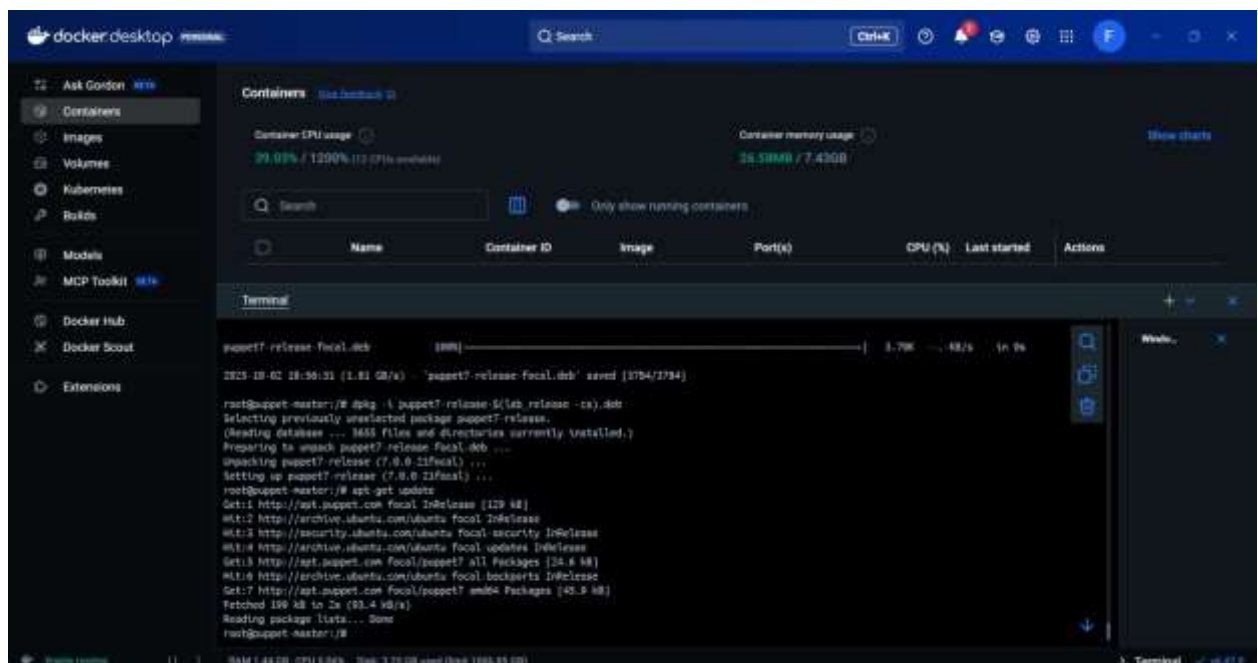

Installing packages

On master:

- apt-get install -y puppetserver
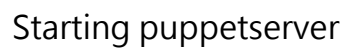- service puppetserver start
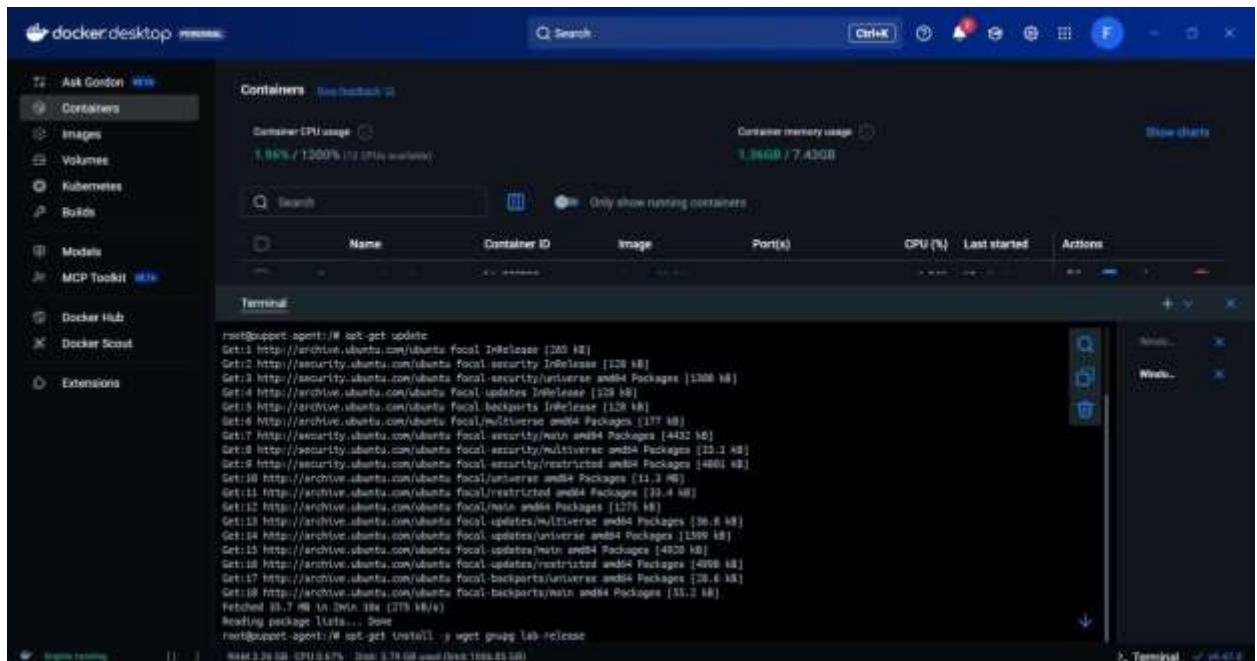
On agent:
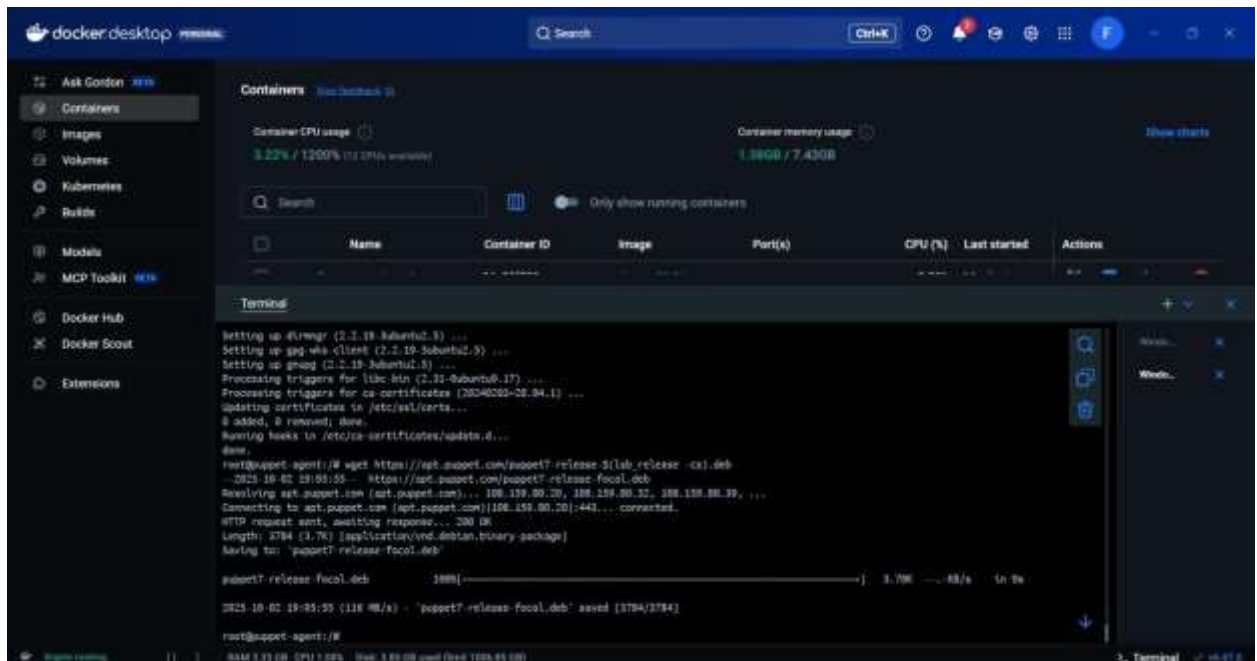
- apt-get install -y puppet-agent
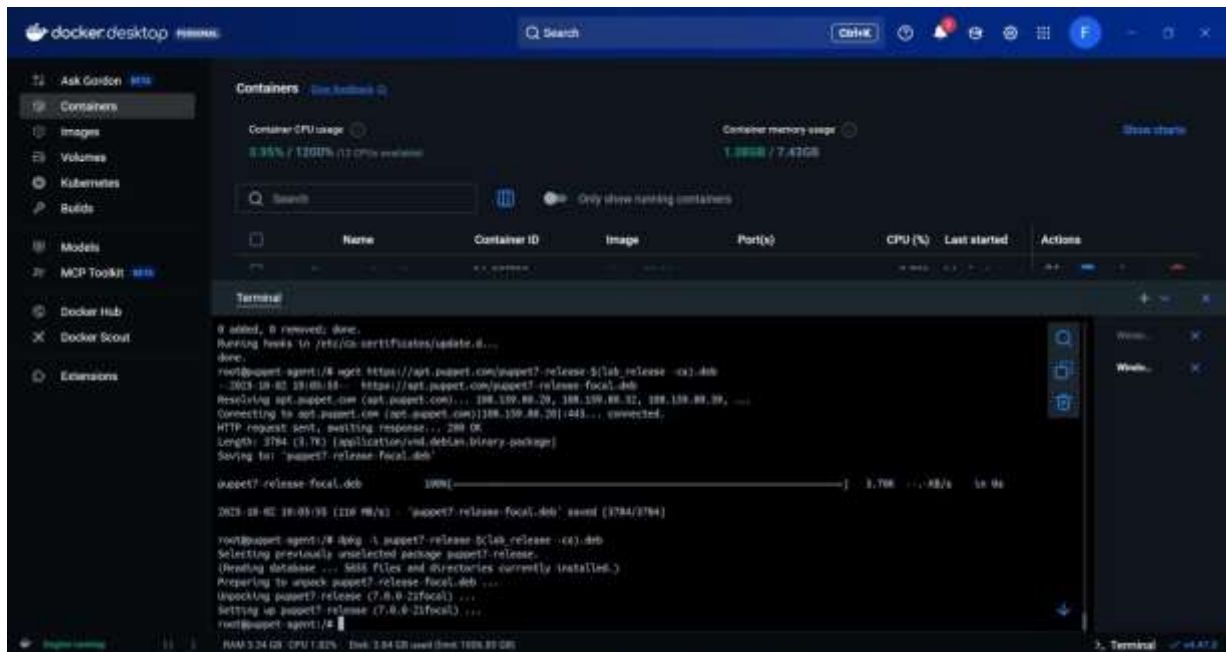

