# **Name: Abdurrahman Qureshi**

# **Roll No: 242466**

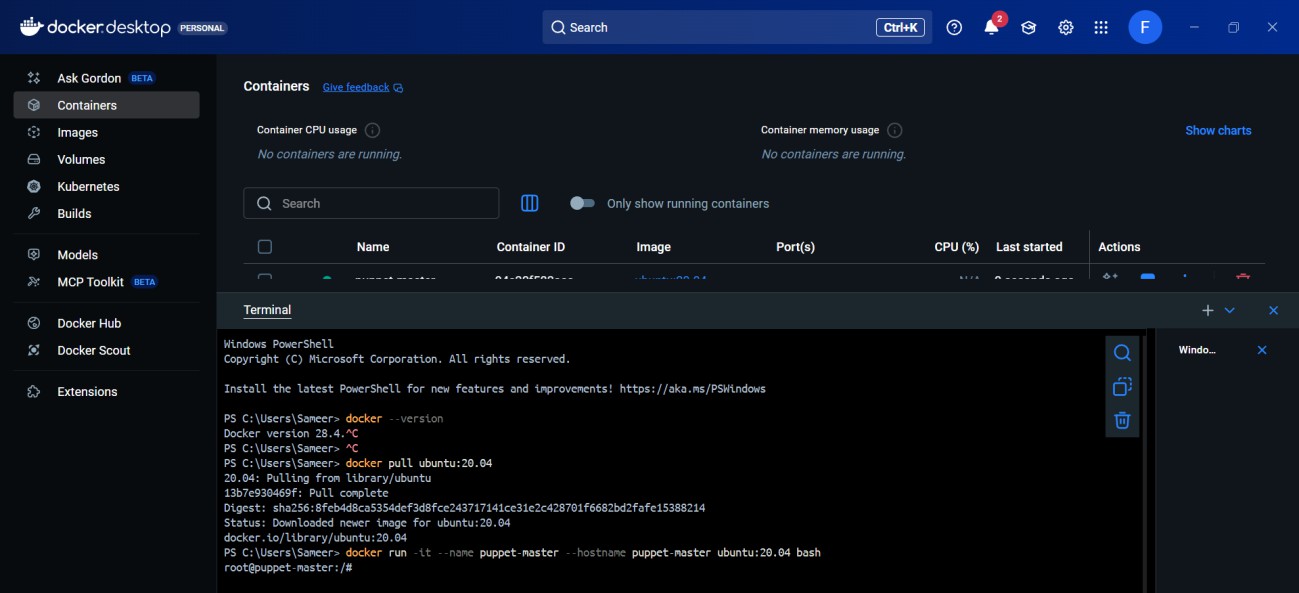
Practical No: 10

Date Of Performance: 03/10/2025

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

Setup Environment

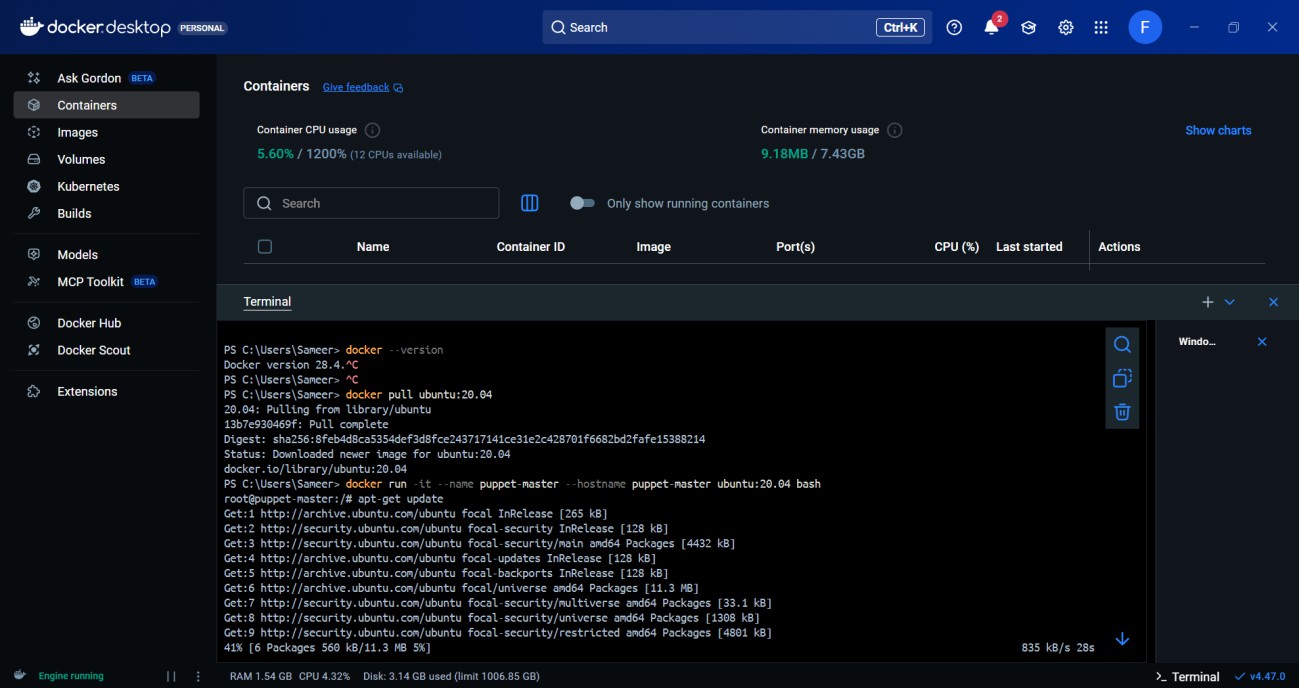
* Install Docker Desktop.
* Pull Ubuntu base image:
* docker pull ubuntu:20.04

