PRINCIPLES, MODELS AND APPLICATIONS FOR DISTRIBUTED SYSTEMS M – Module 2

OpenStack Hands-on

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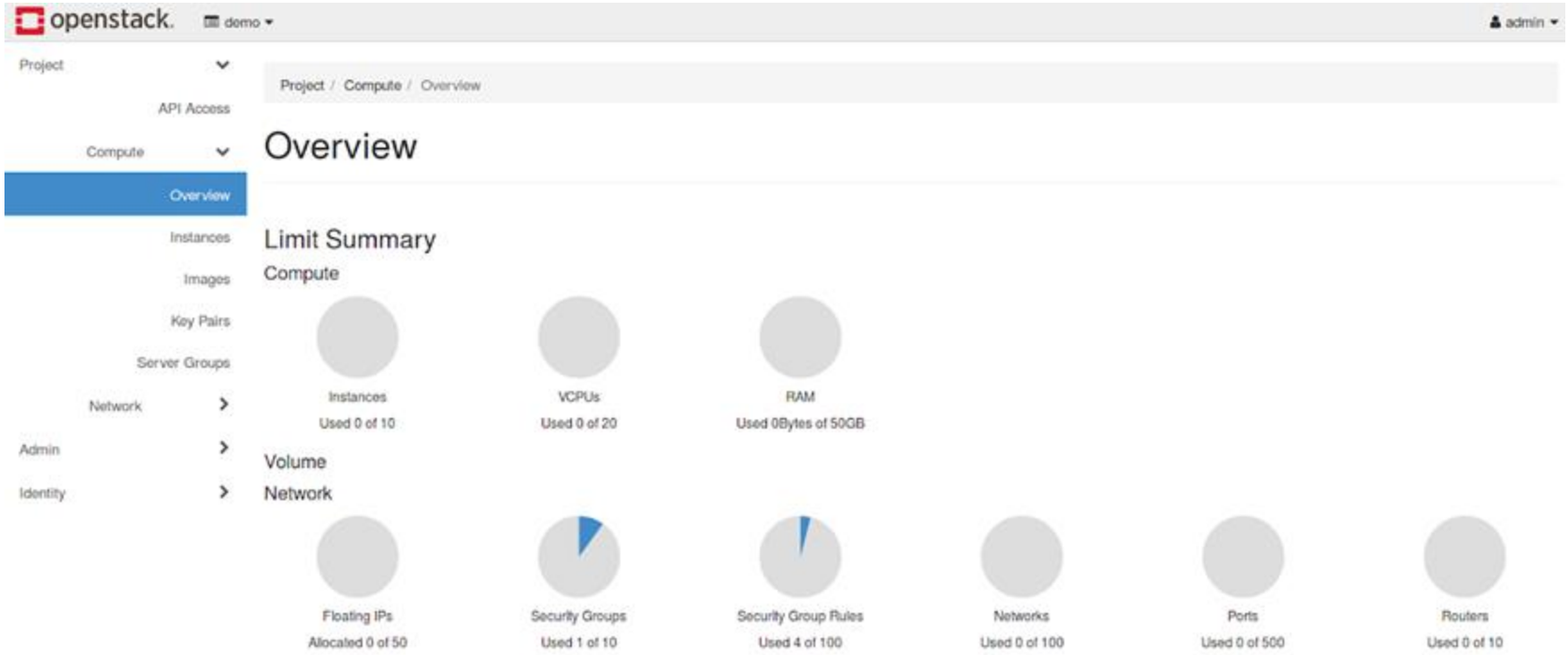
Openstack – Horizon

Graphical web-based interface to control the Openstack Cluster



Lab session – Openstack cluster Access

Visit the Horizon web page: 137.204.107.63:22080

You can login with:

User: dist-sys-userX

Password: openstack4DistSys

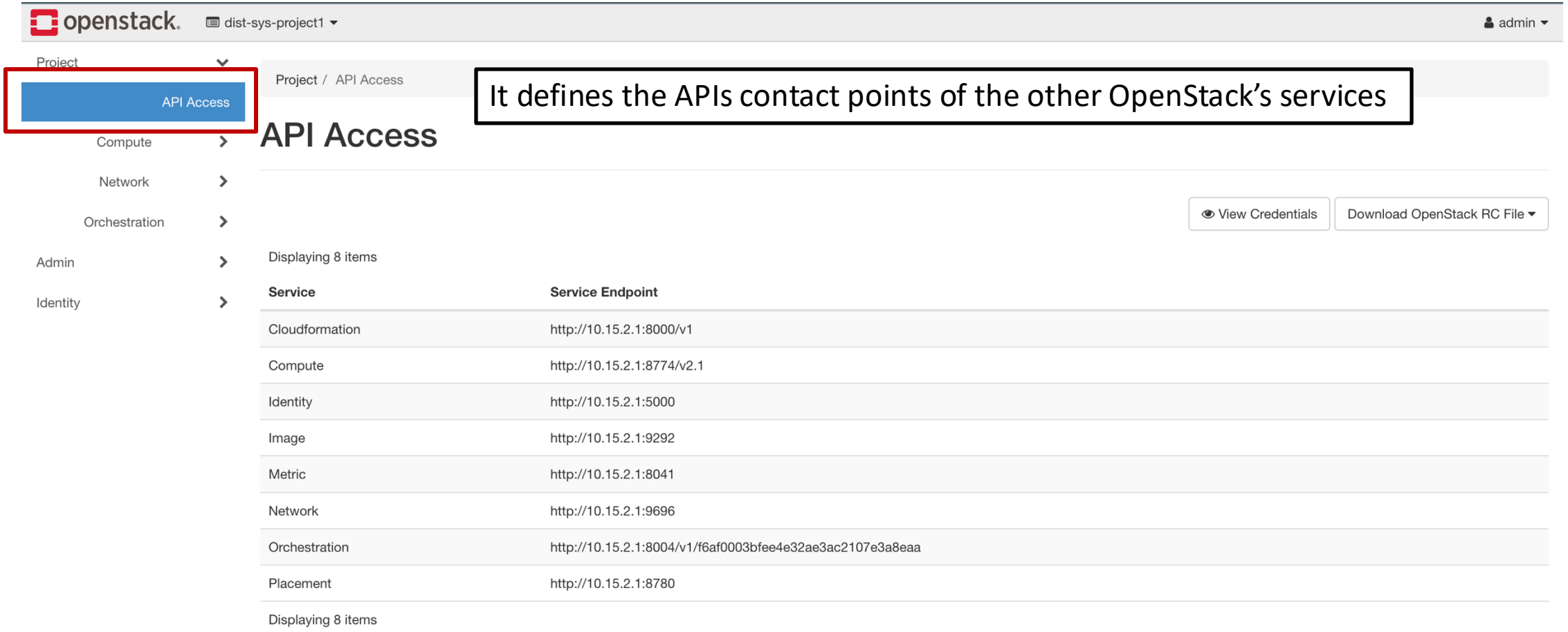
With X=[1..20]. Check with the instructor the number to use. Assigned numbers can be found here

You can access a VM on the same “external” network with:

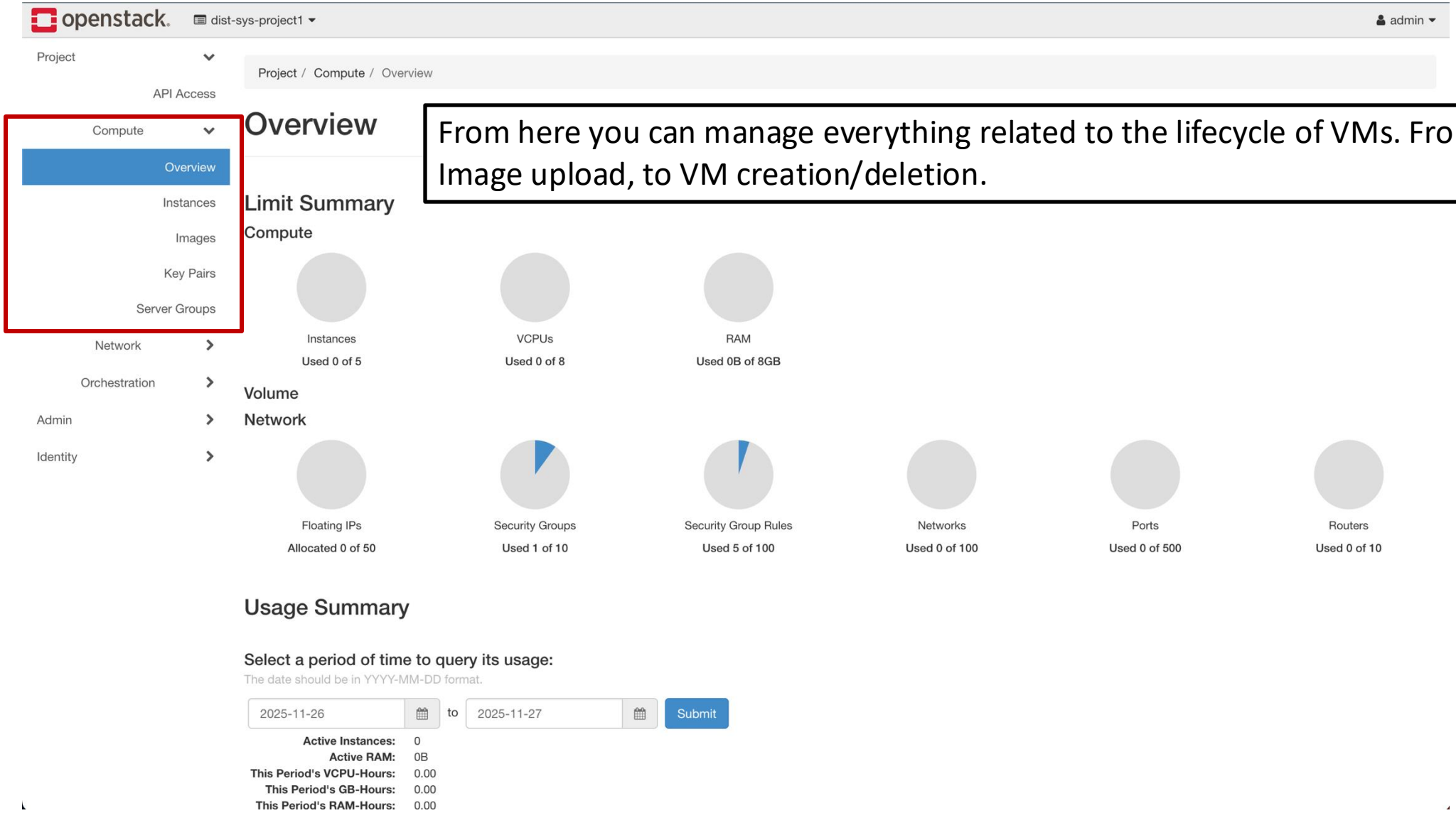
ssh -p 52022 dist-sys-userX@137.204.107.63