Installing packages

Installing packages

Setting Arguments

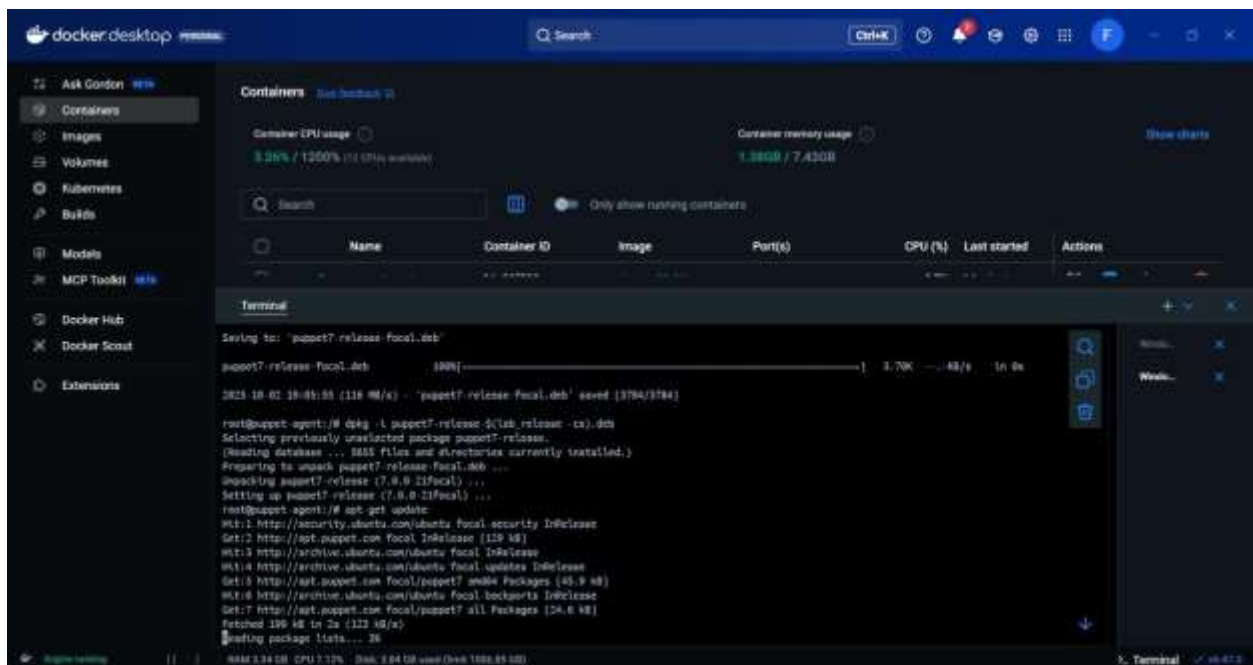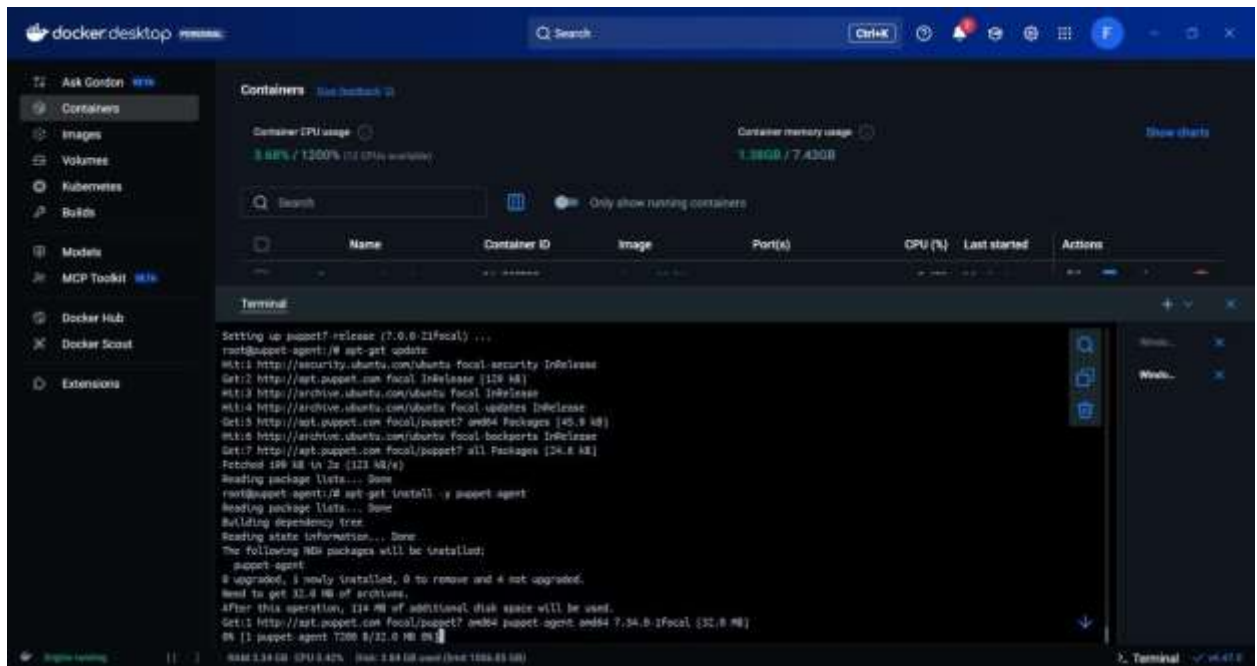Starting puppetserver

