EX.NO 2: Install Single node / Multi node setup using DevStack and perform various operations of Cloud using Horizon

Date:

READING MATERIALS:

DevStack:

DevStack is a series of extensible scripts used to quickly bring up a complete OpenStack environment based on the latest versions of everything from git master. It is used interactively as a development environment and as the basis for much of the OpenStack project's functional testing.

Openstack:

OpenStack is a cloud operating system that controls large pools of compute, storage, and networking resources throughout a datacenter, all managed through a dashboard that gives administrators control while empowering their users to provision resources through a web interface.

OpenStack Capability

- Software as Service (SaaS)
    - Browser or Thin Client access
- Platform as Service (PaaS)
    - On top of IaaS e.g. Cloud Foundry
- Infrastructure as Service (IaaS)
    - Provision Compute, Network, Storage
- Virtual Machine (VMs) on demand
    - Provisioning
    - Snapshotting
- Network

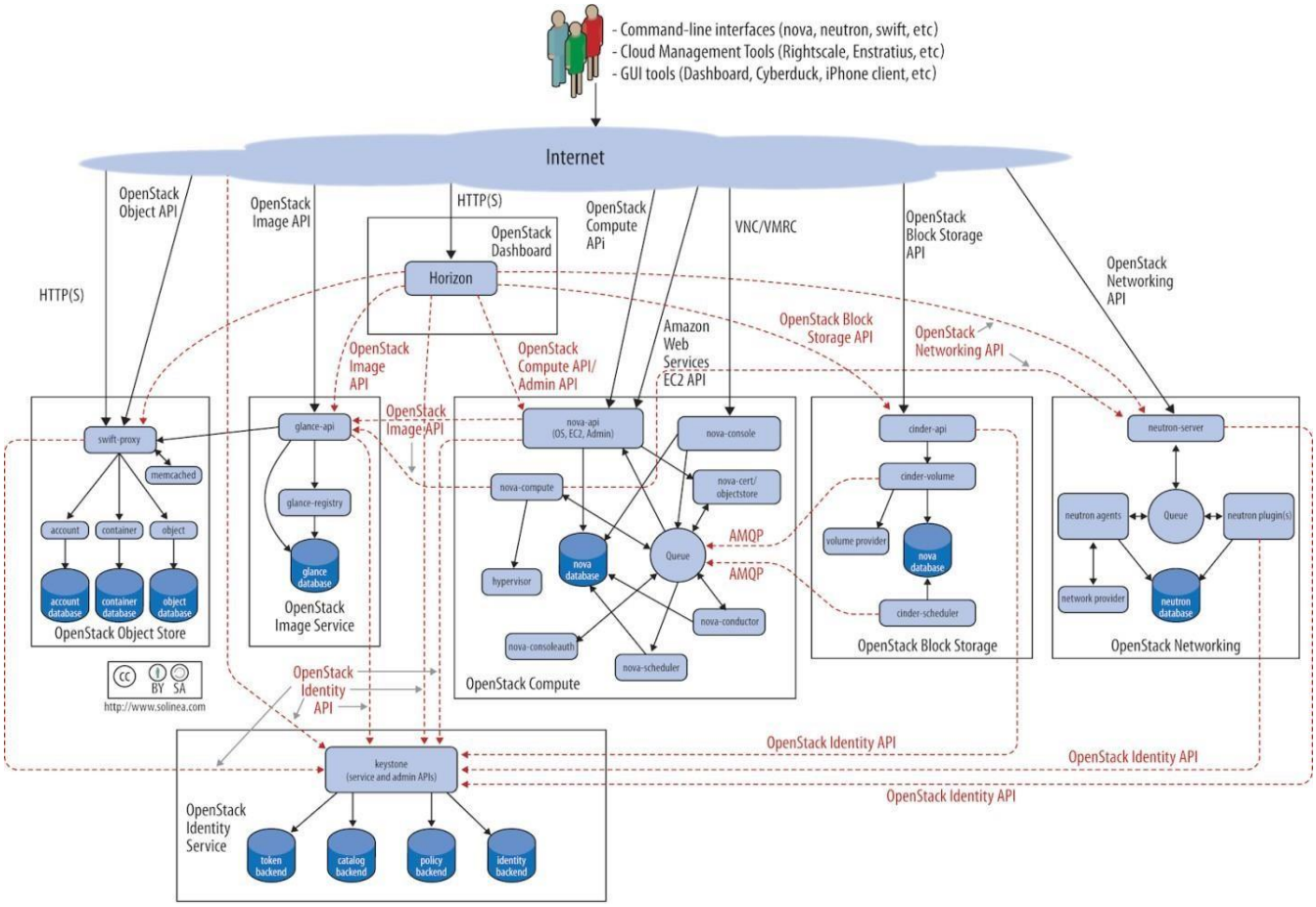
Storage for VMs and arbitrary files

Multi-tenancy

Quotas for different project, users

User can be associated with multiple projects

Architecture of Openstack



OpenStack Major Components

Service - Compute

Project - Nova

- Manages the lifecycle of compute instances in an OpenStack environment. Responsibilities include spawning, scheduling and decommissioning of virtual machines on demand.

Service - Networking

Project - Neutron

- Enables Network-Connectivity-as-a-Service for other OpenStack services, such as OpenStack Compute.

- Provides an API for users to define networks and the attachmentsinto them.
- Has a pluggable architecture that supports many popular networking vendors and technologies.

