**28-Oct-2024**

**Internship Day - 69 Report:**

**Multiple Virtual Machines Start using single vagrant File**

1. **Create a project directory for multiple VMs**

* mkdir vagrant-multiple\_m/c’s
* cd vagrant-wordp multiple\_m/c’s

2. **Create and edit the Vagrantfile**

Vagrant.configure("2") do |config|

config.hostmanager.enabled = true

config.hostmanager.manage\_host = true

### DB vm ####

config.vm.define "db01" do |db01|

db01.vm.box = "eurolinux-vagrant/centos-stream-9"

db01.vm.box\_version = "9.0.43"

db01.vm.hostname = "db01"

db01.vm.network "private\_network", ip: "192.168.56.15"

db01.vm.provider "virtualbox" do |vb|

vb.memory = "300"

end

end

### Memcache vm ####

config.vm.define "mc01" do |mc01|

mc01.vm.box = "eurolinux-vagrant/centos-stream-9"

mc01.vm.box\_version = "9.0.43"

mc01.vm.hostname = "mc01"

mc01.vm.network "private\_network", ip: "192.168.56.14"

mc01.vm.provider "virtualbox" do |vb|

vb.memory = "300"

end

end

### RabbitMQ vm ####

config.vm.define "rmq01" do |rmq01|

rmq01.vm.box = "eurolinux-vagrant/centos-stream-9"

rmq01.vm.box\_version = "9.0.43"

rmq01.vm.hostname = "rmq01"

rmq01.vm.network "private\_network", ip: "192.168.56.16"

rmq01.vm.provider "virtualbox" do |vb|

vb.memory = "300"

end

end

### tomcat vm ###

config.vm.define "app01" do |app01|

app01.vm.box = "eurolinux-vagrant/centos-stream-9"

app01.vm.box\_version = "9.0.43"

app01.vm.hostname = "app01"

app01.vm.network "private\_network", ip: "192.168.56.12"

app01.vm.provider "virtualbox" do |vb|

vb.memory = "300"

end

end

### Nginx VM ###

config.vm.define "web01" do |web01|

web01.vm.box = "ubuntu/jammy64"

web01.vm.hostname = "web01"

web01.vm.network "private\_network", ip: "192.168.56.11"

# web01.vm.network "public\_network"

web01.vm.provider "virtualbox" do |vb|

vb.gui = true

vb.memory = "300"

end

end

end

**3. Explanation of the Vagrantfile**

This Vagrantfile defines two virtual machines:

* **Web Server VM**:
  + Uses Ubuntu 22.04 (ubuntu/jammy64).
  + Has a private IP of 192.168.56.30.
  + Allocates 1 CPU and 1550 MB of memory.
  + Provisions Apache and curl via a shell script.
* **Database Server VM**:
  + Uses Ubuntu 22.04 (ubuntu/jammy64).
  + Has a private IP of 192.168.56.40.
  + Allocates 1 CPU and 1550 MB of memory.
  + Provisions MySQL via a shell script.

4. **Bring up the virtual machines:**

* vagrant up  
  A black and grey rectangular object

  Description automatically generated
* vagrant status  
  A black and grey rectangular object

  Description automatically generated
* vagrant up web  
  A screenshot of a computer

  Description automatically generated
* vagrant up db  
  A screenshot of a computer

  Description automatically generated

**29-Oct-2024**

**Internship Day - 70 Report:**

**Create systemctl Service For Tomcat Web-Server**

**1. Create a Directory for the Tomcat Server**

mkdir TOMCAT-server

cd TOMCAT-server

****

**2. Initialize Vagrant**

vagrant init ubuntu/jammy64

****

**3. Bring up the Vagrant Virtual Machine**

****

**4. SSH into the VM**

****

**5. Install Apache**

A black screen with a black background

Description automatically generated

**6. Check Apache Status**

****

**7. Download and Install Tomcat**

Download Tomcat 10 from the official website:



Extract



**8. Install Java**

Before running Tomcat, ensure that Java is installed. First, check the current Java version:



If Java is not installed, update the package list and install OpenJDK 17:



**9. Navigate to the Tomcat bin Directory**

After extracting Tomcat, change to the bin directory of Tomcat.



**10. Start Tomcat**

Run the Tomcat startup script to start the server



**11. Verify Tomcat is Running:**

Check if Tomcat is running using the ps command.



**12. Stop Tomcat (if needed):**

You can stop Tomcat by killing the process ID (PID) found in the previous step.



**30-Oct-2024**

**Internship Day - 71 Report:**

**13. Create a systemctl Service for Tomcat:**

**13.1 Create a Tomcat User Without Home Directory:**

Create a Tomcat user:



**13.2 Copy Tomcat Files to the Home Directory:**

Copy the necessary Tomcat files to /opt/tomcat:



**13.3 Remove the Old Directory:**

Optionally, remove the old Tomcat directory:



**13.4 Set Ownership for the Tomcat Directory:**

Assign ownership of the Tomcat directory to the tomcat user:



**13.5 Create Systemd Service File for Tomcat:**

Create the systemd service file for Tomcat and reload systemd to apply the configuration changes:

****

**14.Final Steps for Tomcat Server Setup:**

**14.1 Update Alternatives and Configure Java:**

Update the alternatives and configure Java using:



**14.2 Systemd Configuration for Tomcat:**

Create the systemd service file for Tomcat:



**14.3 Reload Systemd Daemon and Start Tomcat Service:**

Reload the systemd configuration:



**14.4 Start the Tomcat service:**