Installing packages

Installing packages

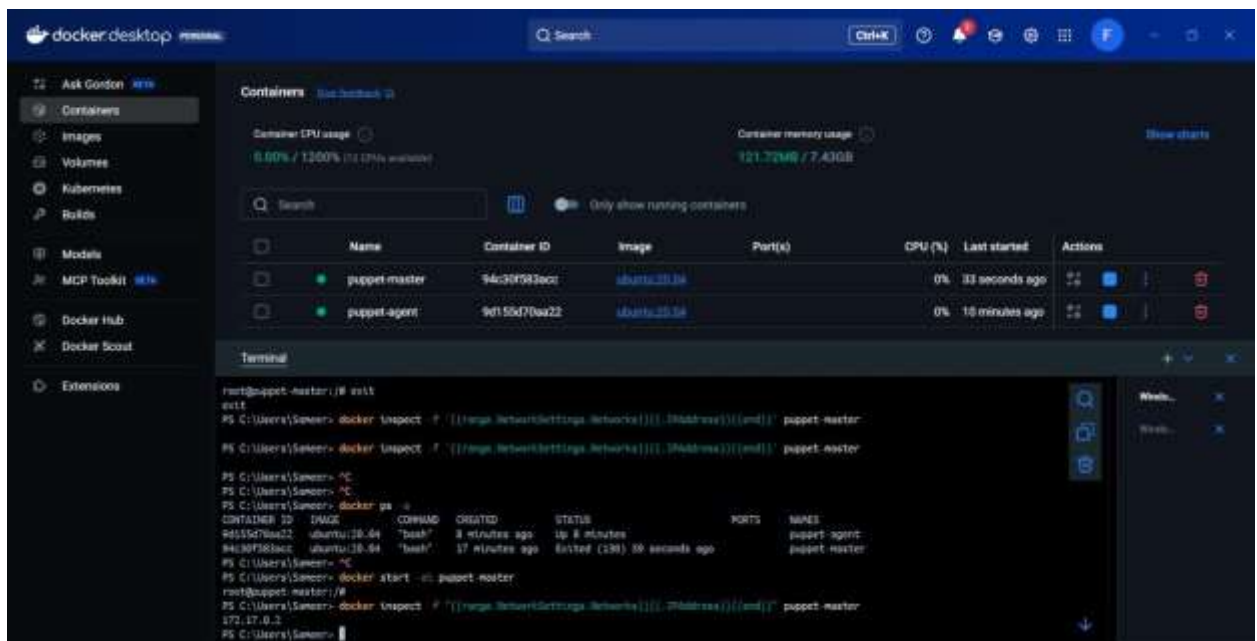Configuring puppet

Installing packages
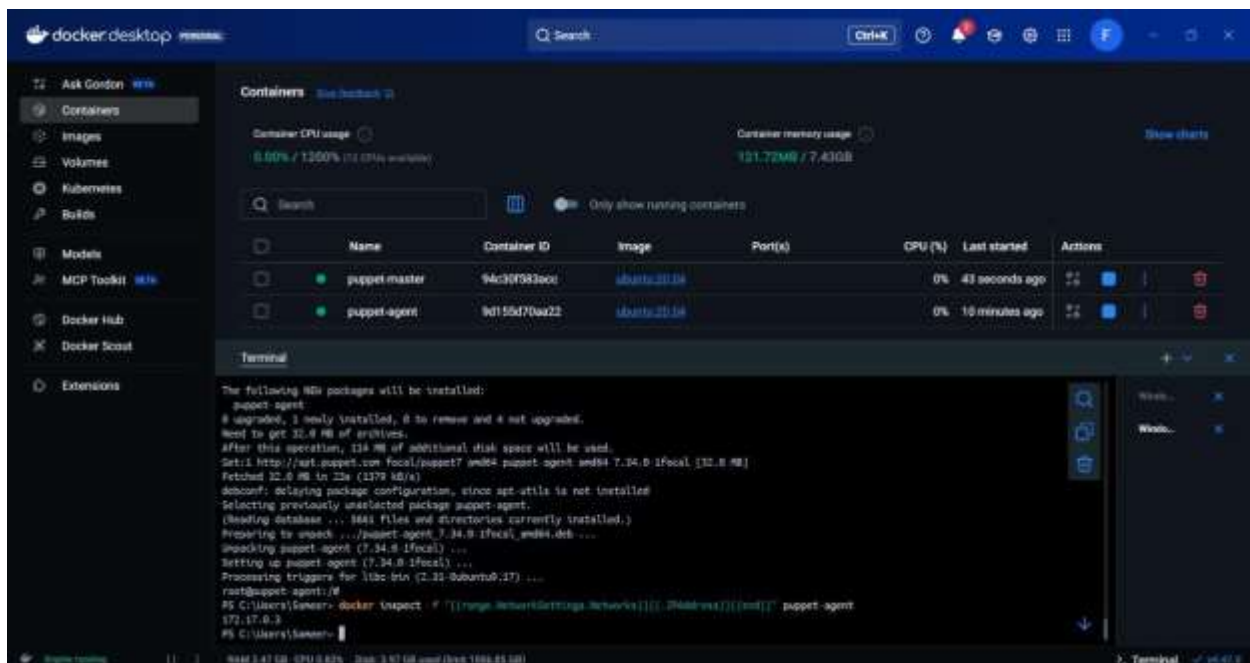
Installing packages

Configure Hostnames

Add entries in /etc/hosts for both containers (using actual container IPs):

- 172.17.0.2 puppet-master
- 172.17.0.3 puppet-agent

Connected to IP Address (Master)

Connected to IP Address (Agent)

Configure Puppet
Edit /etc/puppetlabs/puppet/puppet.conf
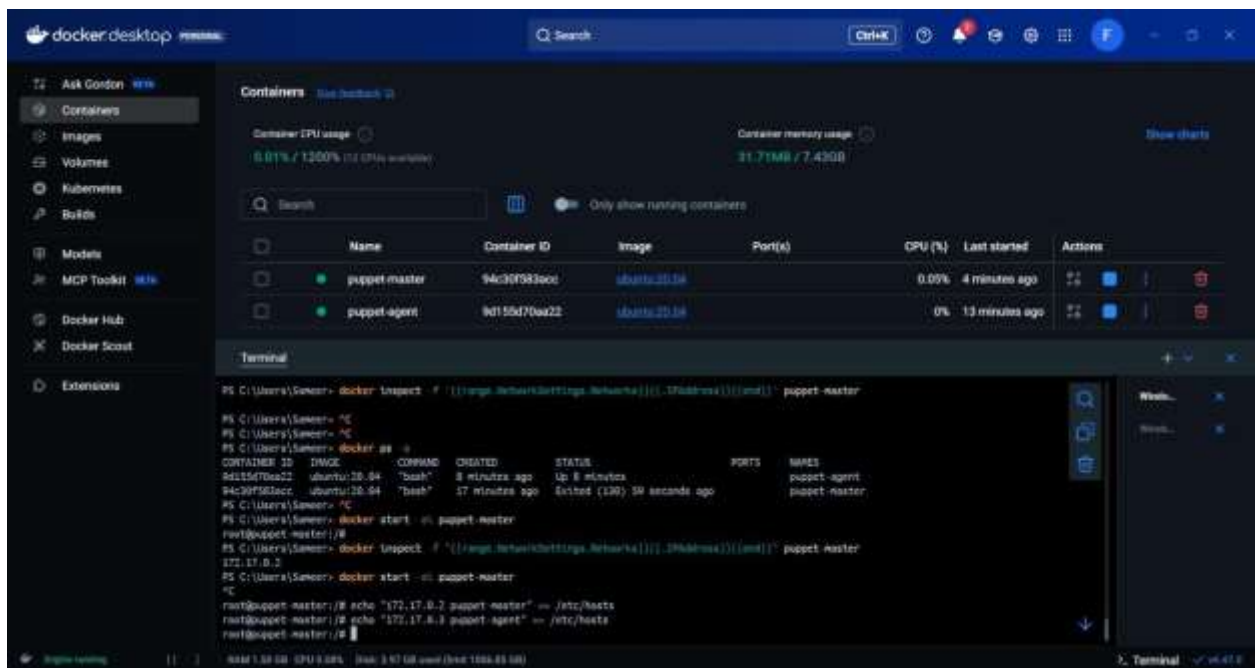
On Master:

[main]
certname = puppet-master
server = puppet-master environment = production runinterval = 1h
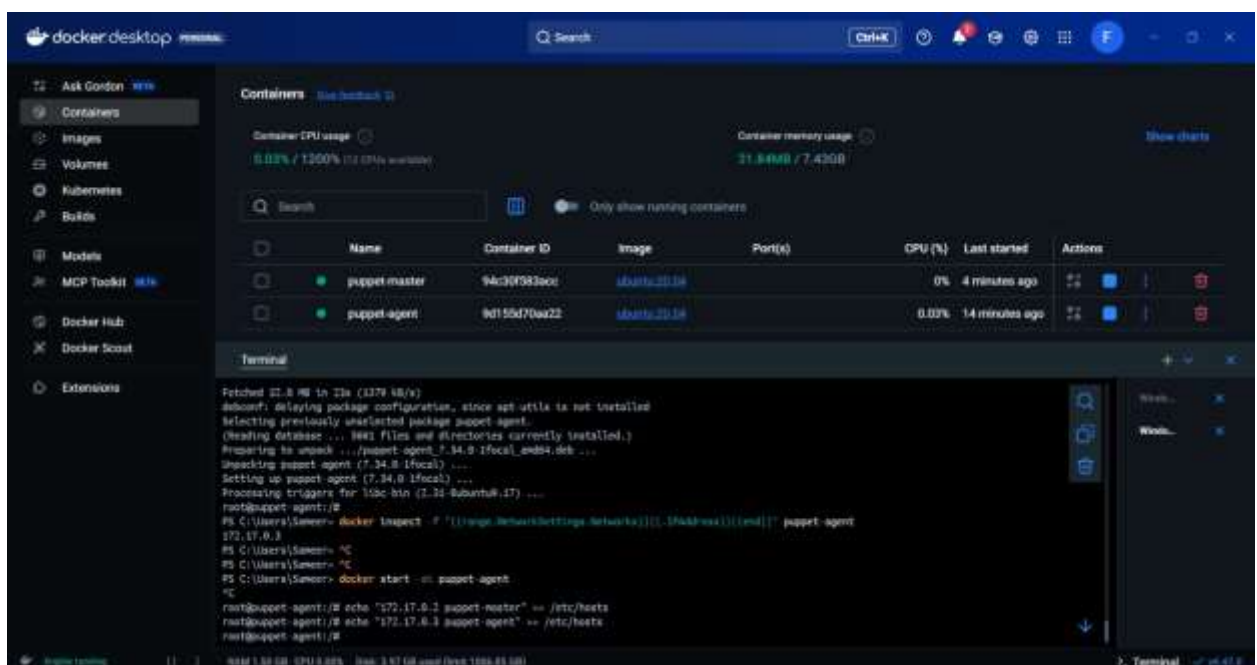
On Agent:

[main]
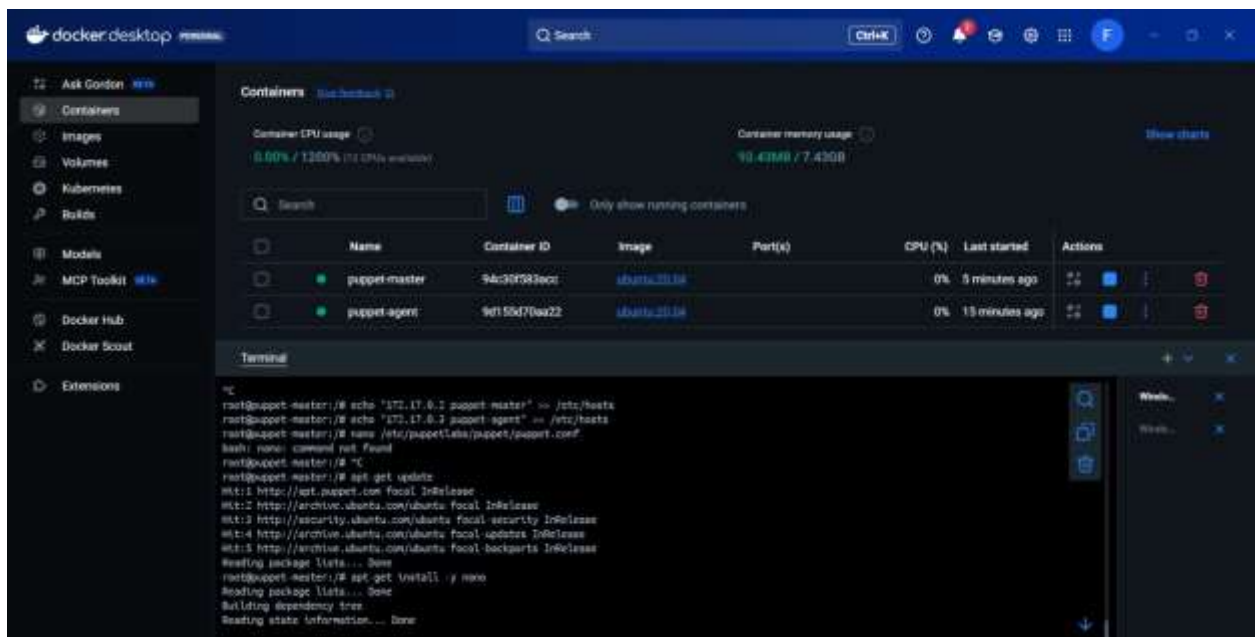certname = puppet-agent server = puppet-master environment = production
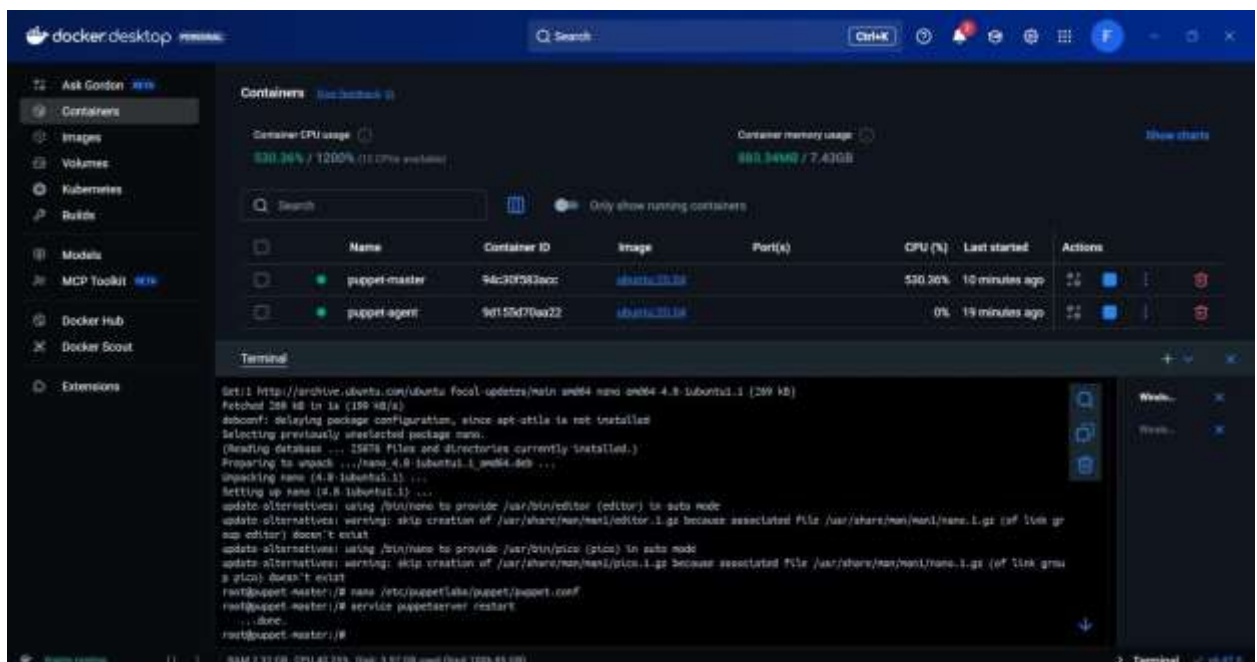runinterval = 1m