Service - Object storage

- Project - Swift
- Stores and retrieves arbitrary unstructured data objects via a RESTFul, HTTP based API.
- It is highly fault tolerant with its data replication and scale-out architecture. Its implementation is not like a file server with mountable directories.
- In this case, it writes objects and files to multiple drives, ensuring the data is
- replicated across a server cluster.

Service- Block storage

- Project- Cinder
  - Provides persistent block storage to running instances.
  - Its pluggable driver architecture facilitates the creation and management of block storage devices.

Service - Identity

- Project - Keystone
  - Provides an authentication and authorization service for other OpenStack services.
  - Provides a catalog of endpoints for all OpenStack services.

Service - Image service

- Project – Glance
  - Stores and retrieves virtual machine disk images.
  - OpenStack Compute makes use of this during instance provisioning.

Service - Telemetry

- Project - Ceilometer
- Monitors and meters the OpenStack cloud for billing, benchmarking, scalability, and statistical purposes.

Service - Dashboard

- Project - Horizon
  - Provides a web-based self-service portal to interact with underlying OpenStack services, such as launching an instance, assigning IP addresses and configuring access controls.

EX.NO 2: **Install Single node / Multi node setup using DevStack and perform various operations of Cloud using Horizon**

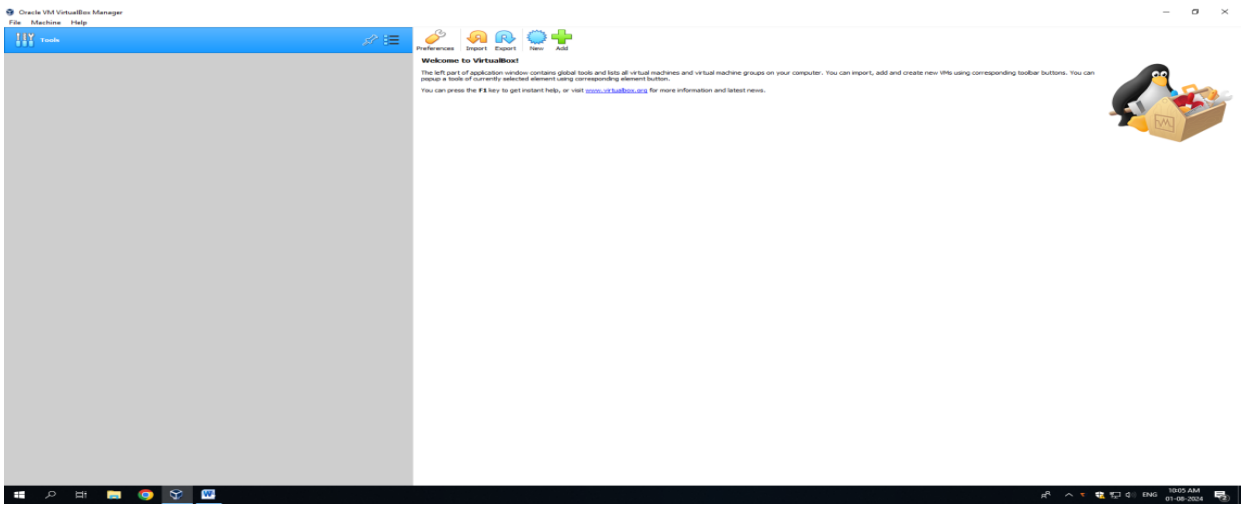
Date:

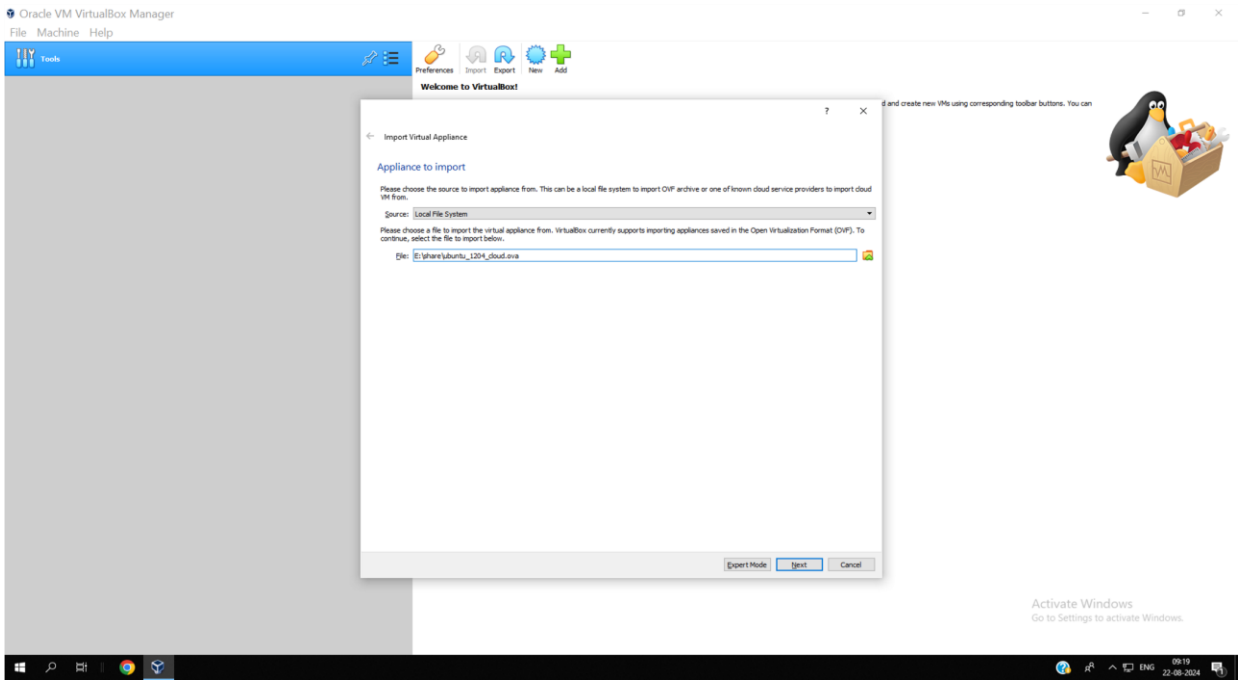
AIM:

To Install Single node / Multi node setup using DevStack and perform various operations of Cloud using Horizon.

