# Method of Procedure (MOP) for Deploying a VM on OpenStack and Installing nDPI

## Document Control

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\*\*Author:\*\* [Your Name]

\*\*Reviewed by:\*\* [Reviewer Name]

\*\*Approval:\*\* [Approver Name]

## Purpose

This MOP outlines the detailed steps to deploy a Virtual Machine (VM) on OpenStack with specific resource allocations, install nDPI, and configure it to block specific traffic.

## Scope

This procedure is intended for system administrators and network engineers who are familiar with OpenStack and Linux environments.

## Prerequisites

1. Access to an OpenStack environment with appropriate permissions to create VMs.

2. Basic knowledge of Linux command-line operations.

3. Familiarity with nDPI and its configuration.

## Resources Required

- OpenStack credentials (username, password, project name, and domain).

- A valid SSH key for accessing the VM.

- A specific node name for the VM.

- The specific IP address for the VM.

- Internet access for downloading nDPI.

## Procedure

### Step 1: Deploy a VM on OpenStack

1. \*\*Log in to OpenStack:\*\*

Open a terminal and log in to your OpenStack environment using the following command:

```bash

source /path/to/your/openrc.sh

```

2. \*\*Create a VM:\*\*

Use the `openstack server create` command to create a VM with the specified resources. Replace `<NODE\_NAME>`, `<IMAGE\_NAME>`, `<FLAVOR\_NAME>`, and `<NETWORK\_NAME>` with your desired values.

```bash

openstack server create --flavor <FLAVOR\_NAME> --image <IMAGE\_NAME> --key-name <YOUR\_KEY\_NAME> --network <NETWORK\_NAME> --nic net-id=<NETWORK\_ID> --security-group <SECURITY\_GROUP> <NODE\_NAME>

```

- \*\*Example:\*\*

```bash

openstack server create --flavor m1.small --image Ubuntu-22.04 --key-name mykey --network my-network --security-group default my-node

```

3. \*\*Assign a Specific IP Address:\*\*

After the VM is created, assign a specific IP address using the following command:

```bash

openstack server add floating <NODE\_NAME> <FLOATING\_IP>

```

- \*\*Example:\*\*

```bash

openstack server add floating my-node 192.168.122.100

```

4. \*\*Verify VM Creation:\*\*

Check the status of the VM to ensure it is active:

```bash

openstack server list

```

### Step 2: Access the VM

1. \*\*SSH into the VM:\*\*

Use SSH to access the VM using the assigned floating IP address:

```bash

ssh -i /path/to/your/private\_key username@192.168.122.100

```

### Step 3: Install nDPI

1. \*\*Update the Package List:\*\*

Once logged into the VM, update the package list:

```bash

sudo apt update

```

2. \*\*Install Required Dependencies:\*\*

Install the necessary packages for building nDPI:

```bash

sudo apt install git build-essential cmake libpcap-dev

```

3. \*\*Clone the nDPI Repository:\*\*

Clone the nDPI repository from GitHub:

```bash

git clone https://github.com/ntop/nDPI.git

```

4. \*\*Build and Install nDPI:\*\*

Navigate to the nDPI directory and build the software:

```bash

cd nDPI

mkdir build

cd build

cmake ..

make

sudo make install

```

### Step 4: Configure nDPI to Block Specific Traffic

1. \*\*Create a Configuration File:\*\*

Create a configuration file for nDPI to specify the traffic to block. This can be done by editing a file in `/etc/ndpi.conf` or similar, depending on your setup.

2. \*\*Define Traffic Rules:\*\*

Add rules to block specific traffic. For example, to block HTTP traffic, you might add:

```bash

[http]

block = true

```

3. \*\*Run nDPI:\*\*

Start nDPI with the configuration file:

```bash

sudo ndpiReader -c /etc/ndpi.conf

```

### Step 5: Verify nDPI Configuration

1. \*\*Check nDPI Logs:\*\*

Monitor the logs to ensure that the specified traffic is being blocked:

```bash

tail -f /var/log/ndpi.log

```

2. \*\*Test Traffic Blocking:\*\*

Use tools like `curl` or `wget` to test if the specified traffic is being blocked as intended.

### Step 6: Clean Up

1. \*\*Remove the VM (if necessary):\*\*

If you need to remove the VM after testing, use the following command:

```bash

openstack server delete <NODE\_NAME>

```

## Conclusion

This MOP provides a comprehensive guide to deploying a VM on OpenStack, installing nDPI, and configuring it to block specific traffic. Ensure to follow each step carefully and verify the configurations to achieve the desired results.

## References

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

- nDPI GitHub Repository: https://github.com/ntop/nDPI

## Appendices

- Appendix A: Common Errors and Troubleshooting

- Appendix B: Additional Resources for nDPI Configuration