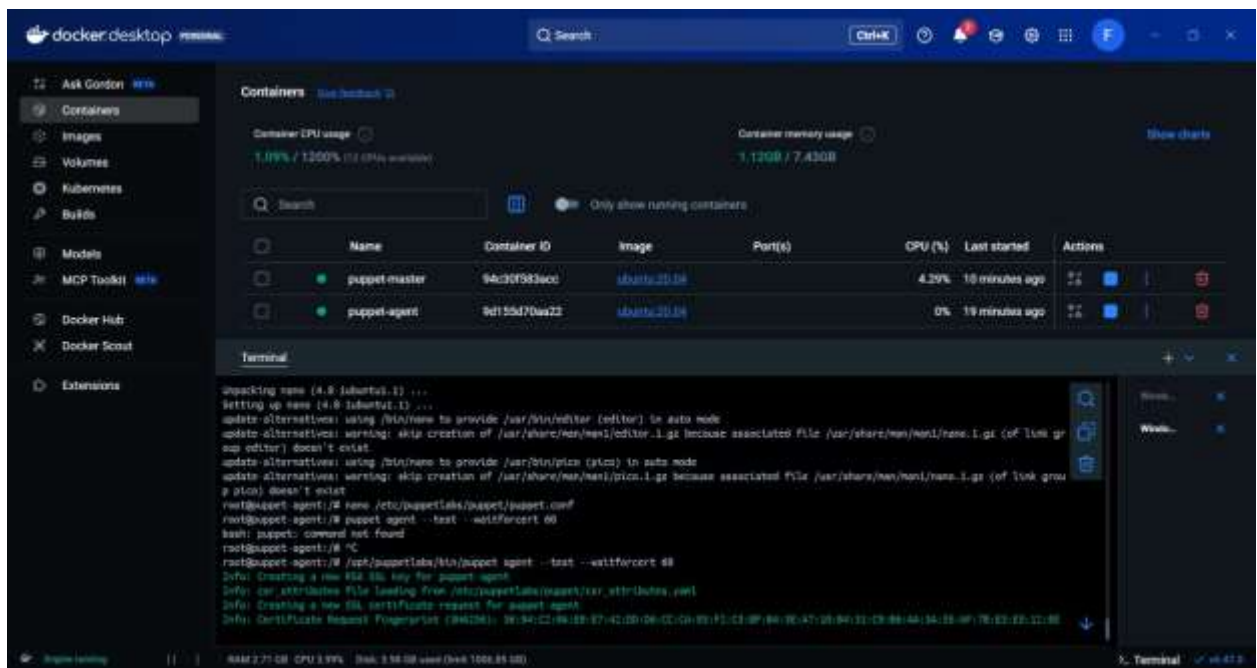Testing and logging (Master)

Testing and logging (Master)

