

Ex No: 8 Installation of OpenStack and creation of Virtual Machines

01/09/25

AIM:

To set up OpenStack using DevStack and provision virtual machines for cloud resource deployment and management.

PROCEDURE:

1. Add a user named 'stack'.

```
tce@tce-VirtualBox:~$ sudo adduser stack
Adding user `stack' ...
Adding new group `stack' (1001) ...
Adding new user `stack' (1001) with group `stack' ...
Creating home directory `/home/stack' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for stack
Enter the new value, or press ENTER for the default
    Full Name []: Openstack
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
tce@tce-VirtualBox:~$
```

2. Grant passwordless sudo privileges to the stack user.

```
root@tce-VirtualBox:~# echo "stack ALL=(ALL) NOPASSWD: ALL" >> /etc/sudoers
root@tce-VirtualBox:~#
```

3. Install required packages.

```
root@tce-VirtualBox:~# apt-get install git sudo
Reading package lists... Done
Building dependency tree
Reading state information... Done
sudo is already the newest version (1.8.21p2-3ubuntu1.6).
sudo set to manually installed.
The following additional packages will be installed:
  git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-el git-email git-gui gitk
  gitweb git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 56 not upgraded.
```

4. Switch to the stack user

```
root@tce-VirtualBox:~# su - stack
```

5. Clone DevStack from git.

```
stack@tce-VirtualBox:~$ git clone https://opendev.org/openstack/devstack.git
Cloning into 'devstack'...
remote: Enumerating objects: 51974, done.
remote: Counting objects: 100% (31551/31551), done.
remote: Compressing objects: 100% (10716/10716), done.
remote: Total 51974 (delta 30781), reused 20835 (delta 20835), pack-reused 20423
Receiving objects: 100% (51974/51974), 9.71 MiB | 1.34 MiB/s, done.
Resolving deltas: 100% (36901/36901), done.
stack@tce-VirtualBox:~$ cd devstack
stack@tce-VirtualBox:~/devstack$
```

6. Configure local.conf file.

- ADMIN_PASSWORD → used for Horizon admin/demo logins
- DATABASE_PASSWORD → root password for MySQL
- RABBIT_PASSWORD → RabbitMQ password
- SERVICE_PASSWORD → used by OpenStack services to talk to Keystone

```
stack@tce-VirtualBox:~/devstack$ nano local.conf
stack@tce-VirtualBox:~/devstack$
```

```
GNU nano 6.2 local.conf *
[[local|localrc]]

ADMIN_PASSWORD=secret
DATABASE_PASSWORD=$ADMIN_PASSWORD
RABBIT_PASSWORD=$ADMIN_PASSWORD
SERVICE_PASSWORD=$ADMIN_PASSWORD
```

7. Run DevStack.

```
stack@tce-VirtualBox:~/devstack$ ./stack.sh
+ unset GREP_OPTIONS
+ unset LANG
+ unset LANGUAGE
+ LC_ALL=en_US.utf8
+ export LC_ALL
++ cut -d = -f 1
++ grep -E '^OS_'
++ env
+ unset
+ umask 022
+ PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/st
=====
DevStack Component Timing
=====
Total runtime          5366

run_process             71
test_with_retry         5
apt-get-update          27
pip_install             691
restart_apache_server   14
wait_for_service        23
git_timed               1942
apt-get                 1571
=====
```

8. Access Horizon Dashboard

- Open a browser and go to <http://<your-machine-ip>/dashboard>

The screenshot shows the OpenStack Horizon dashboard. On the left is the login page with the OpenStack logo, a 'Log in' section with 'User Name' and 'Password' input fields, and a 'Sign In' button. On the right is the 'Overview' page. The top navigation bar shows 'Project / Compute / Overview'. The left sidebar has a menu with 'Overview' selected. The main content area shows 'Limit Summary' with links for 'Compute', 'Volume', and 'Network', and 'Usage Summary' with a text input for 'Select a period of time to query its usage:' and a note 'The date should be in YYYY-MM-DD format.'

9. From the left menu, click Project → Compute → Instances → Click Launch Instance button

The screenshot shows the 'Instances' page in the OpenStack Horizon dashboard. The top navigation bar shows 'Project / Compute / Instances'. The left sidebar has a menu with 'Instances' selected. The main content area shows a table of instances with columns: Instance Name, Image Name, IP Address, Flavor, Key Pair, Status, Availability Zone, Task, Power State, Time since created, and Actions. Above the table are buttons for 'Launch Instance', 'Delete Instances', and 'More Actions'.

10. Fill in Details

The screenshot shows the 'Launch Instance' form in the OpenStack Horizon dashboard. The form has a left sidebar with tabs: 'Details', 'Source', 'Flavor', 'Networks', 'Network Ports', and 'Security Groups'. The 'Details' tab is selected. The main content area has a text input for 'Instance Name', a dropdown for 'Availability Zone' (set to 'nova'), and a text input for 'Count' (set to '1'). A note says 'Please provide the initial hostname for the instance, the availability zone where it will be deployed, and the instance count. Increase the Count to create multiple instances with the same settings.' On the right, there is a 'Total Instances (10 Max)' gauge showing '10%' usage, with a legend: '0 Current Usage', '1 Added', and '9 Remaining'.

Launch Instance



Details

Source

Flavor *

Networks *

Network Ports

Security Groups

Instance source is the template used to create an instance. You can use an image, a snapshot of an instance (image snapshot), a volume or a volume snapshot (if enabled). You can also choose to use persistent storage by creating a new volume.



Select Boot Source

Image

Create New Volume

Yes

No

Allocated

Name	Updated	Size	Type	Visibility	
> CentOS 7.6 LE	12/7/18 9:41 AM	3.00 GB	raw	Public	↓

Launch Instance



Details

Source

Flavor

Networks *

Network Ports

Flavors manage the sizing for the compute, memory and storage capacity of the instance.



Allocated

Name	VCPUS	RAM	Total Disk	Public	
> m1.tiny	1	1 GB	4 GB	Yes	↓

▼ Available 19

Select one

 Click here for filters.


Launch Instance



Details

Source

Flavor

Networks

Networks provide the communication channels for instances in the cloud.



▼ Allocated 1

Select networks from those listed below.

Network	Subnets Associated	Shared	Admin State	Status	
1 > Private	private-subnet	No	Up	Active	↓

11. Click Launch Instance

Instances

Instance ID =

Filter

Launch Instance

Delete Instances

More Actions

Displaying 1 item

	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
	22IT049_LO HITHA	cirros-0.3.5-x86_64-disk	10.0.0.5 fddf.fc8d:2b62:0:f816:3eff:fe0c:b74	m1.tiny	-	Active	nova	None	Running	1 week, 2 days	Create Snapshot

RESULT:

Thus, the OpenStack was successfully installed using DevStack, and virtual machines were created for cloud resource deployment and management.