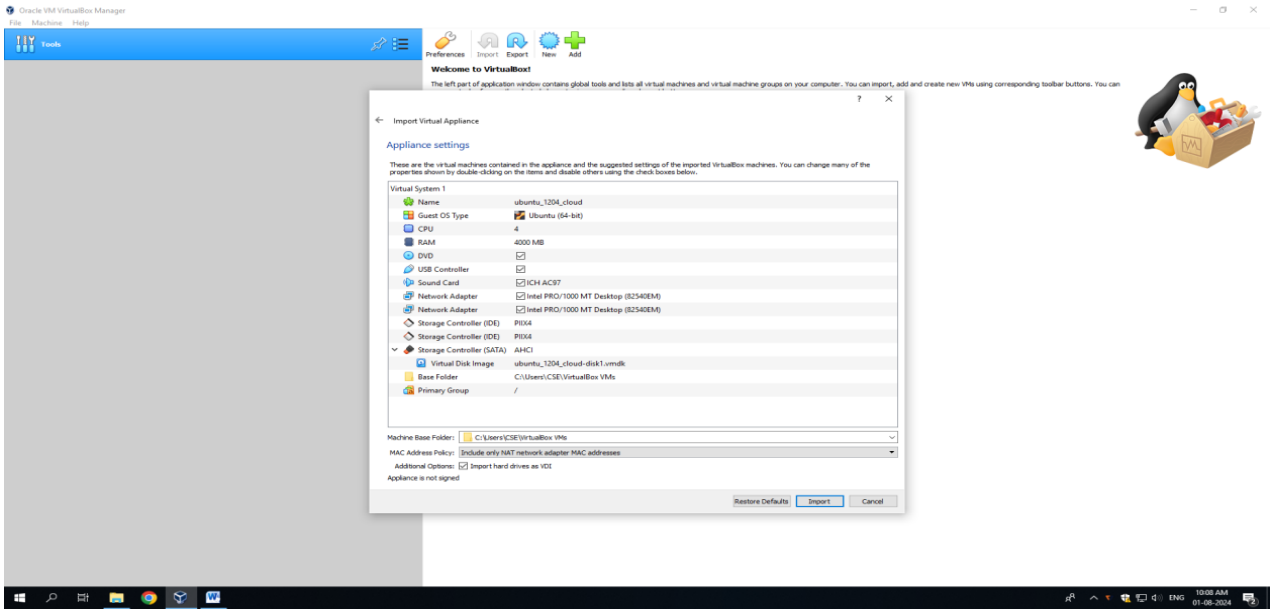
PROCEDURE WITH SCREENSHOTS:

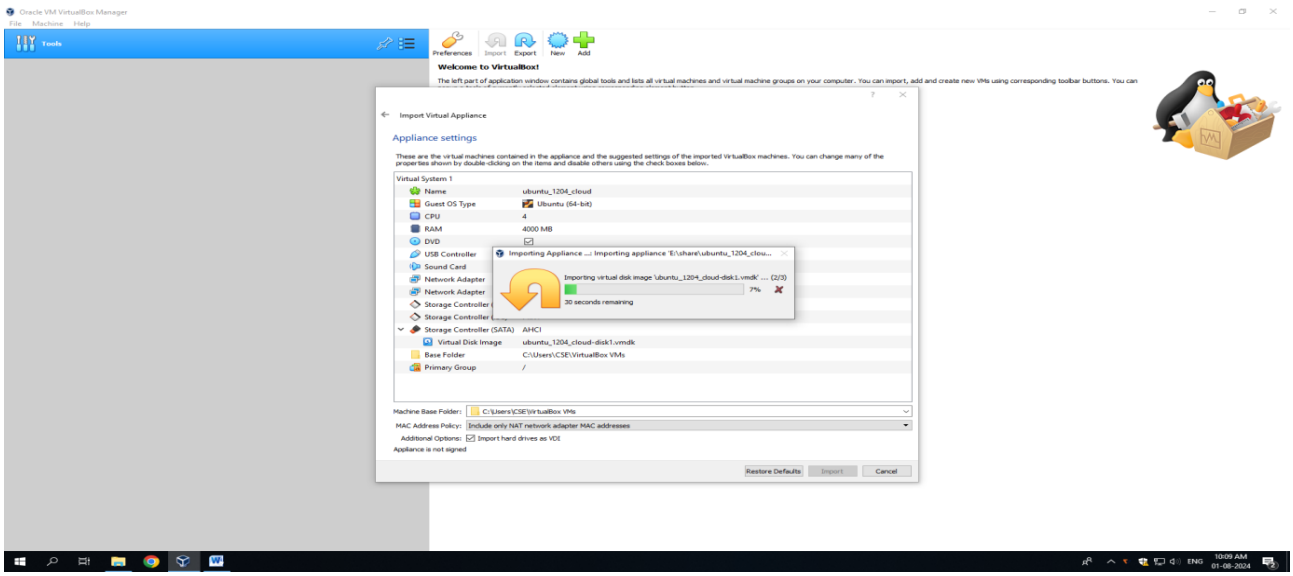
Step 1 : Open oracle VM Virtualbox Manager