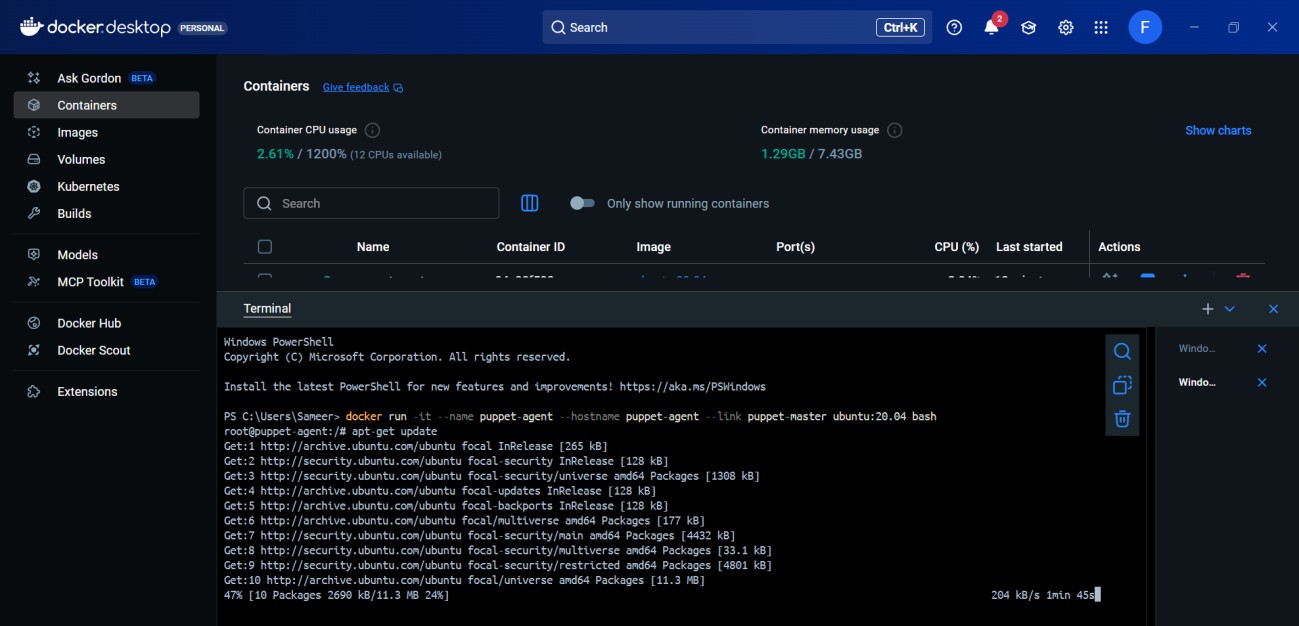


Pulling Ubuntu image and running the Puppet Master

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



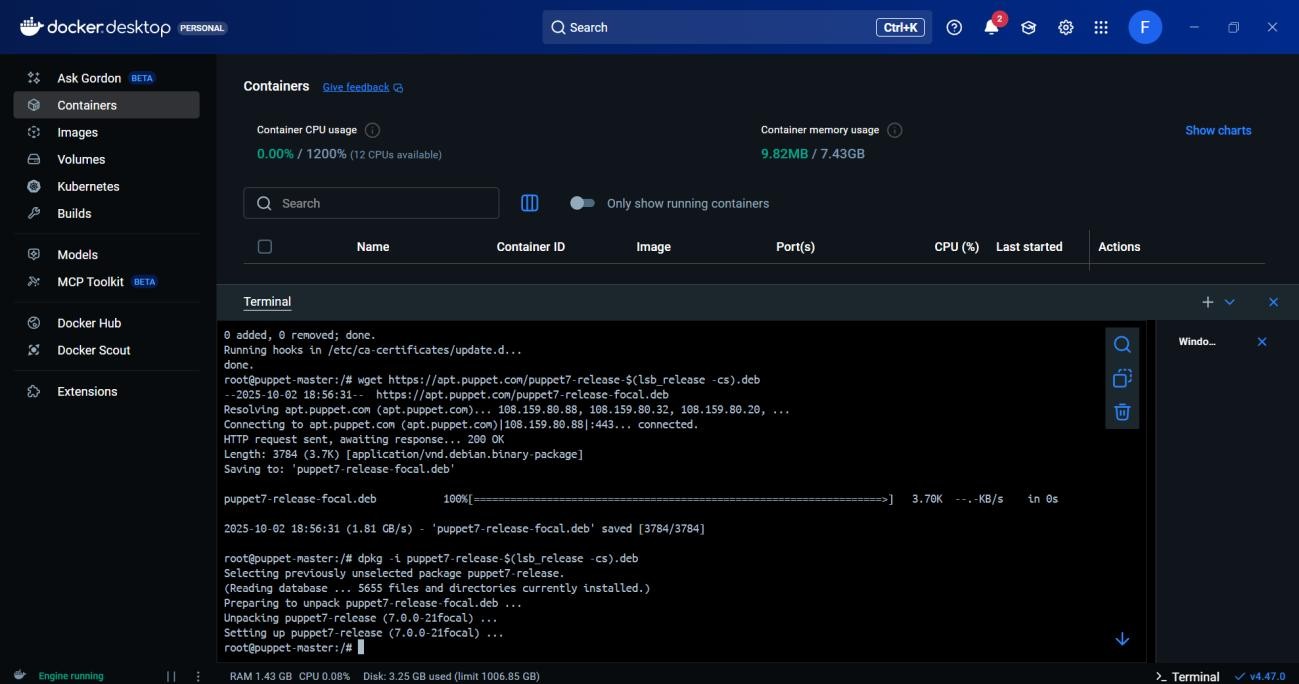


Installing packages

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



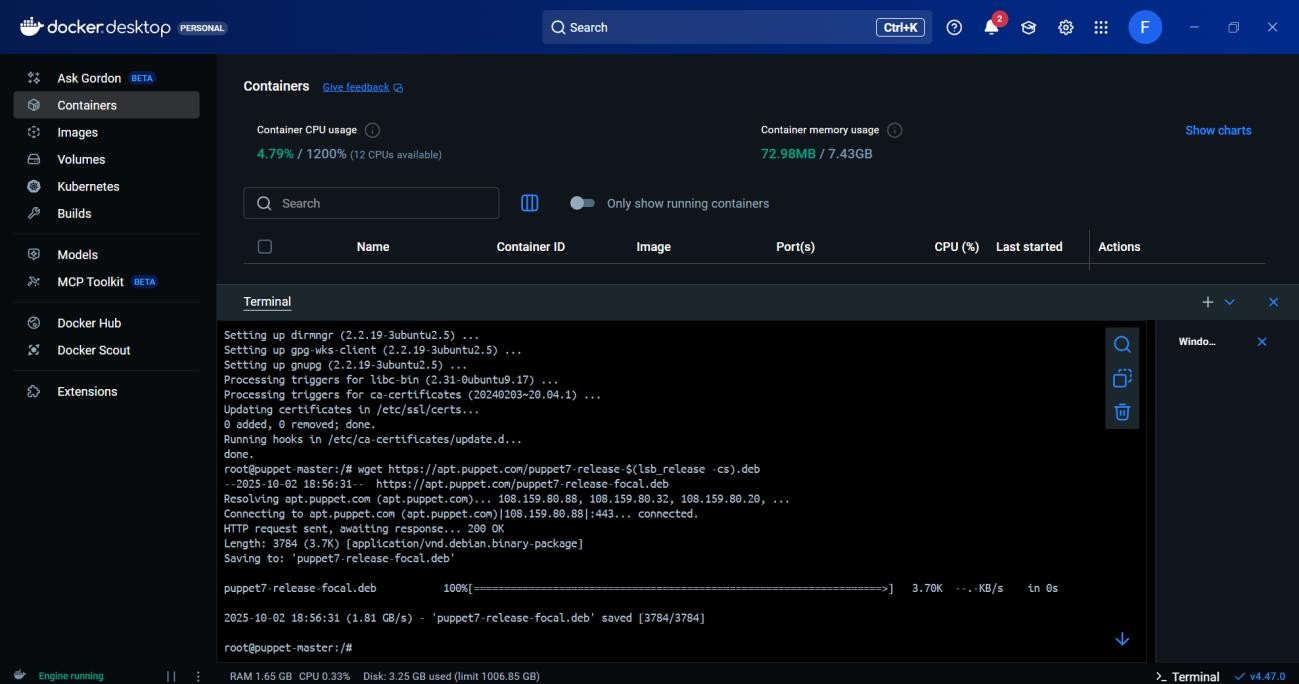
Installing packages

On master:

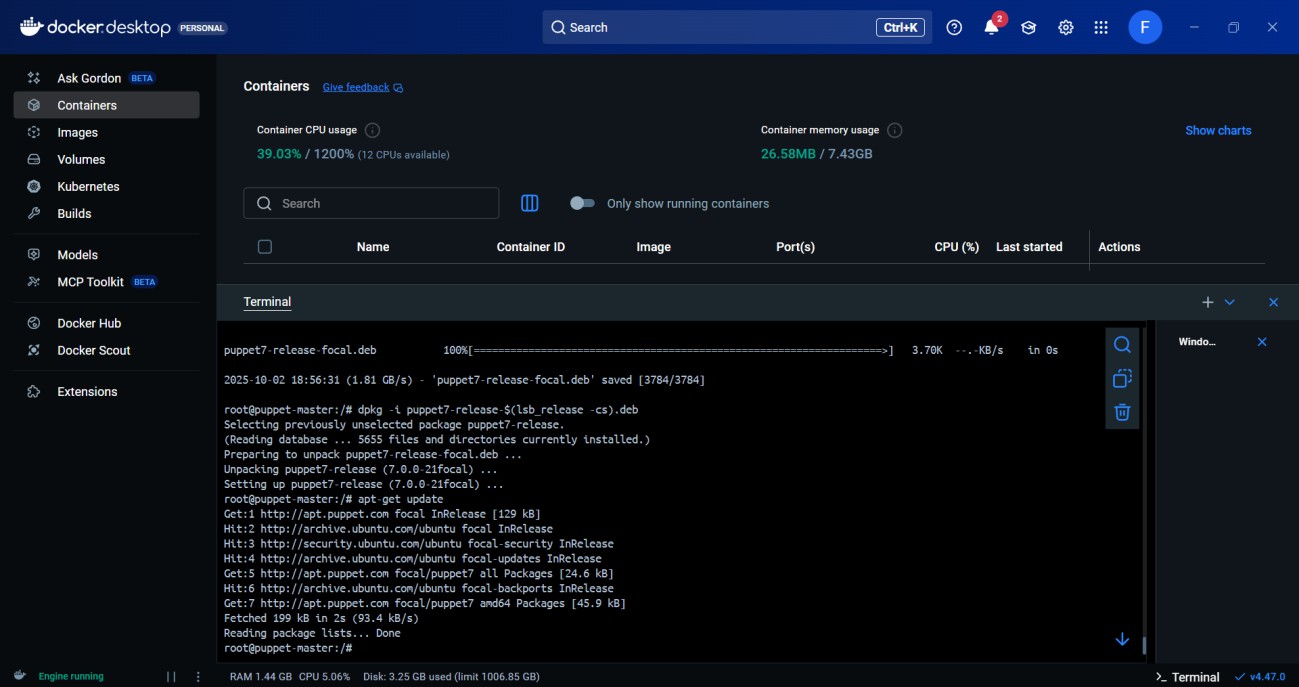
* apt-get install -y puppetserver
* service puppetserver start

On agent:

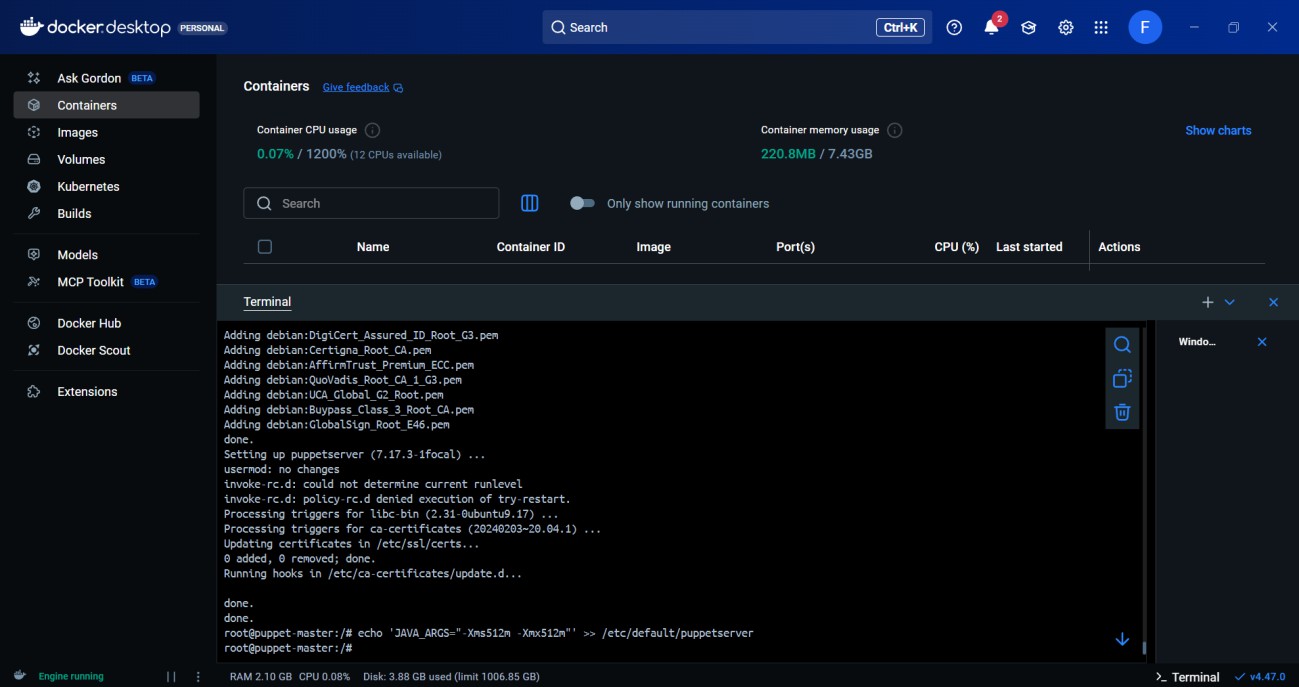
* apt-get install -y puppet-agent



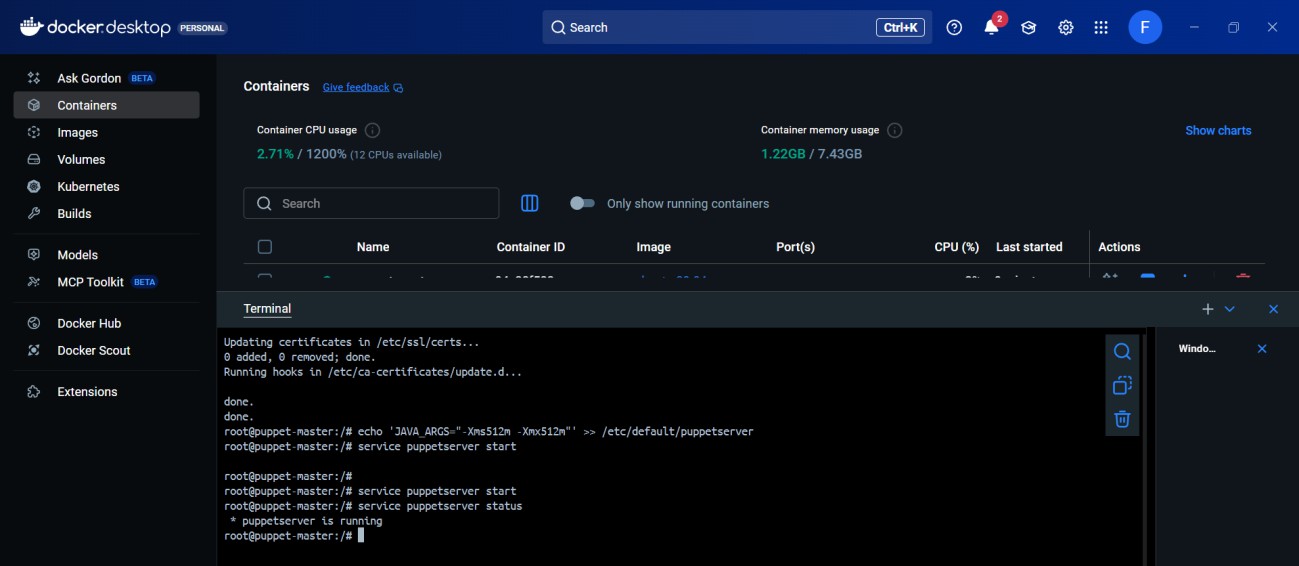
Installing packages



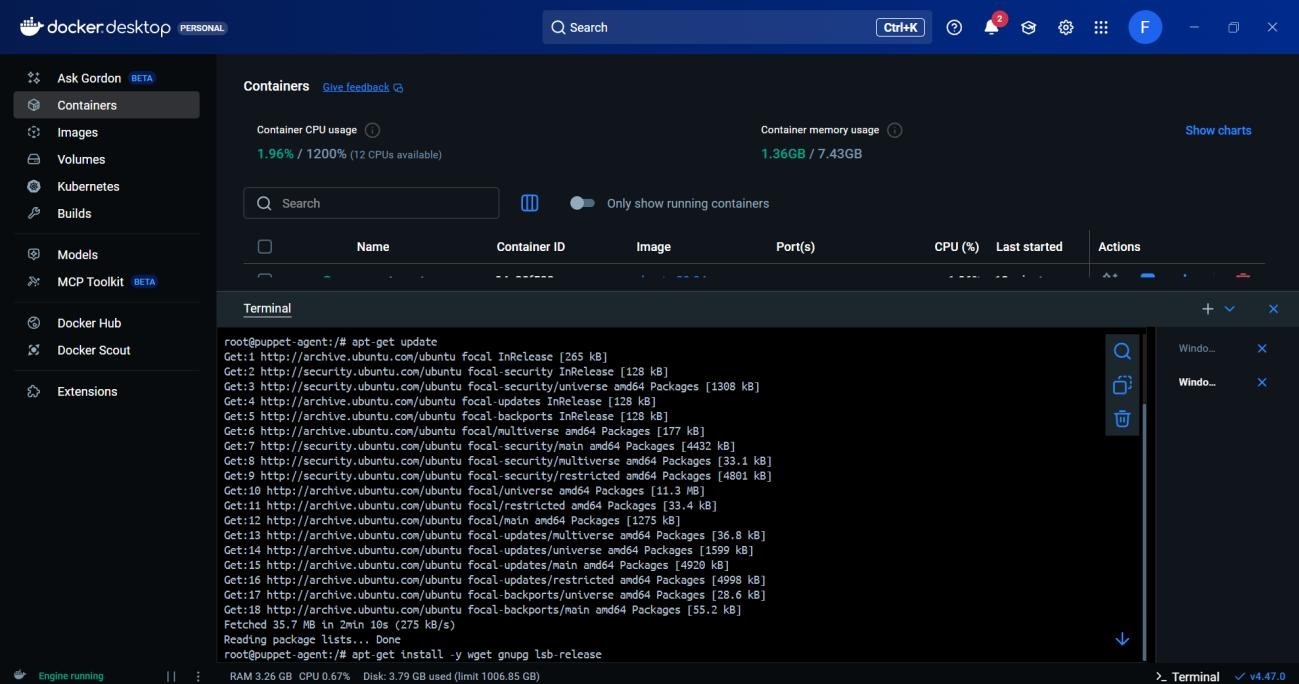
Installing packages



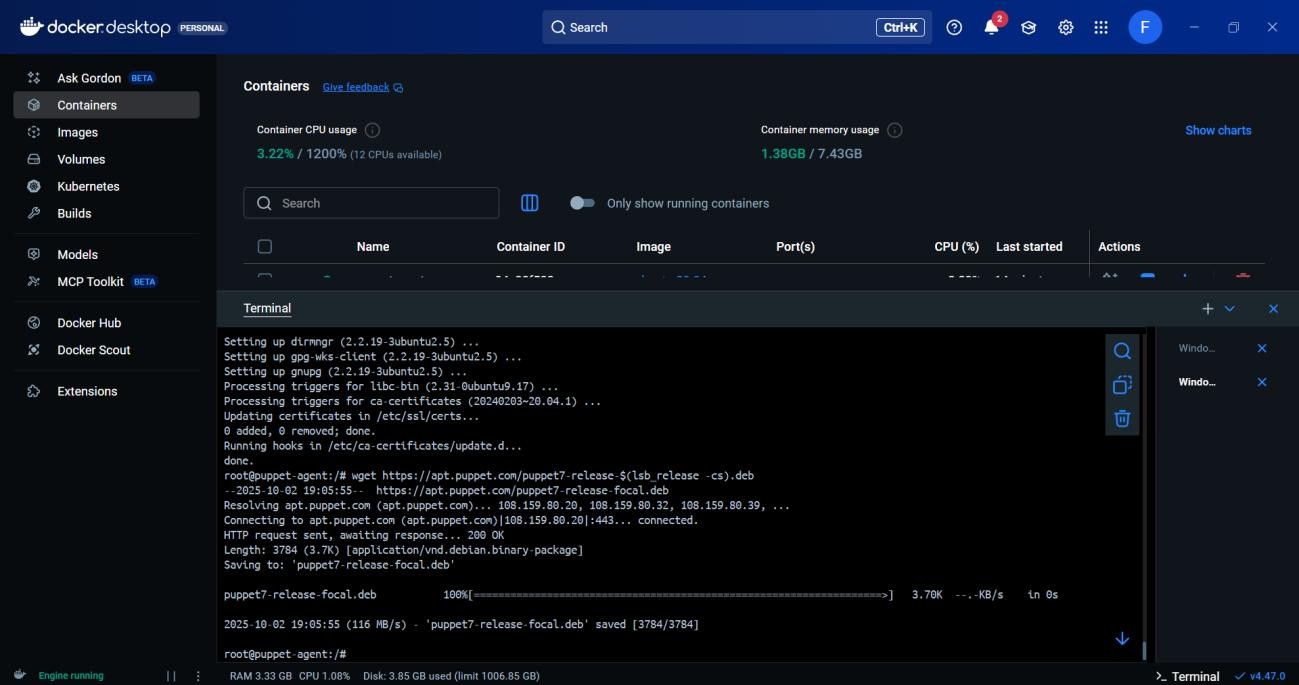