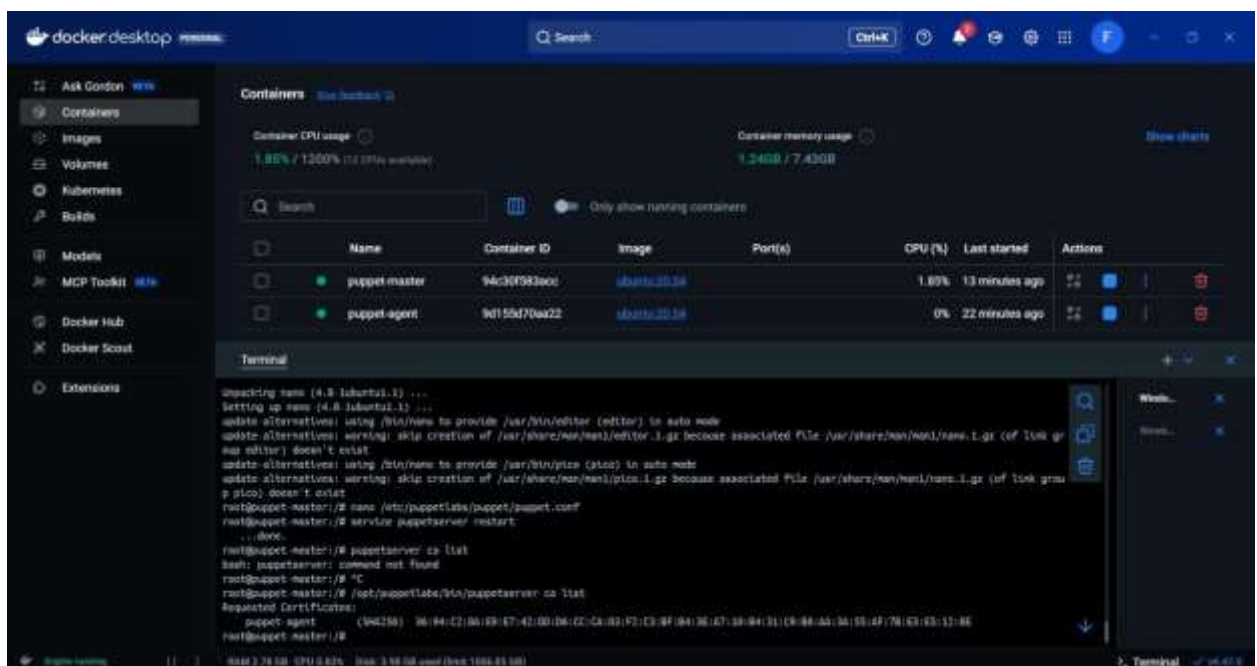Updating system

Puppetserver restarted
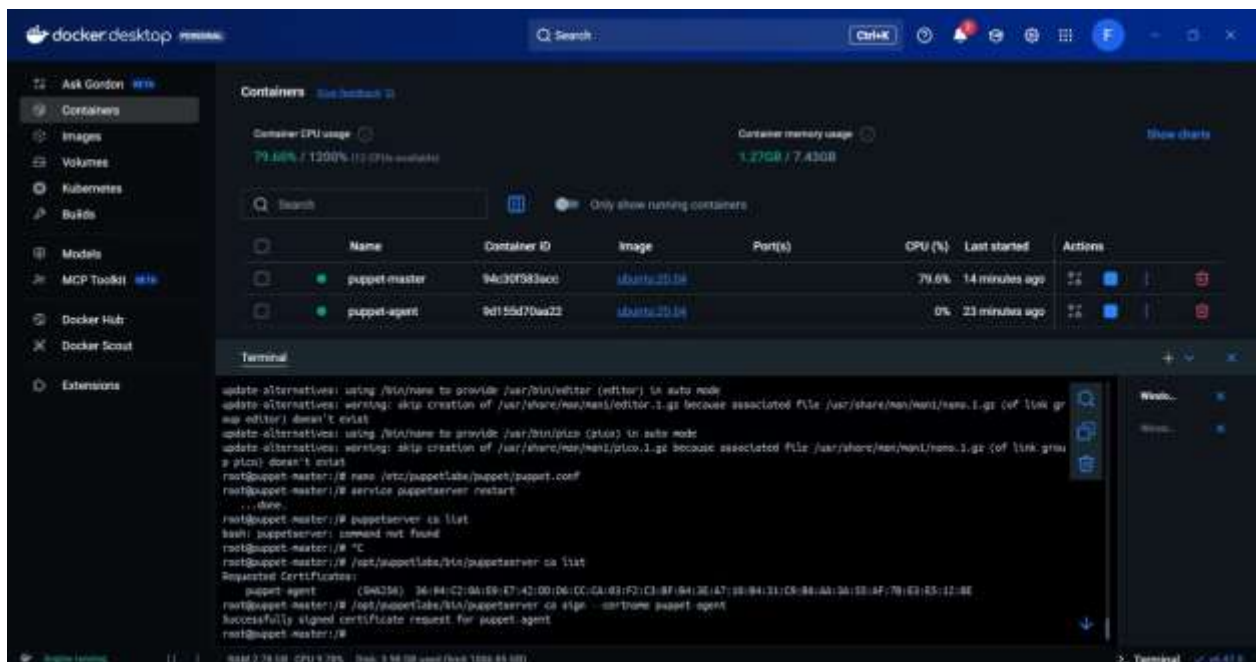
Sending certificate from Agent

Certificate Signing on Agent:

/opt/puppetlabs/bin/puppet agent --test --waitforcert 60 (Generates a CSR request)
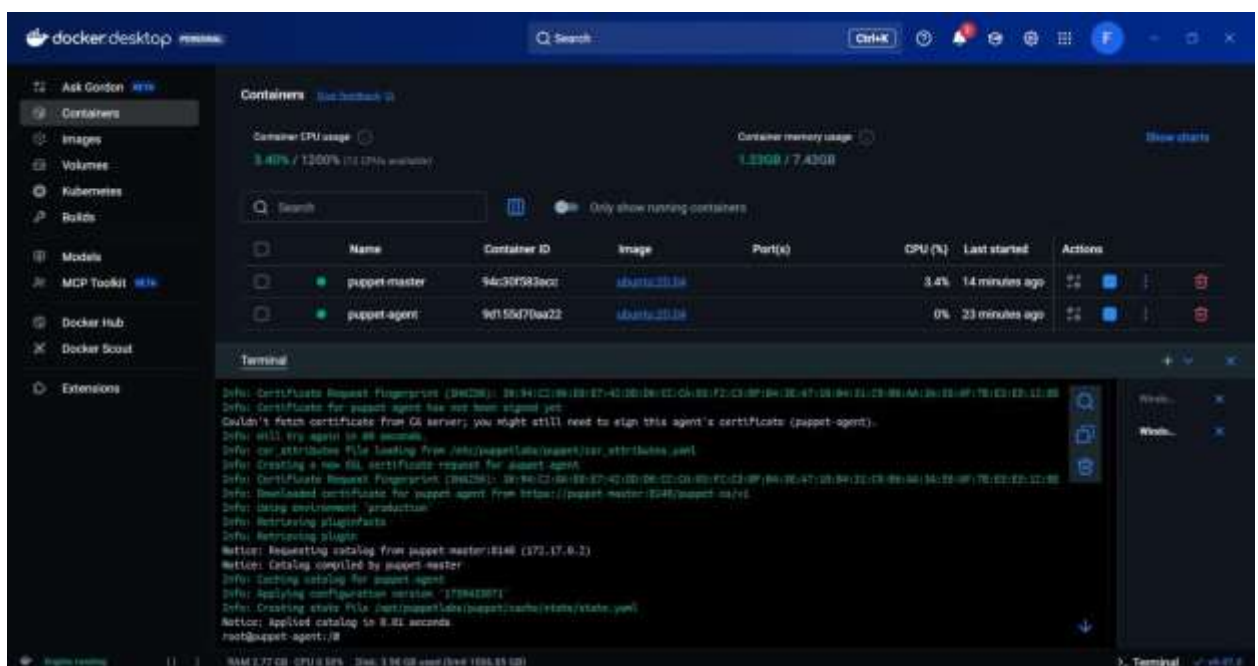
Master:

- /opt/puppetlabs/bin/puppetserver ca list
- /opt/puppetlabs/bin/puppetserver ca sign --certname puppet-agent
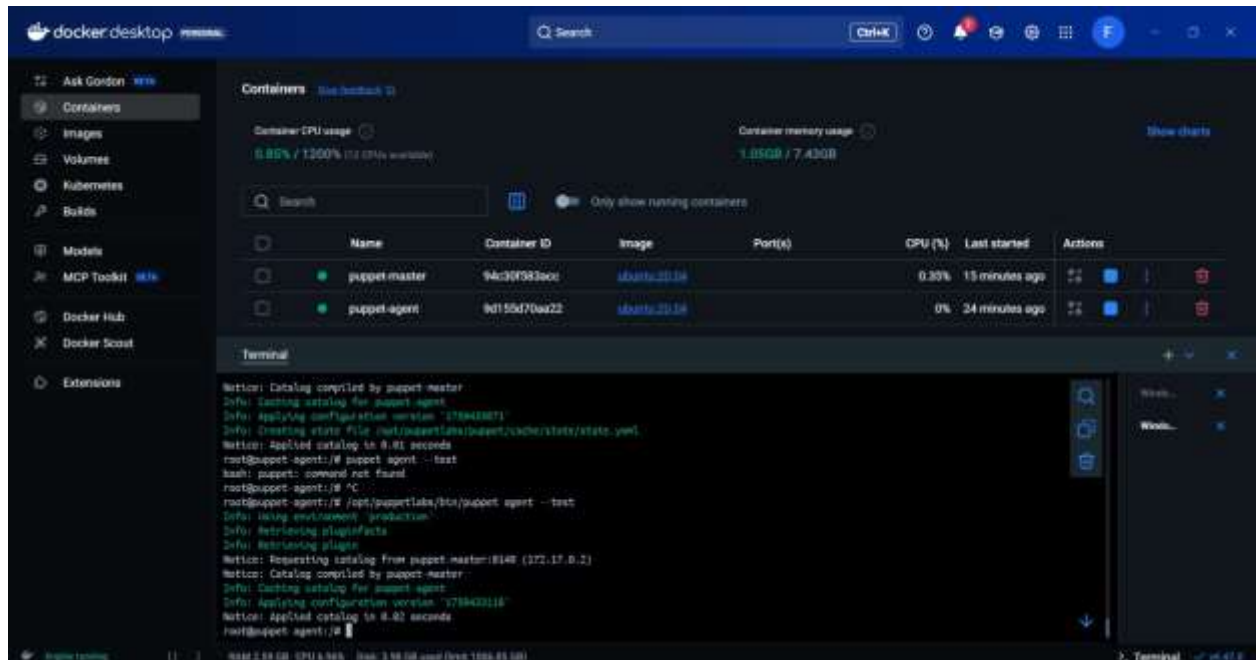
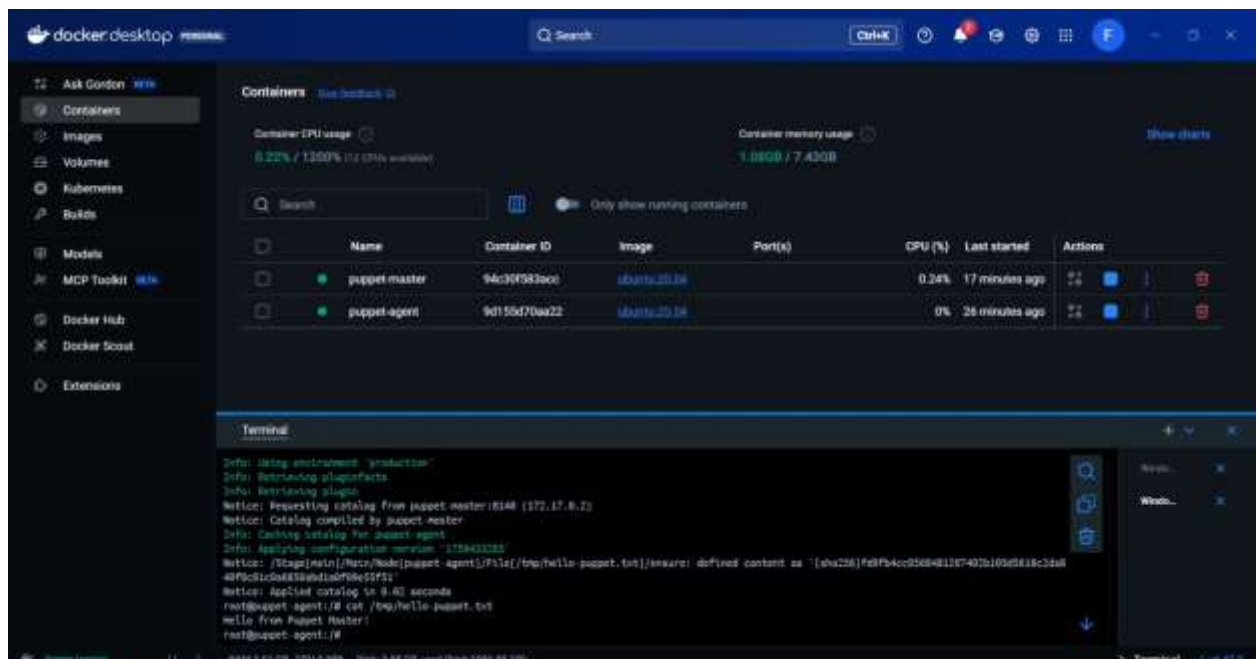Certificate signed on Master

Acknowledgment Received

Test Communication on Agent:

/opt/puppetlabs/bin/puppet agent --test

- The agent should now connect successfully.

Final Testing on Agent

Output Received

Deploy a Sample Manifest

On Master, create a manifest file:

nano /etc/puppetlabs/code/environments/production/manifests/site.pp

Add:

```
node 'puppet-agent' {
        file { '/tmp/hello-puppet.txt':
        ensure => present,
        content => "Hello from Puppet Master!\n",
        }
}
```
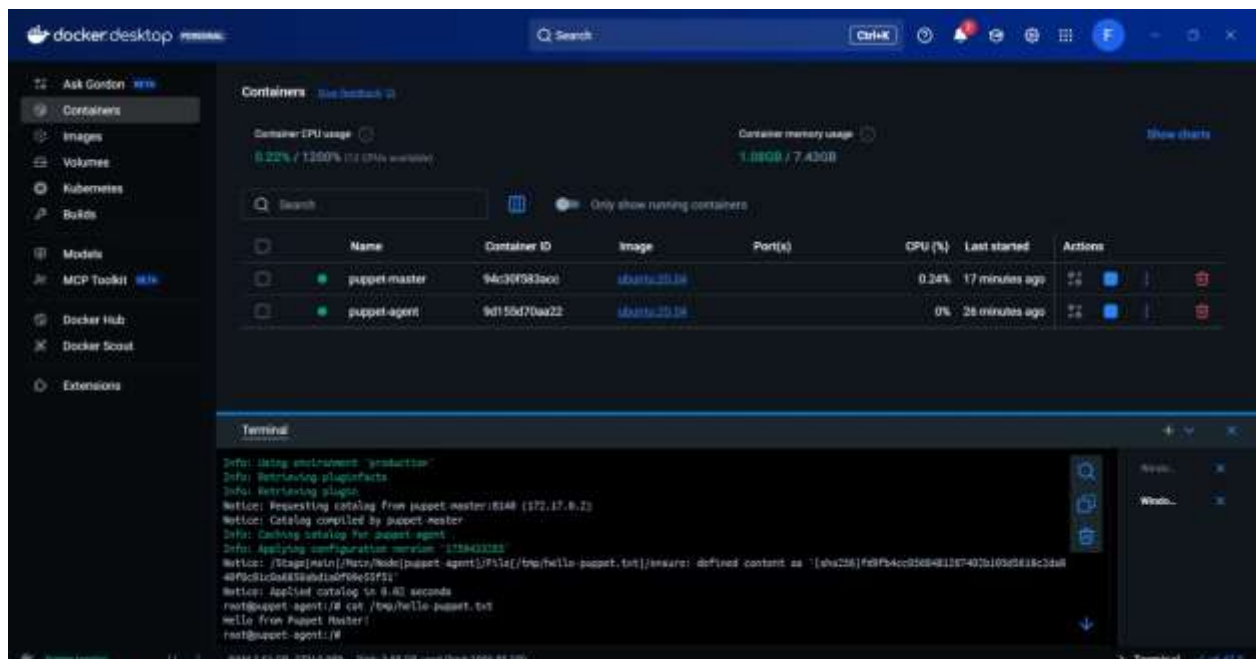
On Agent, run: puppet agent --test

cat /tmp/hello-puppet.txt

Expected output:

Hello from Puppet Master!

Agents securely pulled configurations from the master and applied them automatically