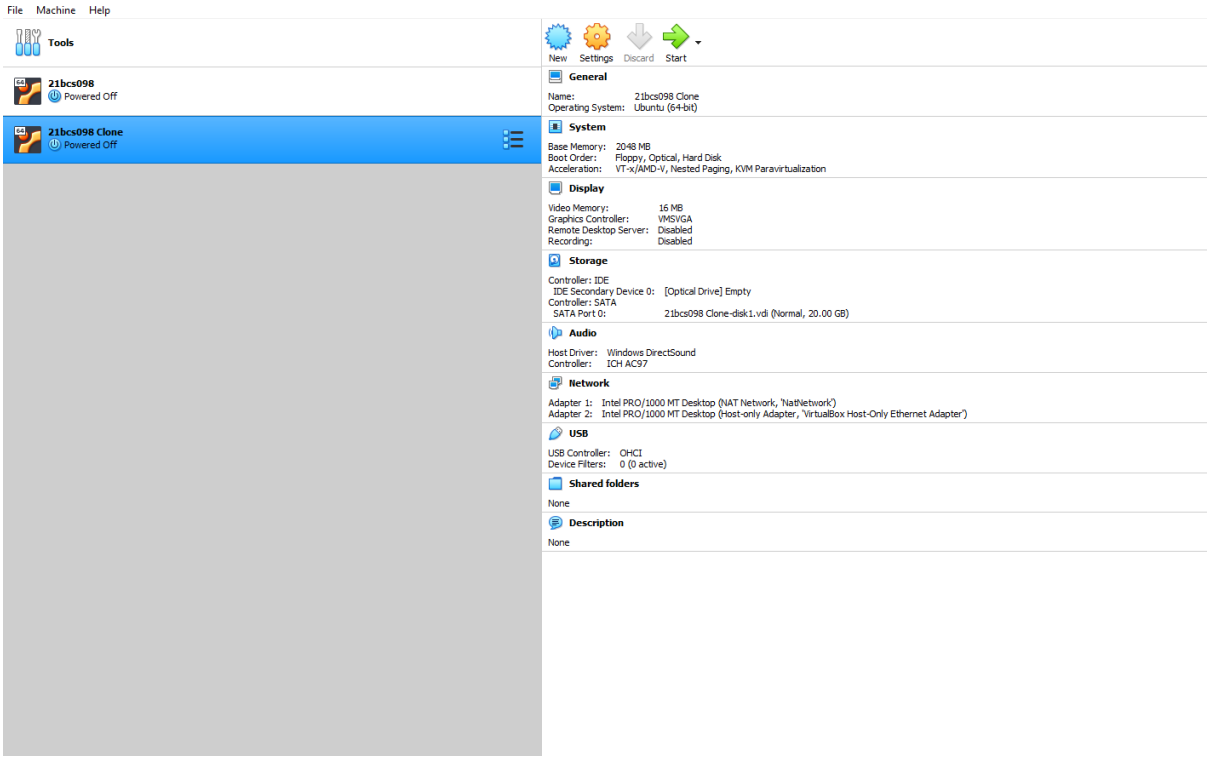


Step 2 : Import Virtual Appliance for Node 21BCS042_Rahul_krishnan

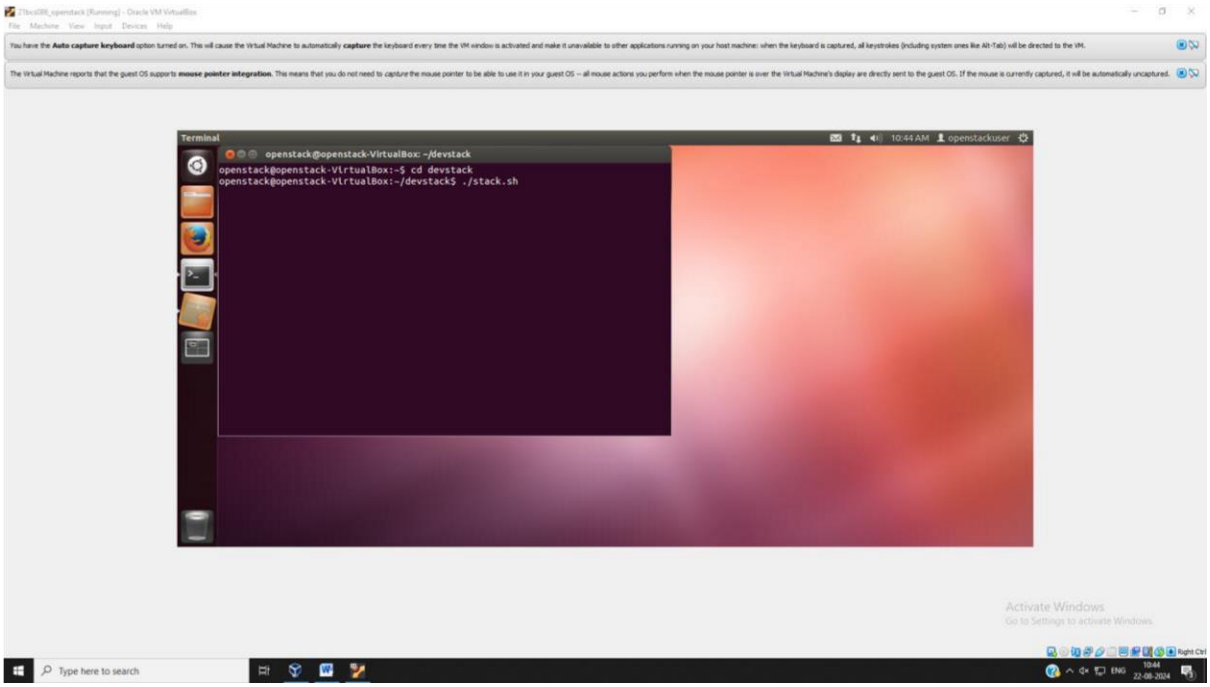


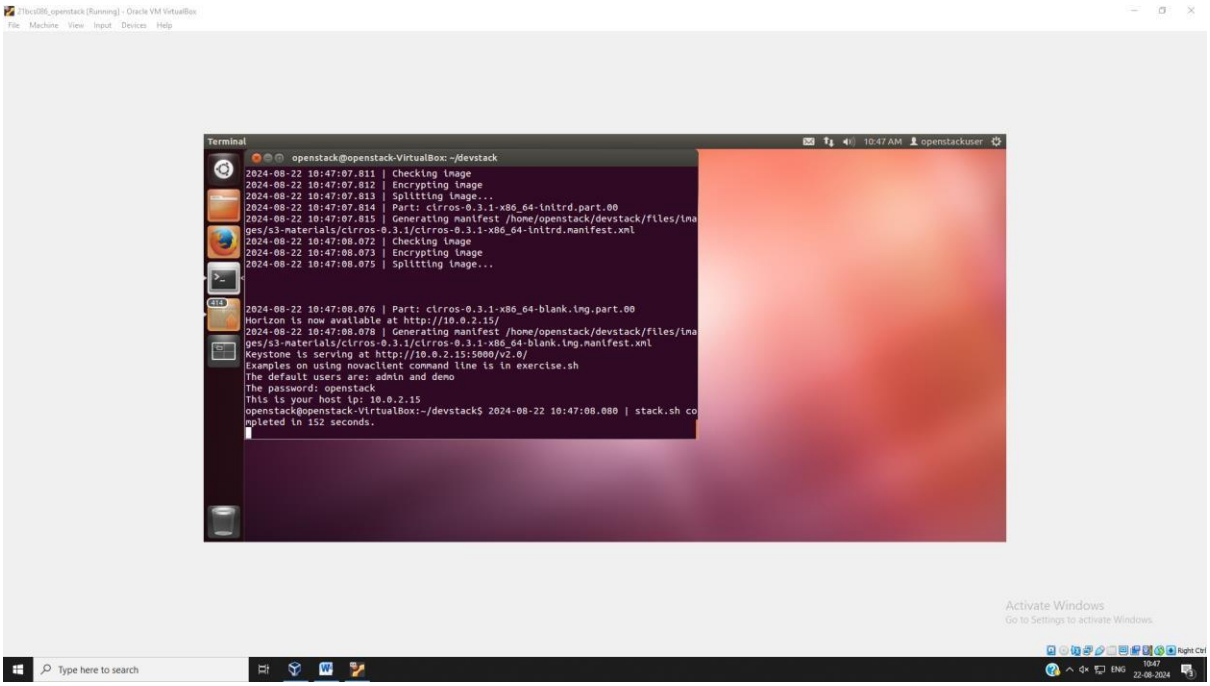