Setting Arguments



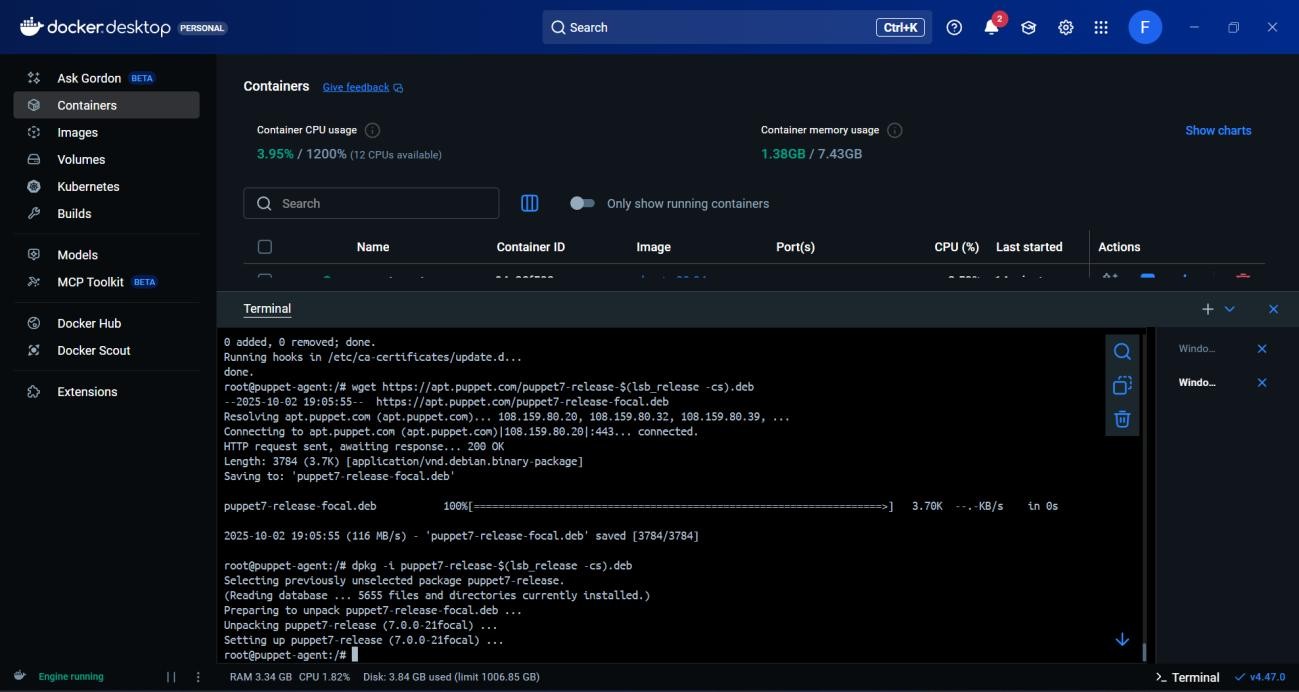
Starting puppetserver



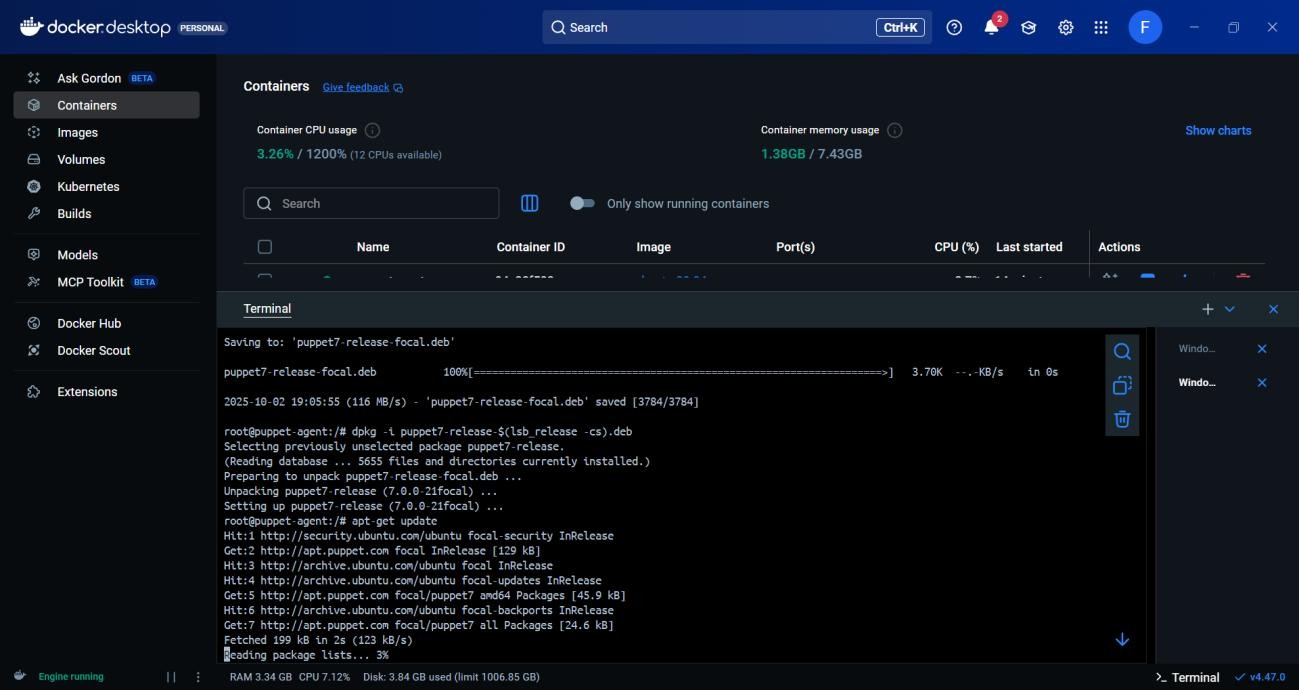
Installing packages



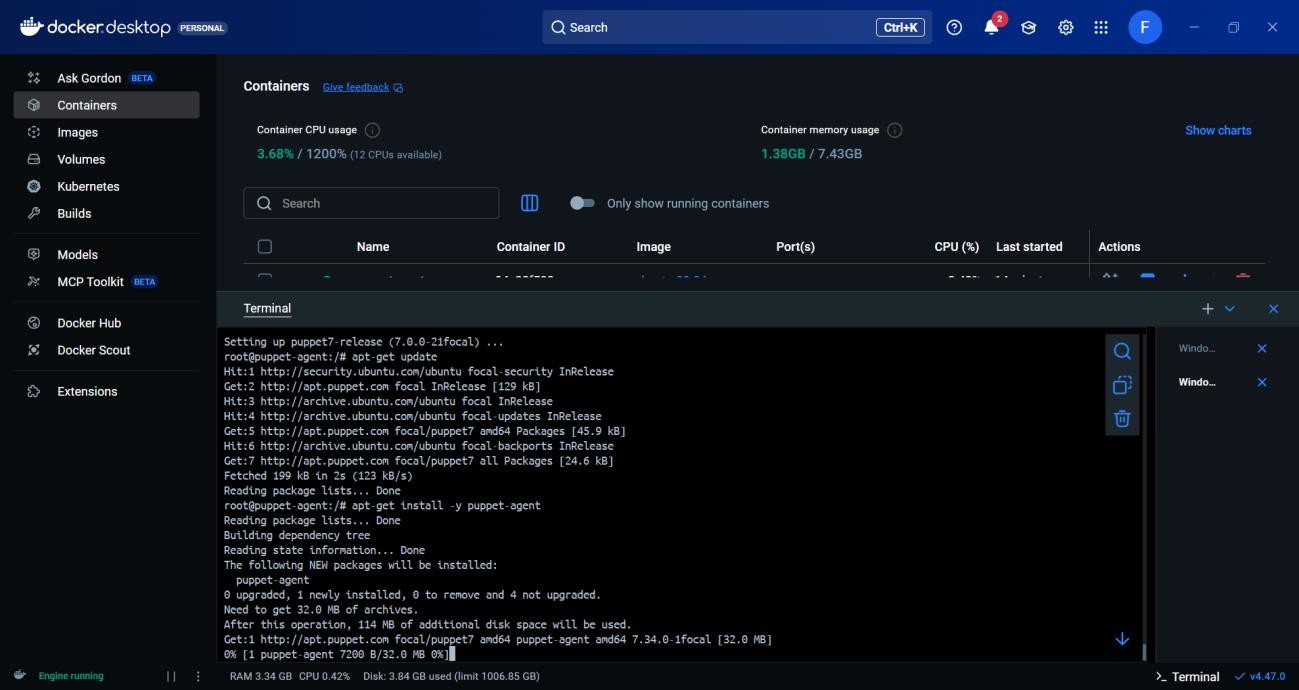
Installing packages



