# Method of Procedure (MOP) for Deploying a VM on OpenStack with Specific Configuration

## Document Control

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## Purpose

This MOP outlines the detailed steps to deploy a Virtual Machine (VM) on OpenStack with specific memory, CPU configuration, and network settings. The process includes setting a specific node name, configuring the firewall, and allowing only designated ports.

## Scope

This procedure is applicable to OpenStack environments and assumes that the user has the necessary permissions to create and manage VMs.

## Prerequisites

1. Access to an OpenStack environment with appropriate credentials.

2. OpenStack CLI or Horizon dashboard access.

3. Knowledge of the specific node name, desired IP address, and ports to be allowed through the firewall.

## Definitions

- \*\*VM:\*\* Virtual Machine

- \*\*CPI:\*\* Central Processing Unit

- \*\*RAM:\*\* Random Access Memory

- \*\*OpenStack:\*\* An open-source cloud computing platform for public and private clouds.

## Procedure

### Step 1: Log in to OpenStack

1. Open a terminal or command prompt.

2. Source your OpenStack credentials:

```bash

source /path/to/your/openrc.sh

```

### Step 2: Create a VM

1. \*\*Define Variables:\*\*

- Set the desired VM name, flavor, image, and network.

```bash

VM\_NAME="your\_node\_name" # Replace with your desired node name

FLAVOR="m1.small" # Replace with your desired flavor (e.g., m1.small)

IMAGE="ubuntu-22.04" # Replace with your desired image name

NETWORK="your\_network" # Replace with your desired network name

IP\_ADDRESS="192.168.122.10" # Replace with your desired static IP address

```

2. \*\*Create the VM:\*\*

```bash

openstack server create --flavor $FLAVOR --image $IMAGE --nic net-id=$NETWORK --key-name your\_key\_name --security-group default --user-data user\_data.txt $VM\_NAME

```

3. \*\*Assign a Floating IP (if necessary):\*\*

```bash

openstack floating ip create public

FLOATING\_IP=$(openstack floating ip list -f value -c Floating IP Address | head -n 1)

openstack server add floating ip $VM\_NAME $FLOATING\_IP

```

### Step 3: Configure the VM

1. \*\*Access the VM:\*\*

```bash

ssh ubuntu@$FLOATING\_IP

```

2. \*\*Update the System:\*\*

```bash

sudo apt update && sudo apt upgrade -y

```

### Step 4: Set Static IP Address

1. \*\*Edit the Netplan Configuration:\*\*

```bash

sudo vi /etc/netplan/01-netcfg.yaml

```

Add the following configuration:

```yaml

network:

version: 2

ethernets:

ens33: # Replace with your network interface name

dhcp4: no

addresses:

- $IP\_ADDRESS/24

gateway4: 192.168.122.1 # Replace with your gateway

nameservers:

addresses:

- 8.8.8.8

- 8.8.4.4

```

2. \*\*Apply the Netplan Configuration:\*\*

```bash

sudo netplan apply

```

### Step 5: Configure the Firewall

1. \*\*Install UFW (Uncomplicated Firewall):\*\*

```bash

sudo apt install ufw -y

```

2. \*\*Allow Specific Ports:\*\*

Replace `PORT\_NUMBER` with the actual port numbers you want to allow.

```bash

sudo ufw allow PORT\_NUMBER

sudo ufw allow ssh # Allow SSH access

```

3. \*\*Enable the Firewall:\*\*

```bash

sudo ufw enable

```

4. \*\*Check Firewall Status:\*\*

```bash

sudo ufw status

```

### Step 6: Verify Configuration

1. \*\*Check VM Status:\*\*

```bash

openstack server show $VM\_NAME

```

2. \*\*Ping the VM:\*\*

From another machine, ping the VM's static IP address to ensure it is reachable.

3. \*\*Check Firewall Rules:\*\*

```bash

sudo ufw status verbose

```

## Conclusion

This MOP provides a comprehensive guide to deploying a VM on OpenStack with specific configurations, including setting a static IP address and configuring the firewall. Ensure to replace placeholder values with actual data relevant to your environment.

## References

- OpenStack Documentation: https://docs.openstack.org/

- UFW Documentation: https://help.ubuntu.com/community/UFW

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