Step 3 : Open the Node 21BCS042_Rahul_krishnan

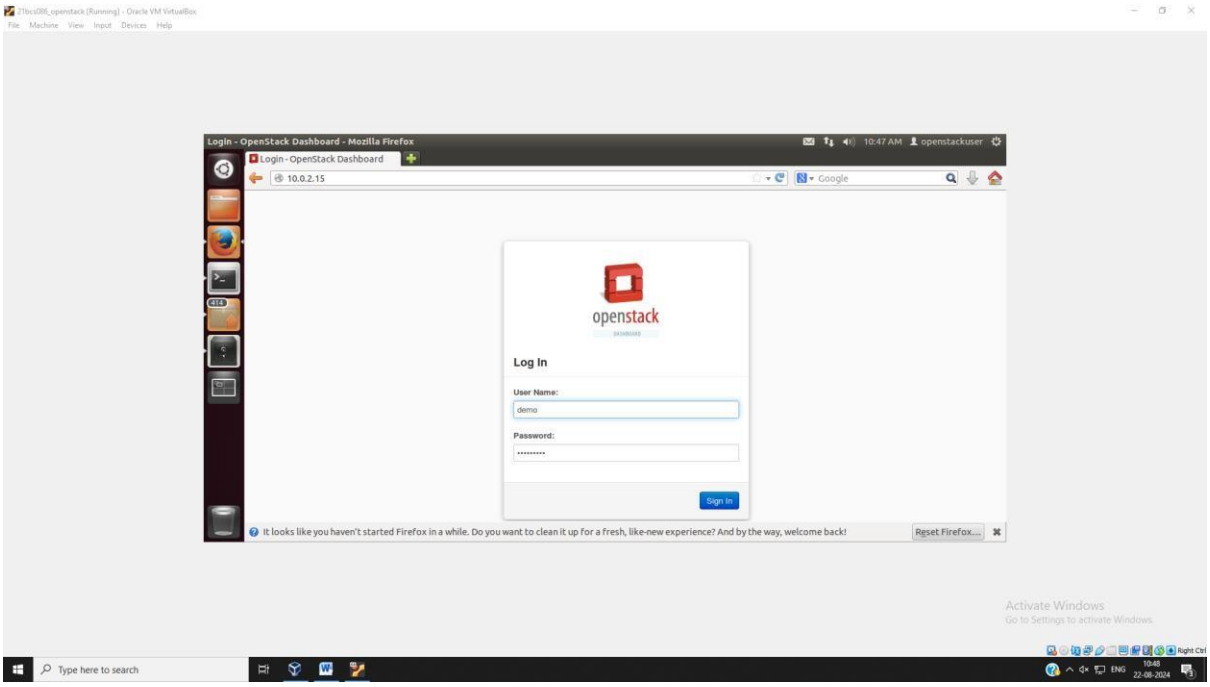


Step 4 : Open "Terminal", Run ./stack.sh command and obtain the IP address of virtual machine