Configuring puppet



Installing packages

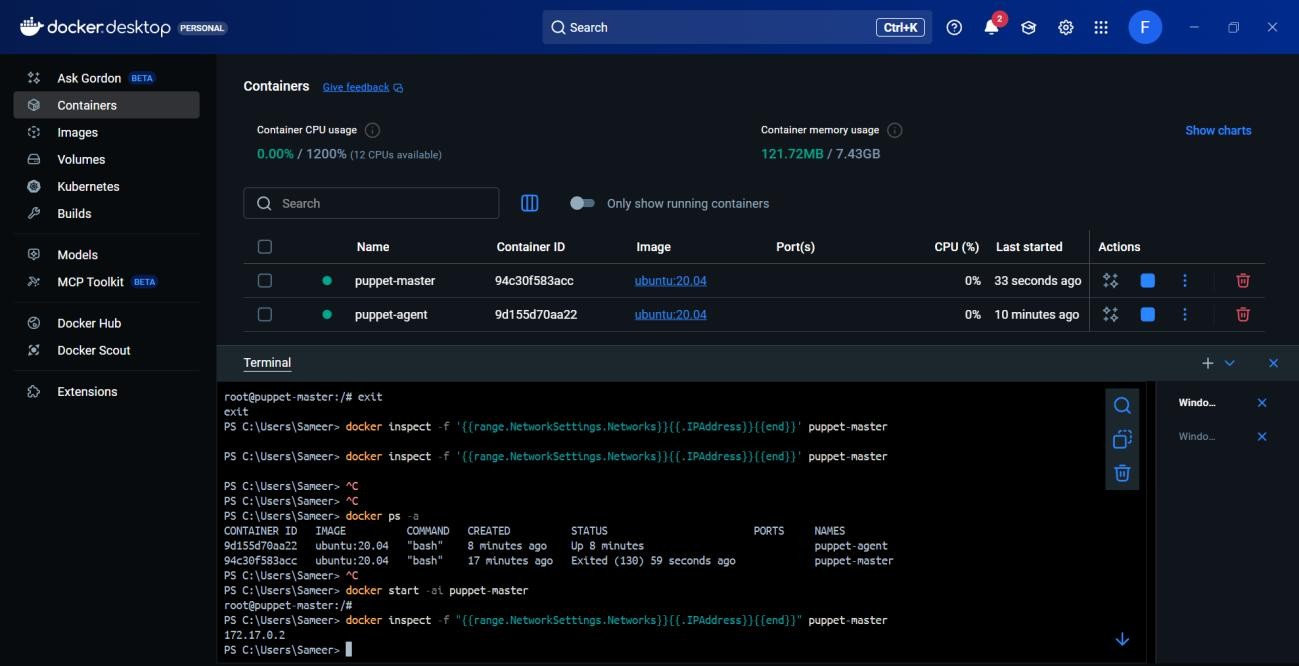


Installing packages

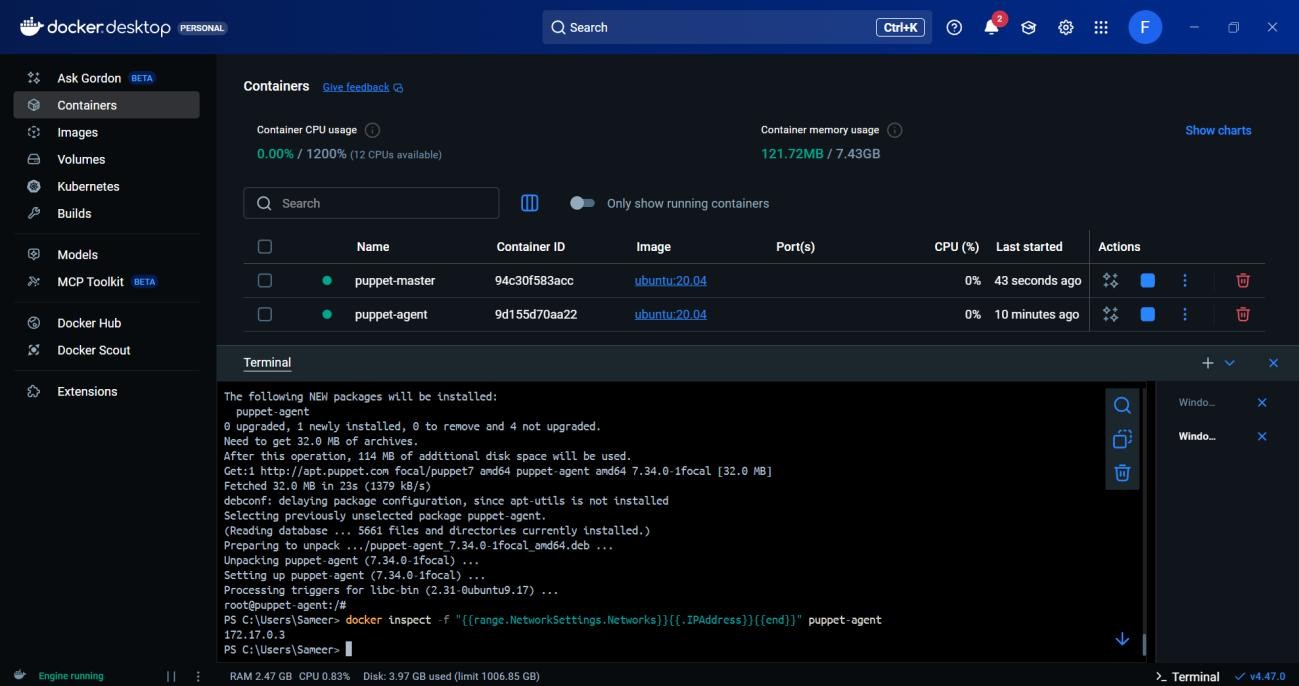
Configure Hostnames

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]