Password: openstack4DistSysX

Openstack – Horizon

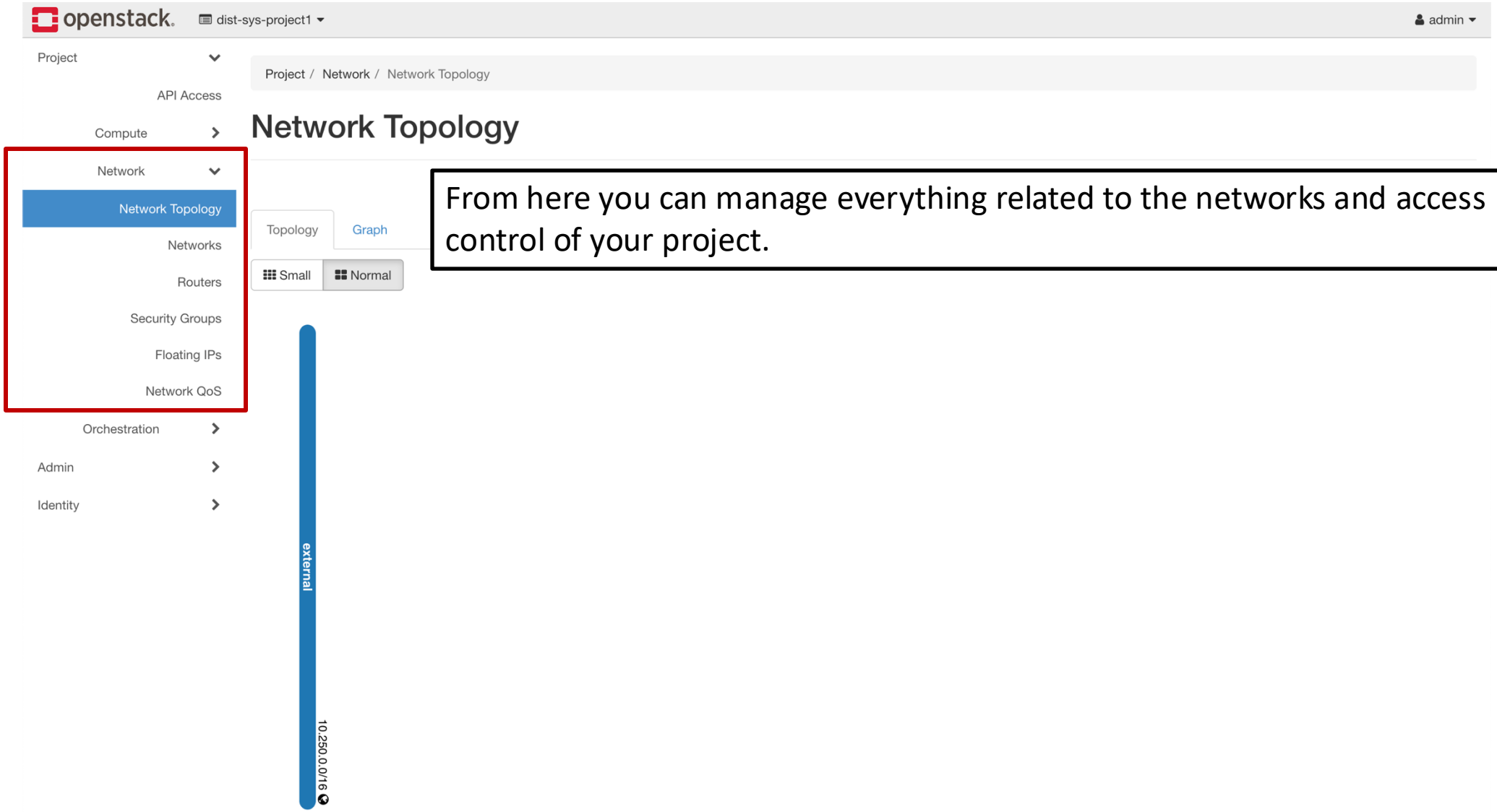


Openstack – Horizon



From here you can manage everything related to the lifecycle of VMs. From Image upload, to VM creation/deletion.

Openstack – Horizon



From here you can manage everything related to the networks and access control of your project.

Lab session – Cloud Init

It’s possible to automate some initial configuration to the VM through a file named *Cloud Init,* it the VM’s OS supports it. In this way we can pass a list of commands the VM will execute directly after boot. You can find more examples here

```
#cloud-config
password: unibo
chpasswd: { expire: False }
ssh_pwauth: True

write_files:
-   content: |
       # My new helloworld file

    owner: root:root
    permissions: '0644'
    path: /root/helloworld.txt
runcmd:
-  sysctl -w net.ipv4.ip_forward=1
```

Lab session – Openstack command line

To run Openstack CLI commands from the “SSH VM” you need to source a file like this.

```
for key in $( set | awk '{FS="="}  /^OS_/ {print $1}' ); do unset $key ; done
export OS_PROJECT_DOMAIN_NAME='Default'
export OS_USER_DOMAIN_NAME='Default'
export OS_PROJECT_NAME='dist-sys-projectX'
export OS_TENANT_NAME='dist-sys-projectX'
export OS_USERNAME='dist-sys-userX'
export OS_PASSWORD='openstack4DistSys'
export OS_AUTH_URL='http://10.15.2.1:5000'
export OS_INTERFACE='internal'
export OS_ENDPOINT_TYPE='internalURL'
export OS_IDENTITY_API_VERSION='3'
export OS_REGION_NAME='RegionOne'
export OS_AUTH_PLUGIN='password'
```

Assignments

1) During the exam you should demonstrate you know how to create networks and VMs on OpenStack.

2) If the API Endpoint is at 10.15.2.1 (reachable from the VM) can we interact with the cluster via REST API?

Build a Python script that automates the creation of a network and a VM connected to it with REST API calls. The VM should have your name as ssh password.

This might be helpful to start: https://docs.openstack.org/api-quick-start/api-quick-start.html#openstack-api-quick-guide