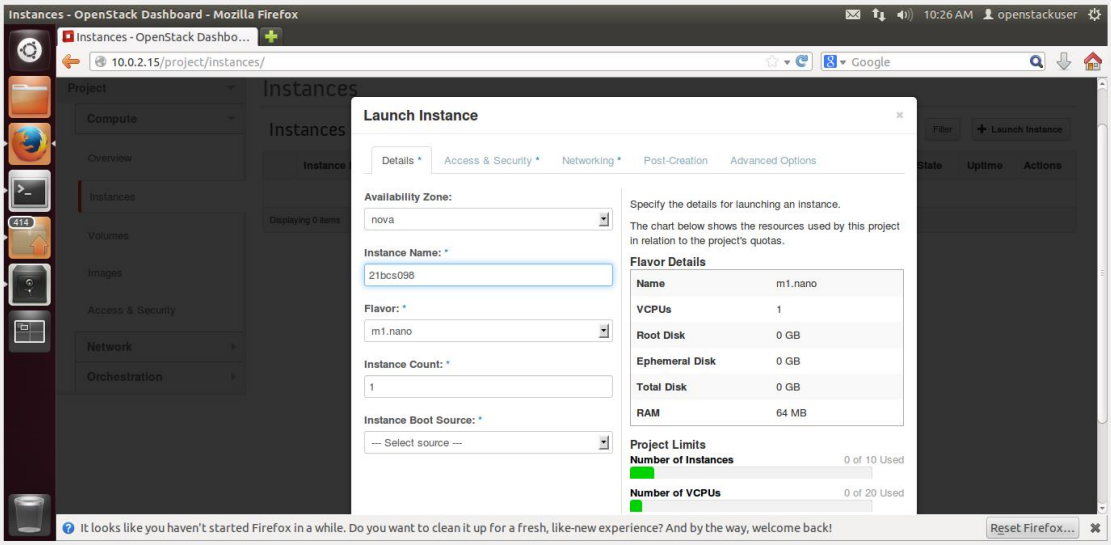


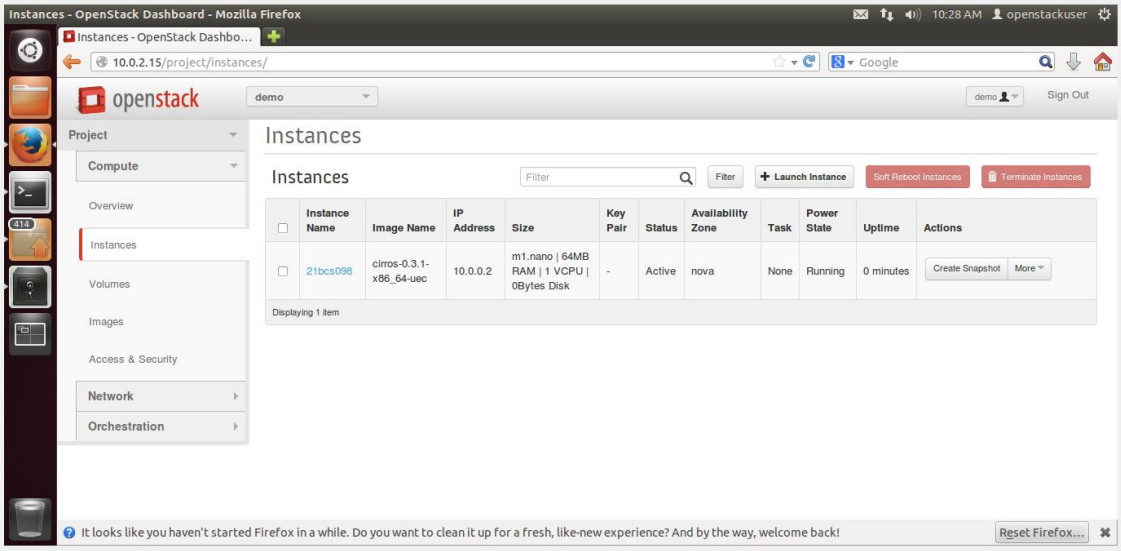


Step 5 : Login to Openstack dashboard

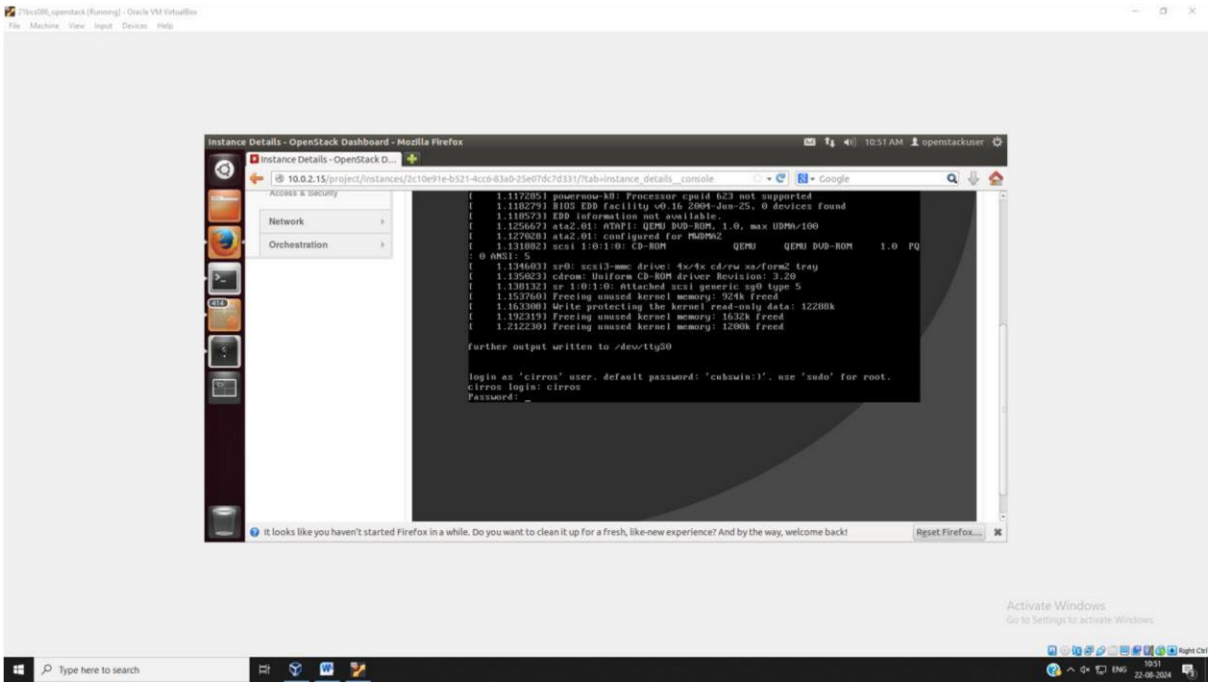


Step 6 : Select availability zone as nova, set Instance name and launch the instance