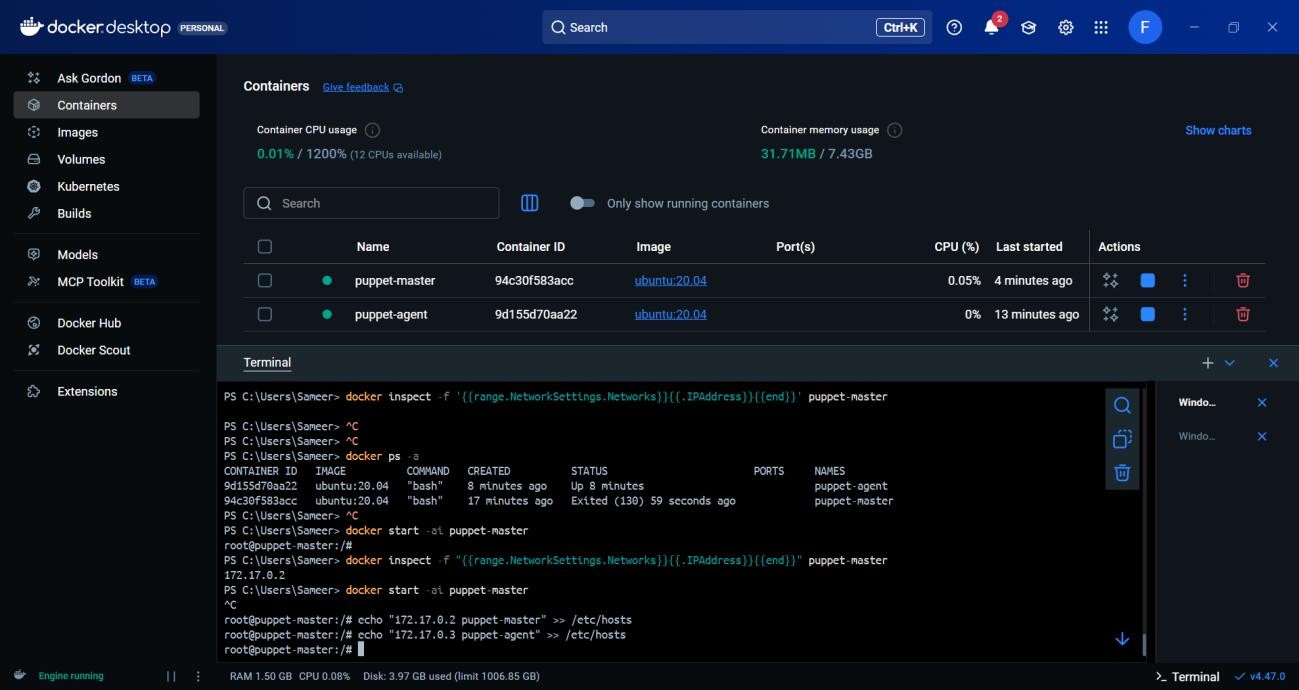
certname = puppet-master

server = puppet-master environment = production runinterval = 1h

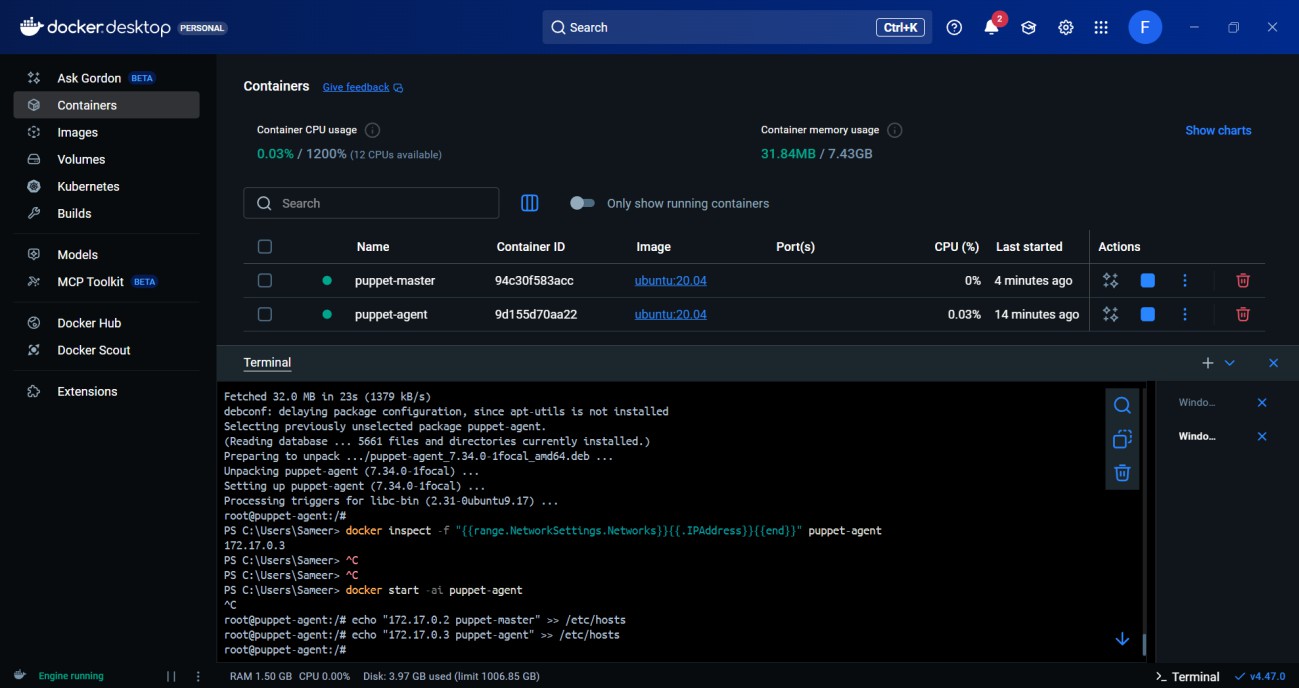
On Agent:

[main]

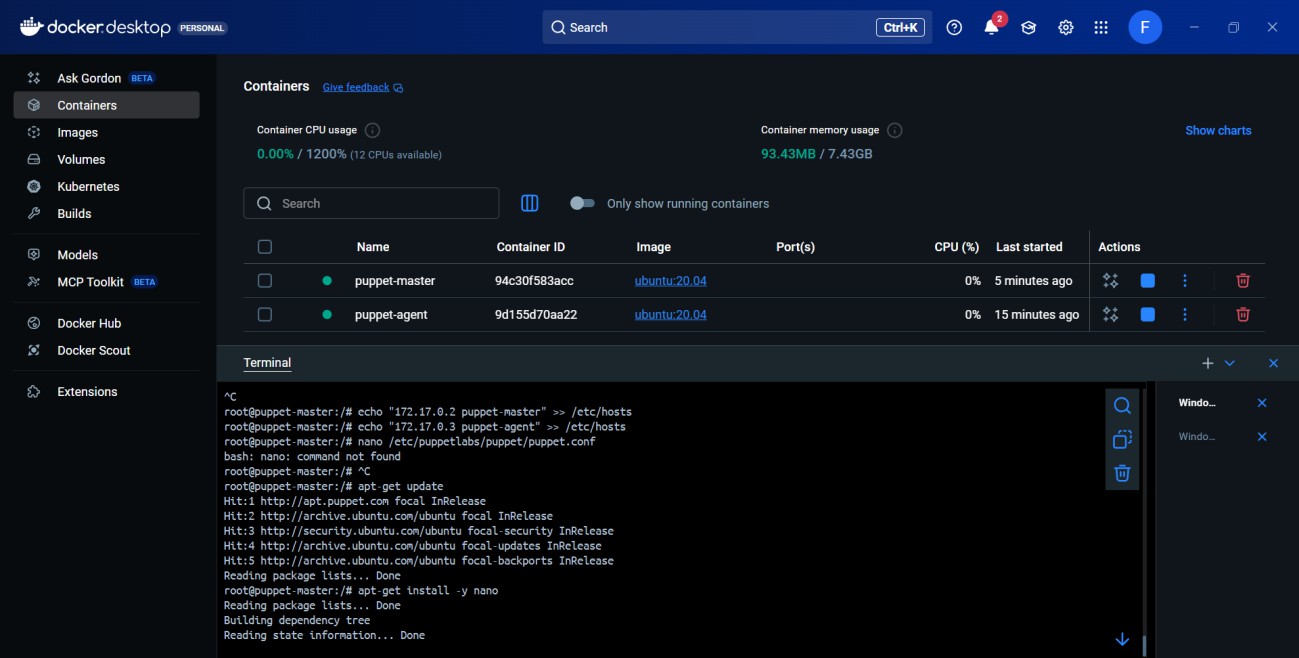
certname = puppet-agent server = puppet-master environment = production runinterval = 1m



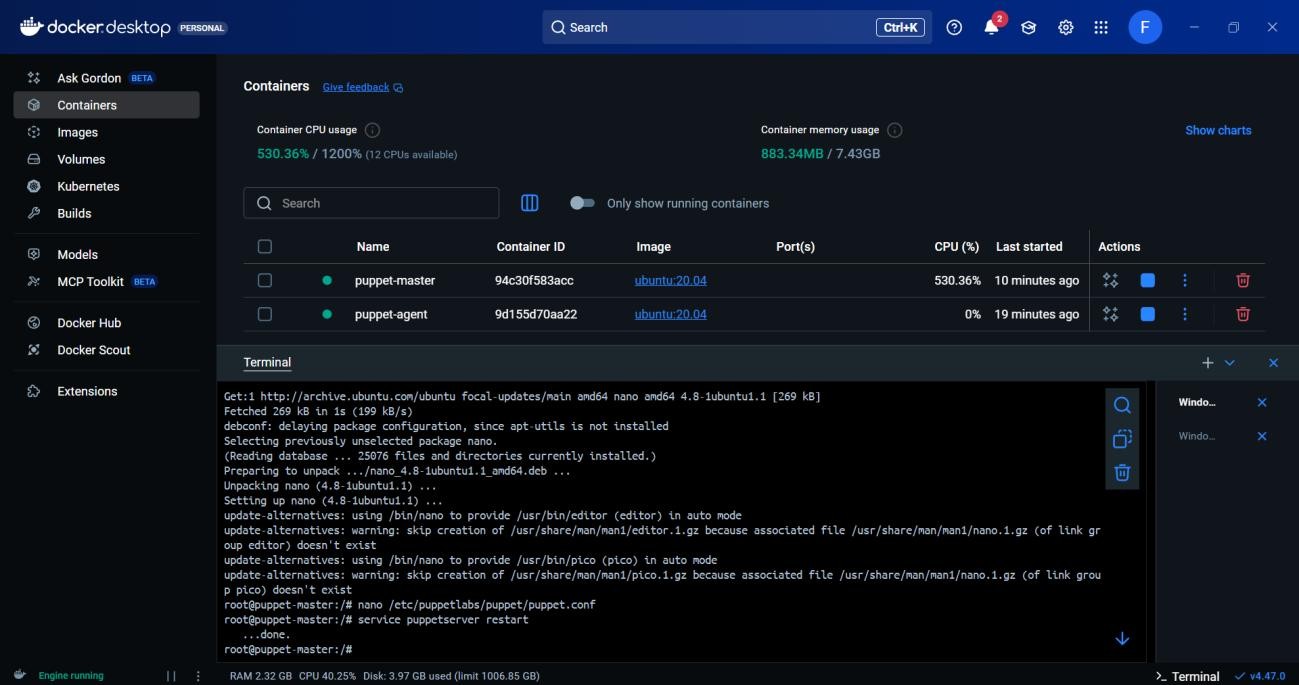
Testing and logging (Master)



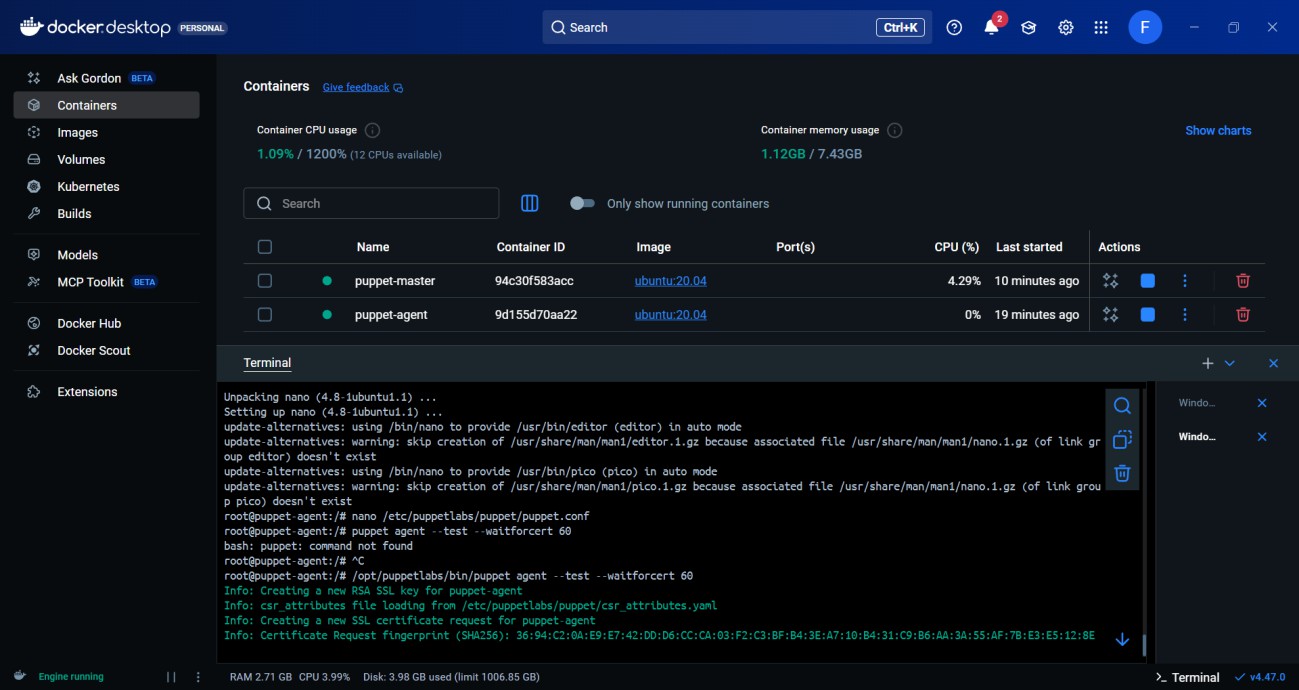
Testing and logging (Master)



Updating system



Puppetserver restarted



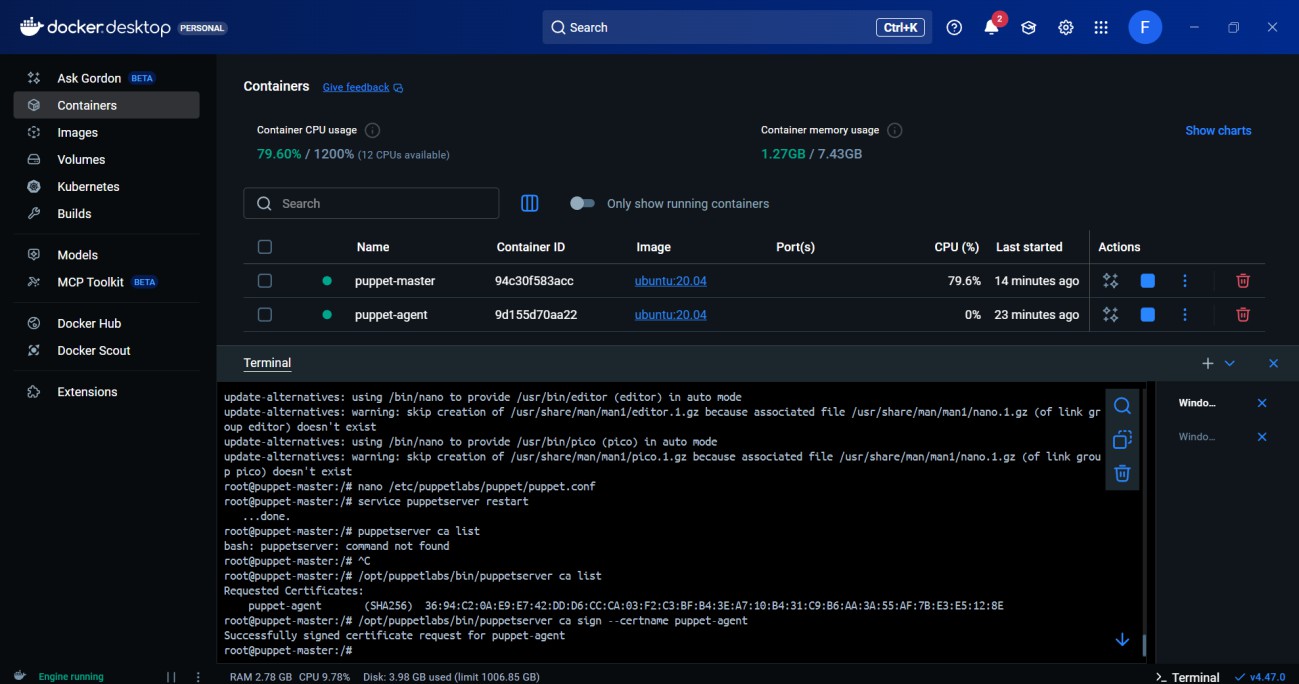
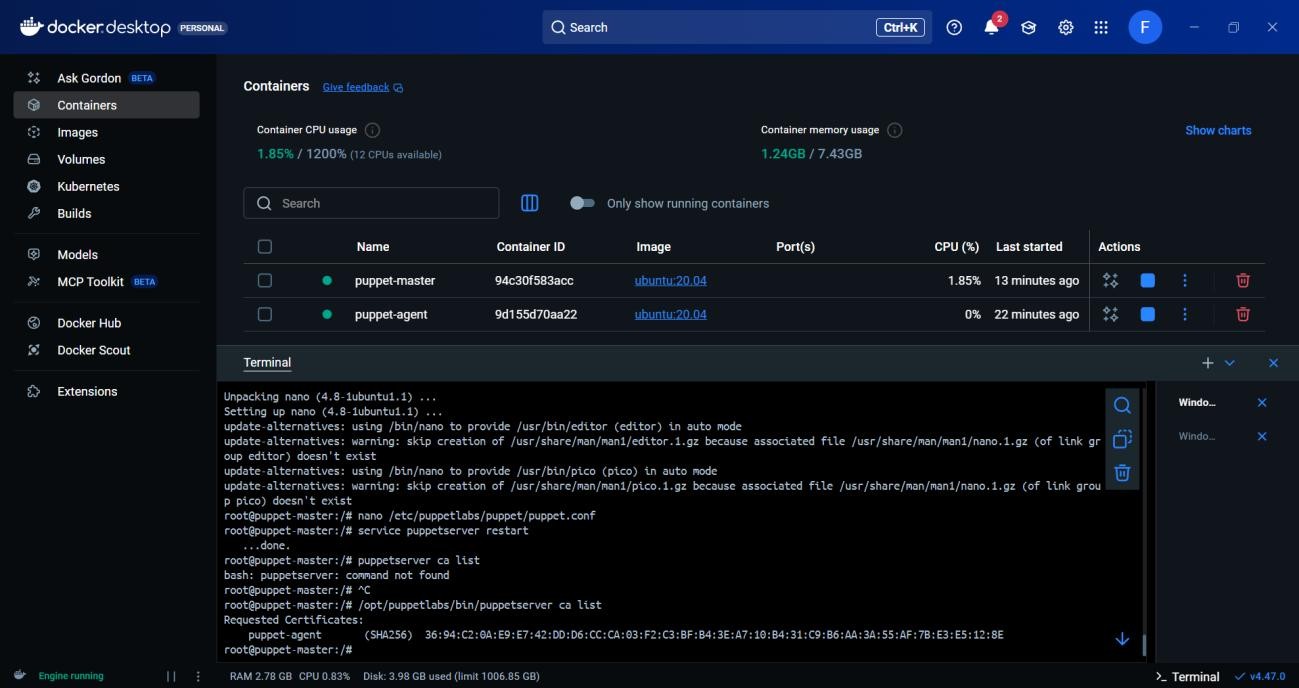
Sending certificate from Agent

Certificate Signing on Agent:

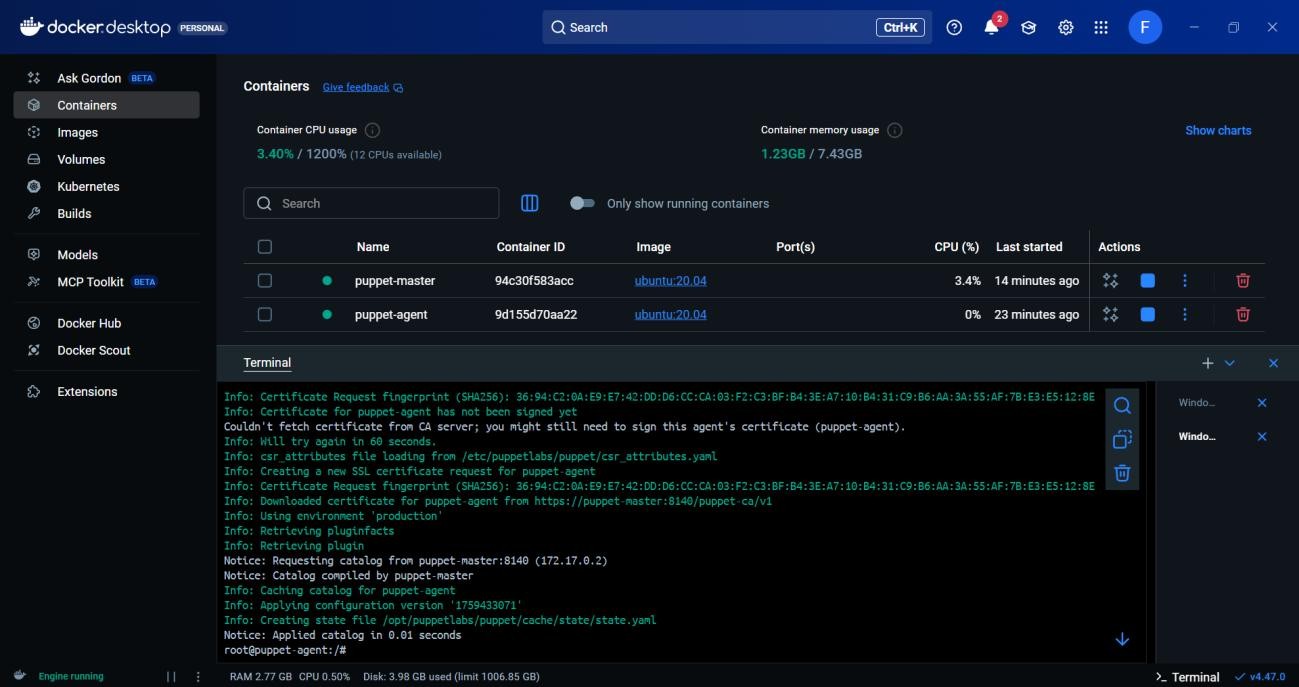
/opt/puppetlabs/bin/puppet agent --test --waitforcert 60 (Generates a CSR request)

Master:

* /opt/puppetlabs/bin/puppetserver ca list
* /opt/puppetlabs/bin/puppetserver ca sign --certname puppet-agent



Certificate signed on Master

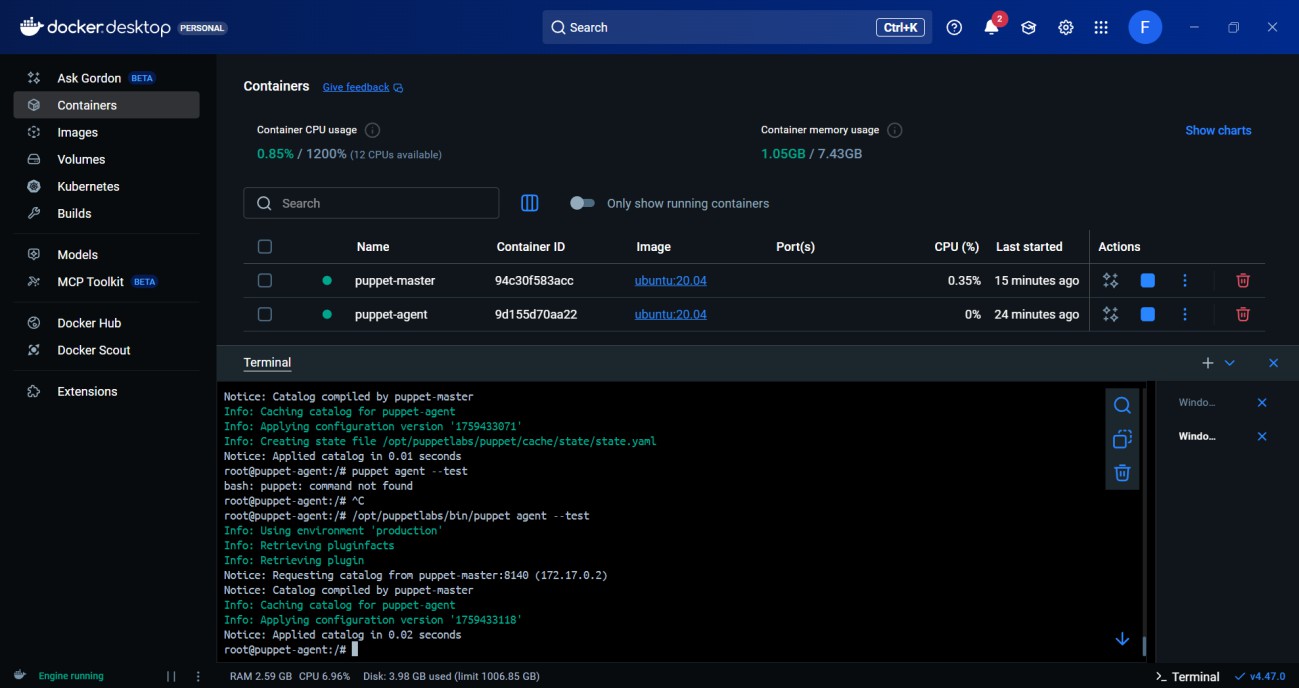


Acknowledgment Received

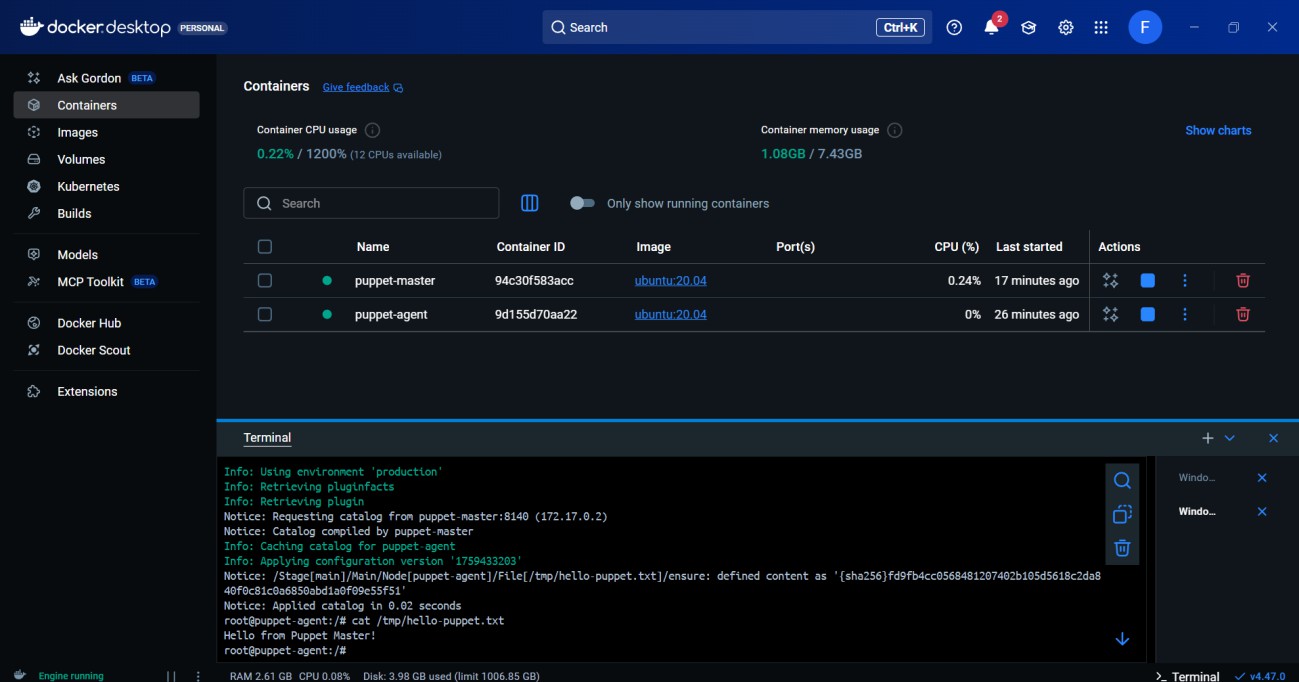
Test Communication on Agent:

/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",

}

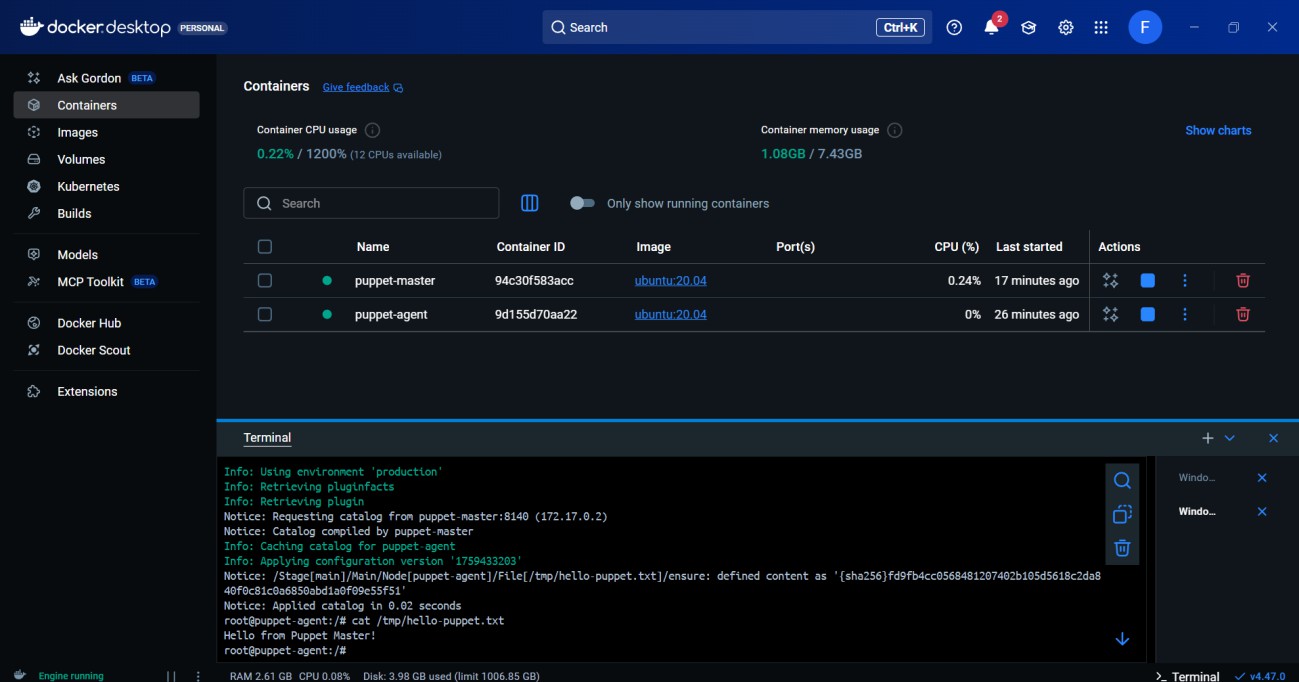
}

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