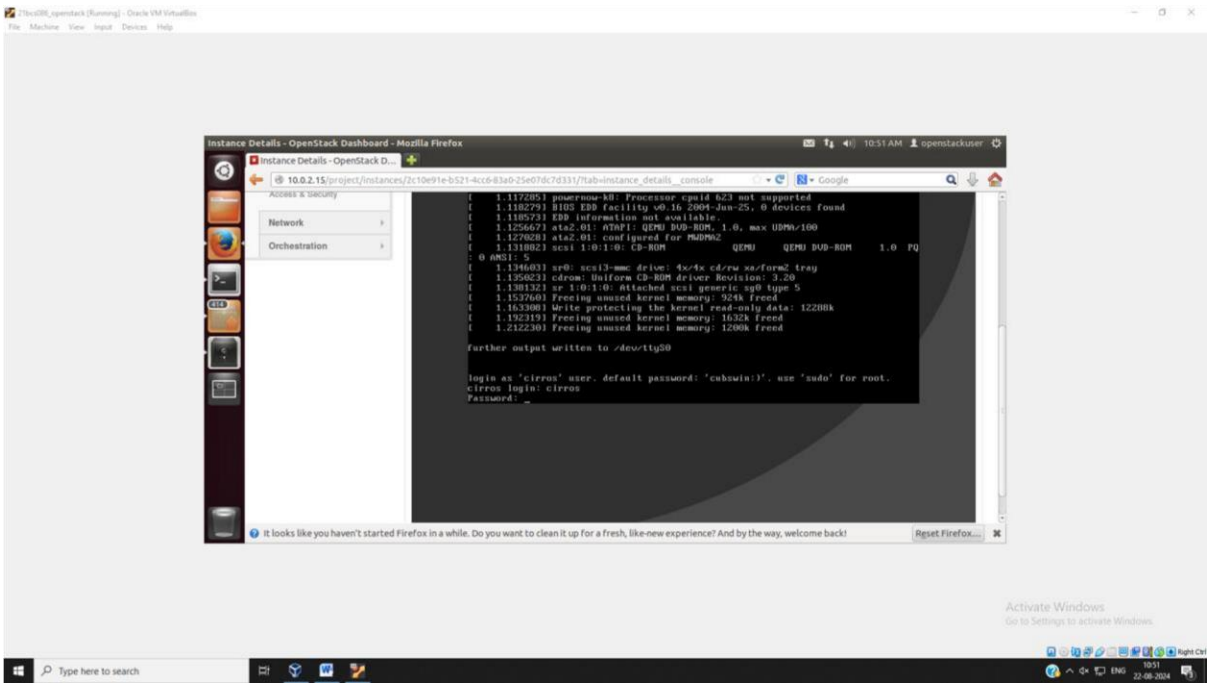


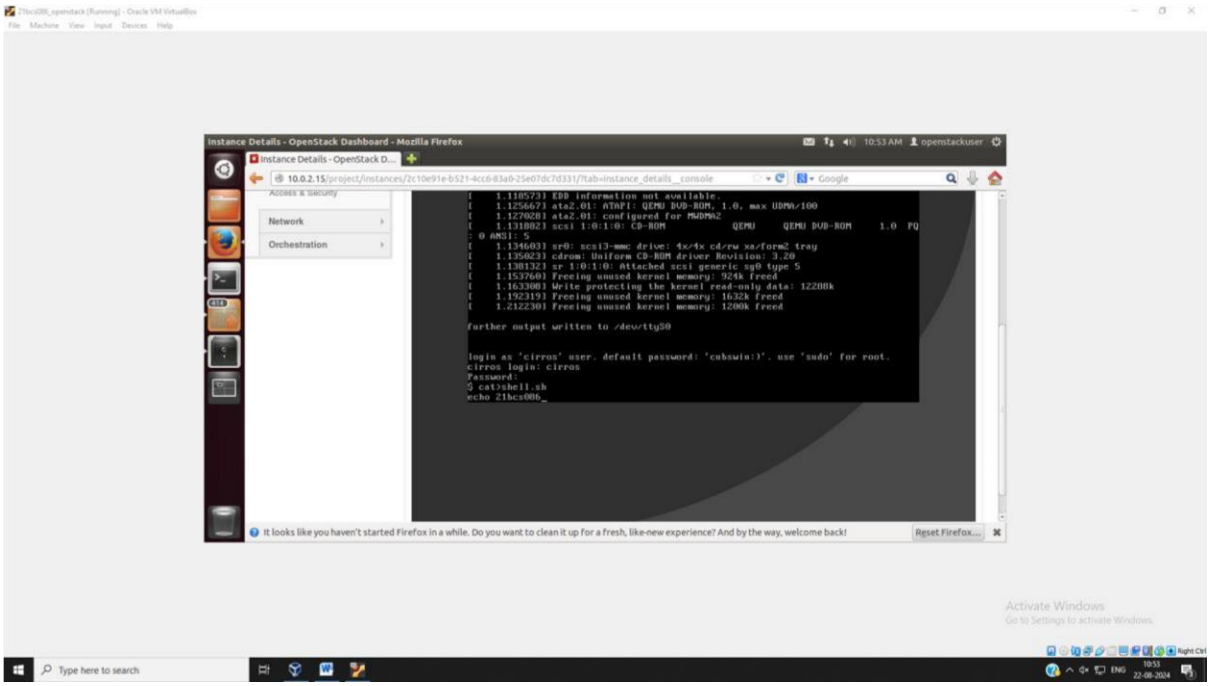


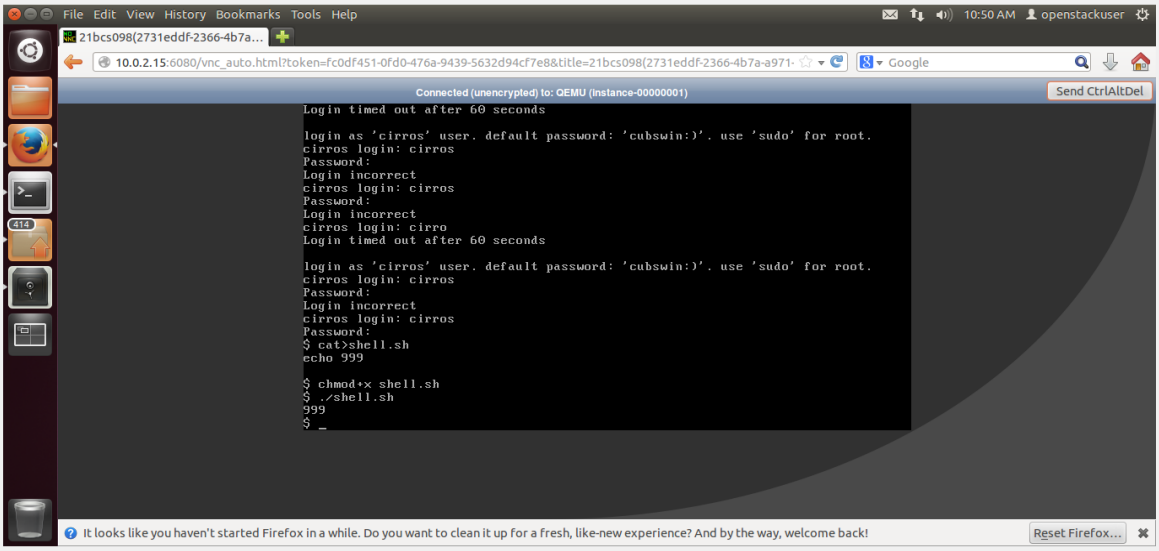
Step 7 : Open the instance console



Step 8 : Login as cirros and use the default password and run shell.sh, chmod +x shell.sh command successfully




Instance Details - OpenStack Dashboard - Mozilla Firefox
Network
Orchestration
login as 'cirros' user. default password: 'cubswin:)'. use 'sudo' for root.
cirros login: cirros
Password:
$ cat>shell.sh
echo 21bcs086_
It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!
Reset Firefox...


File Edit View History Bookmarks Tools Help
10:50 AM openstackuser
Connected (unencrypted) to: QEMU (instance-00000001)
Send CtrlAltDel
Login timed out after 60 seconds
login as 'cirros' user. default password: 'cubswin:)'. use 'sudo' for root.
cirros login: cirros
Password:
Login incorrect
cirros login: cirros
Password:
Login incorrect
cirros login: cirro
Login timed out after 60 seconds
login as 'cirros' user. default password: 'cubswin:)'. use 'sudo' for root.
cirros login: cirros
Password:
Login incorrect
cirros login: cirros
Password:
$ cat>shell.sh
echo 999
$ chmod+x shell.sh
$ ./shell.sh
999
$ _
It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!
Reset Firefox...

Evaluation by faculty	
Criteria	**Marks**
Preparation	**/20**
Observation	**/25**
Record	**/20**
Viva	**/10**
Total	**/75**
Faculty Signature with Date	

RESULT: