



**OpenStack Labs**

**Lab 01: Launching an Instance**

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## Introduction

In this lab, you will launch an instance using the *Horizon Dashboard*, launch an instance using the *OpenStack Unified CLI*, and use the *OpenStack Unified CLI*.

## Objectives

- Use the *Horizon Dashboard*.
- Launch an instance using the *Horizon Dashboard*.
- Use the *OpenStack Unified CLI*.
- Launch an instance using the *OpenStack Unified CLI*.

## Lab Settings

The information in the table below will be needed in order to complete the lab. The task sections below provide details on the use of this information.

Virtual Machine	IP Address	Account	Password
workstation	ens3: 192.168.1.21 ens4: 172.25.250.21	ubuntu	ubuntu
devstack	ens3: 192.168.20 ens4: 172.25.250.20	ubuntu	ubuntu

# 1 Launching an Instance Using the Horizon Dashboard

In this task, you will launch an instance using the *Horizon Dashboard*.

- 1.1. Log into the **workstation** machine as the **ubuntu** user with password **ubuntu**.

```
Ubuntu 18.04.6 LTS workstation tty1
workstation login: ubuntu
Password:
```

- 1.2. Launch the graphical user interface.

```
ubuntu@workstation:~$ startx
```

```
Welcome to Ubuntu 18.04.6 LTS (GNU/Linux 4.15.0-213-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

 System information as of Fri Jun  7 21:01:55 UTC 2024

 System load:  0.6              Processes:           197
 Usage of /:   7.9% of 116.12GB  Users logged in:    0
 Memory usage: 13%              IP address for ens3: 192.168.1.21
 Swap usage:   0%              IP address for ens4: 172.25.250.21

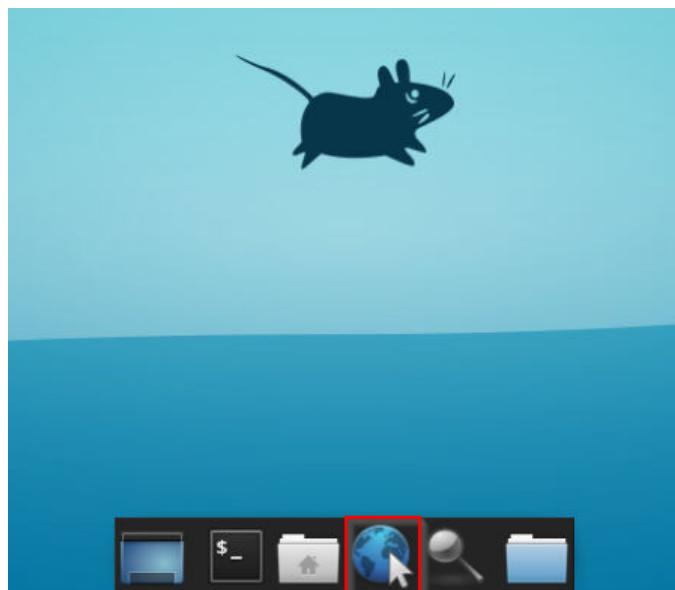
 Expanded Security Maintenance for Infrastructure is not enabled.

 2 updates can be applied immediately.
 To see these additional updates run: apt list --upgradable

 146 additional security updates can be applied with ESM Infra.
 Learn more about enabling ESM Infra service for Ubuntu 18.04 at
 https://ubuntu.com/18-04

ubuntu@workstation:~$ startx_
```

- 1.3. Open the web browser.



- 1.4.** Enter the IP address of the **devstack** machine (**192.168.1.20**) into the address bar, and log into the OpenStack Horizon Dashboard. The username is **admin** and the password is **secret**.

User Name

Password

- 1.5.** Click on the dropdown menu in the top left corner of the webpage, then select **demo** as the project. Navigate to **Project > Compute > Instances**, then click **Launch Instance** in the top right corner.

- 1.6.** In the *Instance Name* field, type **prod-instance**, and leave the other fields with their default values. Click **Next**.

- 1.7.** In the *Select Boot Source* drop down, select **Image**, set *Create New Volume* to **No** and scroll down (if needed) to click the ↑ icon beside of **ubuntu** to use **ubuntu** as the image. Click **Next**.

Launch Instance

Details	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.				
<b>Source *</b>	<b>Select Boot Source</b> <input type="button" value="Image"/> <input type="button" value="Create New Volume"/> <input checked="" type="radio"/> Yes <input type="radio"/> No				
Flavor *					
Networks *	Allocated				
Network Ports	Displaying 0 items				
Security Groups	Name	Updated	Size	Format	Visibility
	Select an item from Available items below				
Key Pair	Displaying 0 items				
Configuration					
Server Groups	<b>Available</b> <span style="color: red;">(2)</span> <input type="button" value="Q"/> Click here for filters or full text search. <input type="button" value="X"/>				
Scheduler Hints	Displaying 0 items				
Metadata	Displaying 2 items				
	Name	Updated	Size	Format	Visibility
	» cirros-0.6.2-x86_64-disk	12/22/23 4:12 AM	20.44 MB	QCOW2	Public <input type="button" value="↑"/>
	» ubuntu	12/22/23 7:25 PM	644.50 MB	QCOW2	Public <input type="button" value="↑"/>
	Displaying 2 items				

### Stop

Before proceeding to the next step, confirm that **ubuntu** appears underneath the *Allocated* section.

- 1.8.** Scroll down (if needed) and click the ↑ icon beside the **m1.small** flavor. Click **Next**.

**Launch Instance**

Allocated							
Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public	
Select a flavor from the available flavors below.							
Displaying 0 items							
<b>Available (12)</b> <span style="float: right;">Select one</span>							
<input type="text"/> Click here for filters or full text search.							
Displaying 12 items							
Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public	
m1.nano	1	128 MB	1 GB	1 GB	0 GB	Yes	
m1.micro	1	192 MB	1 GB	1 GB	0 GB	Yes	
clios256	1	256 MB	1 GB	1 GB	0 GB	Yes	
m1.tiny	1	512 MB	1 GB	1 GB	0 GB	Yes	
ds512M	1	512 MB	5 GB	5 GB	0 GB	Yes	
ds1G	1	1 GB	10 GB	10 GB	0 GB	Yes	
m1.small	1	2 GB	20 GB	20 GB	0 GB	Yes	
ds2G	2	2 GB	10 GB	10 GB	0 GB	Yes	
m1.medium	2	4 GB	40 GB	40 GB	0 GB	Yes	
ds4G	4	4 GB	20 GB	20 GB	0 GB	Yes	
m1.large	4	8 GB	80 GB	80 GB	0 GB	Yes	
m1.xlarge	8	16 GB	160 GB	160 GB	0 GB	Yes	
Displaying 12 items							

Cancel Back Next Launch Instance

### Stop

Before proceeding to the next step, confirm that **m1.small** appears underneath the *Allocated* section.

- Click the ↑ icon beside the **shared** network. If all required fields have been set, the **Launch Instance** button in the bottom right corner should now be clickable. Click **Launch Instance**.

Launch Instance

Details	Networks provide the communication channels for Instances in the cloud. You can select ports instead of networks or a mix of both.																		
Source	Allocated																		
Flavor	Displaying 0 items																		
Networks *	<table border="1"> <thead> <tr> <th>Network</th> <th>Subnets Associated</th> <th>Shared</th> <th>Admin State</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td colspan="5">Select one or more networks from the available networks below.</td> </tr> </tbody> </table>				Network	Subnets Associated	Shared	Admin State	Status	Select one or more networks from the available networks below.									
Network	Subnets Associated	Shared	Admin State	Status															
Select one or more networks from the available networks below.																			
Network Ports	Displaying 0 items																		
Security Groups	Available 2																		
Key Pair	<input type="text"/> Click here for filters or full text search.																		
Configuration	Displaying 2 items																		
Server Groups	<table border="1"> <thead> <tr> <th>Network</th> <th>Subnets Associated</th> <th>Shared</th> <th>Admin State</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>shared</td> <td>shared-subnet</td> <td>Yes</td> <td>Up</td> <td>Active</td> </tr> <tr> <td>private</td> <td>Ipv6-private-subnet private-subnet</td> <td>No</td> <td>Up</td> <td>Active</td> </tr> </tbody> </table>				Network	Subnets Associated	Shared	Admin State	Status	shared	shared-subnet	Yes	Up	Active	private	Ipv6-private-subnet private-subnet	No	Up	Active
Network	Subnets Associated	Shared	Admin State	Status															
shared	shared-subnet	Yes	Up	Active															
private	Ipv6-private-subnet private-subnet	No	Up	Active															
Scheduler Hints	<table border="1"> <tr> <td>shared</td> <td>shared-subnet</td> <td>Yes</td> <td>Up</td> <td>Active</td> </tr> </table>				shared	shared-subnet	Yes	Up	Active										
shared	shared-subnet	Yes	Up	Active															
Metadata	<table border="1"> <tr> <td>private</td> <td>Ipv6-private-subnet private-subnet</td> <td>No</td> <td>Up</td> <td>Active</td> </tr> </table>				private	Ipv6-private-subnet private-subnet	No	Up	Active										
private	Ipv6-private-subnet private-subnet	No	Up	Active															
	Displaying 2 items																		
<input type="button"/> Cancel	<input type="button"/> Back <input type="button"/> Next <input style="background-color: red; color: white; border: 2px solid red;" type="button"/> Launch Instance																		

### Stop

Before proceeding to the next step, confirm that **shared** appears underneath the **Allocated** section.

- 1.10. To open the console of **prod-instance** in a new tab, right-click on the name **prod-instance** and select **Open Link in New Tab**, or middle-click (press in the mouse wheel) the name **prod-instance**.

openstack. demo ▾ admin ▾

Project API Access Compute Instances

Instances

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
prod-instance	ubuntu	192.168.233.28	m1.small	-	Active	nova	None	Running	0 minutes	<input type="button"/> Create Snapshot

Images Key Pairs Server Groups Volumes Network Admin Identity

Instances

Displaying 1 item

Open Link in New Tab

Open Link in New Window

Open Link in New Private Window

Bookmark Link...

Save Link As...

Save Link to Pocket

Copy Link

Search Google for "prod-instance"

Inspect (Q)

### Stop

Wait for the **Power State** of **prod-instance** to display the status of *Running* before continuing to the next step.

- 1.11.** In the new tab, click the *Console* tab. Optionally, to make the console take up the whole tab, click the **Click here to show only console** link.



- 1.12.** Log into the console as **root** with the password **secret**.

#### Note

It may take several minutes for the instance to fully boot up and present a login prompt.

- 1.13.** In the console, ping **192.168.233.2** (DHCP server) to verify connectivity.

```
$ ping -c3 192.168.233.2
```

```
Connected to QEMU (instance-00000003)
root@prod-instance:~# ping -c3 192.168.233.2
PING 192.168.233.2 (192.168.233.2) 56(84) bytes of data.
64 bytes from 192.168.233.2: icmp_seq=1 ttl=64 time=9.73 ms
64 bytes from 192.168.233.2: icmp_seq=2 ttl=64 time=2.18 ms
64 bytes from 192.168.233.2: icmp_seq=3 ttl=64 time=1.42 ms

--- 192.168.233.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2006ms
rtt min/avg/max/mdev = 1.423/4.444/9.732/3.751 ms
root@prod-instance:~# _
```

#### Note

You should receive three successful ping replies.

- 1.14.** Close the console tab for **prod-instance**.

- 1.15.** Focus back on the tab showing instances and delete **prod-instance**. Select the checkbox for **prod-instance** and click the **Delete Instances** button.

The screenshot shows the OpenStack Horizon dashboard under the 'Compute' section. The 'Instances' tab is selected. A single instance, 'prod-instance', is listed in the table. The 'Delete Instances' button at the top right of the table is highlighted with a red box.

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
prod-instance	ubuntu	192.168.233.28	m1.small	-	Active	nova	None	Running	0 minutes	<button>Create Snapshot</button>

**1.16.** Confirm the deletion by clicking the **Delete Instances** button.

### Confirm Delete Instances

You have selected: "prod-instance". Please confirm your selection. Deleted Instances are not recoverable.

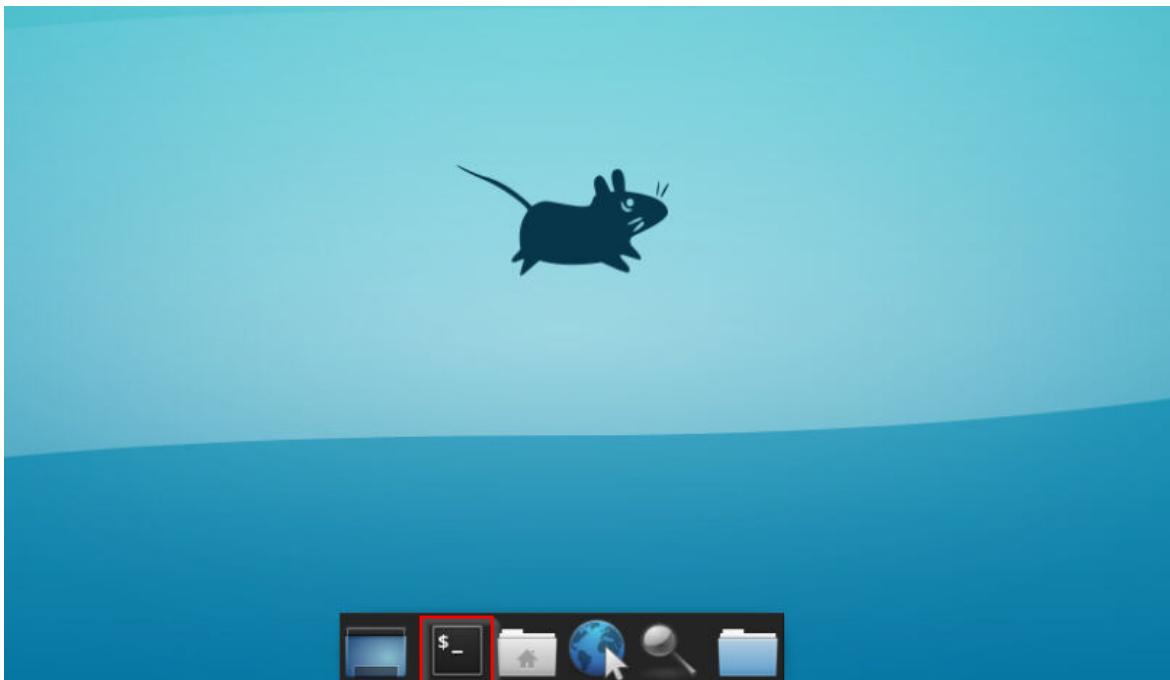
Cancel Delete Instances

**1.17.** Close the web browser.

## 2 Running the OpenStack Unified CLI

In this task, you will use the *OpenStack Unified command-line interface (CLI)* to list and check the details of existing projects, users, flavors, images, and instances, and to launch an instance.

- 2.1.** Open a terminal, either by right-clicking the desktop and selecting **Open Terminal Here**, by clicking the terminal icon in the icon bar at the bottom of the screen, or by selecting **Applications** at the top left of the screen, then selecting **Terminal Emulator**.



- 2.2.** The **keystonerc-admin** file in the home directory defines several **OS\_\*** environment variables that allow you to use the OpenStack platform on the **devstack** server through the OpenStack Unified CLI. The username will be **admin**, the password will be **secret**, the project will be **demo**, and the IP address for **OS\_AUTH\_URL** is the IP address of the **devstack** server, **192.168.1.20**. You can run **cat** on the file to view its contents.

```
ubuntu@workstation:~$ cat ~/keystonerc-admin
```

```
ubuntu@workstation:~$ cat ~/keystonerc-admin
unset OS_SERVICE_TOKEN
unset OS_TENANT_ID
unset OS_TENANT_NAME
export OS_USERNAME=admin
export OS_PASSWORD=secret
export OS_AUTH_URL=http://192.168.1.20/identity
export OS_REGION_NAME=RegionOne
export OS_PROJECT_NAME=demo
export OS_INTERFACE=public
export OS_IDENTITY_API_VERSION=3
export PS1='[\u033[01;32m]\u@\h \u033[01;36m](keystone-admin)\u033[00m]:\u033[01;34m]\w\u033[00m]$ '
ubuntu@workstation:~$
```

- 2.3.** Use the **source** command with the **keystonerc-admin** argument to enable all the **OS\_\*** environment variables included in the **keystonerc-admin** file.

```
ubuntu@workstation:~$ source ~/keystonerc-admin
```

```
ubuntu@workstation:~$ source ~/keystonerc-admin
[ubuntu@workstation (keystone-admin)]:~$ █
```

**Note**

The `export PS1=...` line at the end of the keystone credentials file modifies the shell prompt to show the OpenStack user whose credentials are keyed in. So, after running this command, you will notice that your shell prompt has changed to show you are keyed in as the **admin** user.

**Note**

The same prompt without color can be achieved with the line `export PS1='[\u@\h (keystone-admin)]:\w$ '`. Here, `\u` stands for the current username, `\h` is the hostname, and `\w` is the current working directory. The other escape sequences specify the colors of the prompt. For example, `\[\033[01;32m\]` sets the color to a light green, and `\[\033[00m\]` resets the color to the default (white in this case).

- 2.4. Verify that the `OS_*` environment variables have been exported to the shell environment.

```
[ubuntu@workstation (keystone-admin)]:~$ env | grep OS_
```

```
[ubuntu@workstation (keystone-admin)]:~$ env | grep OS_
OS_AUTH_URL=http://192.168.1.20/identity
OS_REGION_NAME=RegionOne
OS_PROJECT_NAME=demo
OS_IDENTITY_API_VERSION=3
OS_INTERFACE=public
OS_PASSWORD=secret
OS_USERNAME=admin
[ubuntu@workstation (keystone-admin)]:~$ █
```

- 2.5. Next, we will gather additional information about the users and projects. First, list the available projects.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack project list
```

```
[ubuntu@workstation (keystonerc-admin)]:~$ openstack project list
+-----+-----+
| ID      | Name   |
+-----+-----+
| 39e851b14f864573aad60582c35e40dc | demo    |
| 3d65ee93169c4e4fbc53ef87a7398e2e | alt_demo |
| b66a24ad2cccd49b79cale0c07b3b3258 | service  |
| bb23f57aff584133a0657ee0fc7ffd3f | invisible_to_admin |
| eb2dcd08d8ae46ffac3f16c3973ef61d | admin    |
+-----+-----+
[ubuntu@workstation (keystonerc-admin)]:~$ █
```

- 2.6.** Enter the command below to show more details about the **demo** project.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack project show demo
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack project show demo
+-----+-----+
| Field     | Value   |
+-----+-----+
| description |          |
| domain_id  | default  |
| enabled     | True     |
| id          | 39e851b14f864573aad60582c35e40dc |
| is_domain   | False    |
| name        | demo     |
| options     | {}       |
| parent_id   | default  |
| tags         | []       |
+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ █
```

#### Note

Any ID values shown in these examples may differ from what you see since they are unique.

#### Tip

Use the `openstack help project show` command to determine how to display the details of a particular project.

- 2.7.** List the available users.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack project user list
```

```
[ubuntu@workstation (keystonerc-admin)]:~$ openstack user list
+-----+-----+
| ID          | Name      |
+-----+-----+
| 14f5376f00c04e90b7103dd8d4263040 | admin     |
| 603b42080bb549d7ad3217eb456e7a55 | demo      |
| a7cee45b0f484fc8980c71e2243d2e1 | demo_reader |
| 8d21de784ae2493aa5c8cc73a82be6b3 | alt_demo   |
| 7e7596f02f1c45afad1fc09de331781 | alt_demo_member |
| 44ffe37cf07948c88958066614ef5d74 | alt_demo_reader |
| 899fc9a9b17445b4aac553e4f5f192ec | system_member |
| 604adb2150514649a41eaee6273ceb2a | system_reader |
| ab546669b1cd44b3aa2305c303363425 | nova      |
| 82142039d42341718fb126134266ec80 | glance    |
| 0c5d50f813184b588f3bc0c91250c7d7 | cinder    |
| efc593f762a447dba12bf2fe870f1310 | neutron   |
| c79e26f993fb45ab939e7d0bbe12c263 | placement |
+-----+-----+
[ubuntu@workstation (keystonerc-admin)]:~$ █
```

- 2.8. Enter the command below to check the details of **admin**.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack user show admin
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack user show admin
+-----+-----+
| Field        | Value      |
+-----+-----+
| domain_id    | default    |
| enabled       | True       |
| id            | 14f5376f00c04e90b7103dd8d4263040 |
| name          | admin      |
| options       | {}         |
| password_expires_at | None      |
+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ █
```

### Tip

Use the `openstack help user show` command to determine how to display details of a specific user account.

- 2.9. Enter the command below to list all available flavors.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack flavor list
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack flavor list
+-----+-----+-----+-----+-----+-----+-----+
| ID  | Name   | RAM | Disk | Ephemeral | VCPUs | Is Public |
+-----+-----+-----+-----+-----+-----+-----+
| 1   | m1.tiny | 512 | 1    | 0        | 1     | True      |
| 2   | m1.small | 2048 | 20   | 0        | 1     | True      |
| 3   | m1.medium | 4096 | 40   | 0        | 2     | True      |
| 4   | m1.large | 8192 | 80   | 0        | 4     | True      |
| 42  | m1.nano | 128  | 1    | 0        | 1     | True      |
| 5   | m1.xlarge | 16384 | 160  | 0        | 8     | True      |
| 84  | m1.micro | 192  | 1    | 0        | 1     | True      |
| c1  | cirros256 | 256  | 1    | 0        | 1     | True      |
| d1  | ds512M   | 512  | 5    | 0        | 1     | True      |
| d2  | ds1G     | 1024 | 10   | 0        | 1     | True      |
| d3  | ds2G     | 2048 | 10   | 0        | 2     | True      |
| d4  | ds4G     | 4096 | 20   | 0        | 4     | True      |
+-----+-----+-----+-----+-----+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ █
```

### Tip

Use the `openstack help flavor list` command to determine how to display all available flavors.

- 2.10.** Enter the command below to display the details specifically for the **m1.small** flavor.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack flavor show m1.small
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack flavor show m1.small
+-----+-----+
| Field           | Value          |
+-----+-----+
| OS-FLV-DISABLED:disabled | False          |
| OS-FLV-EXT-DATA:ephemeral | 0              |
| access_project_ids | None           |
| disk             | 20             |
| id               | 2              |
| name             | m1.small       |
| os-flavor-access:is_public | True          |
| properties       | hw_rng:allowed='True' |
| ram              | 2048           |
| rxtx_factor     | 1.0            |
| swap             | 1              |
| vcpus            | 1              |
+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ █
```

- 2.11.** Enter the command below to list all available images.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack image list
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack image list
+-----+-----+
| ID      | Name          | Status |
+-----+-----+
| dfc5286d-bdb7-4338-8e4b-087422b21e68 | cirros-0.6.2-x86_64-disk | active |
| 329d361e-f6dc-4b72-b200-3de0ec230e65 | ubuntu         | active |
+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ ]
```

**Tip**

Use the `openstack help image` command to determine how to list all images.

- 2.12.** Enter the command below to list all available networks.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack network list
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack network list
+-----+-----+
| ID      | Name   | Subnets |
+-----+-----+
| 32da4c25-b517-40c5-97e3-cea031467d13 | public | 4fc6bf88-919c-49df-83c4-b09bd65776ad, c7916655-8954-4bfa-913d-416702f35d1b |
| 966ecb4f-4ff8-44ea-a476-2d2f18955085 | private | 674205b6-1357-4727-a21a-94220492a57f, fa8a2545-5a8c-44a2-bacc-1b86c253b880 |
| 9f23266f-d833-4337-9a27-4818a6d28e9e | shared  | 7e456257-76e5-4cfb-bf3f-b2a3876dba40
+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ ]
```

**Tip**

Use the `openstack help network` command to determine how to list all networks.

- 2.13.** Enter the command below to create a new instance with the name **prod-instance**, using **ubuntu** as the image, **m1.small** as the flavor, and **shared** as the network.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server create \
> --image ubuntu \
> --flavor m1.small \
> --network shared \
> prod-instance
```

```
[ubuntu@workstation (keystone-admin)]:-$ openstack server create \
> --image ubuntu \
> --flavor m1.small \
> --network shared \
> --wait prod-instance

+-----+-----+
| Field | Value |
+-----+-----+
| OS-DCF:diskConfig | MANUAL |
| OS-EXT-AZ:availability_zone | nova |
| OS-EXT-SRV-ATTR:host | devstack |
| OS-EXT-SRV-ATTR:hypervisor_hostname | devstack |
| OS-EXT-SRV-ATTR:instance_name | instance-00000002 |
| OS-EXT-STS:power_state | Running |
| OS-EXT-STS:task_state | None |
| OS-EXT-STS:vm_state | active |
| OS-SRV-USG:launched_at | 2024-06-10T16:42:42.000000 |
| OS-SRV-USG:terminated_at | None |
| accessIPv4 |
| accessIPv6 |
| addresses | shared=192.168.233.166 |
| adminPass | uPsyV9r8Rdxv |
| config_drive |
| created | 2024-06-10T16:42:39Z |
| flavor | m1.small (2) |
| hostId | 1b8dbd84262b5472c62a2892fd623993d3a98d2faf2f7862e90ce419 |
| id | c67ff809-ff02-443f-9015-c30dbb33e45d |
| image | ubuntu (329d361e-f6dc-4b72-b200-3de0ec230e65) |
| key_name | None |
| name | prod-instance |
| progress | 0 |
| project_id | 39e851b14f864573aad60582c35e40dc |
| properties |
| security_groups | name='default' |
| status | ACTIVE |
| updated | 2024-06-10T16:42:43Z |
| user_id | 14f5376f00c04e90b7103dd8d4263040 |
| volumes_attached |

+-----+-----+
[ubuntu@workstation (keystone-admin)]:-$ 
```

### Tip

When typing the command, make sure there is a space between the last word of the line and the \, and press **Enter** to get the > and continue typing the rest of the command.

#### 2.14. Use the **openstack server list** command to list all the available instances.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server list
```

```
[ubuntu@workstation (keystone-admin)]:-$ openstack server list
+-----+-----+-----+-----+-----+
| ID | Name | Status | Networks | Image | Flavor |
+-----+-----+-----+-----+-----+
| c67ff809-ff02-443f-9015-c30dbb33e45d | prod-instance | ACTIVE | shared=192.168.233.166 | ubuntu | m1.small |
+-----+-----+-----+-----+-----+
[ubuntu@workstation (keystone-admin)]:-$ 
```

### Note

The UUID in the *ID* field and the IP address in the *Networks* field may differ from the screenshot provided.

- 2.15.** Enter the command below to display more details about the instance **prod-instance**.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server show prod-instance
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server show prod-instance
+-----+-----+
| Field | Value |
+-----+-----+
| OS-DCF:diskConfig | MANUAL |
| OS-EXT-AZ:availability_zone | nova |
| OS-EXT-SRV-ATTR:host | devstack |
| OS-EXT-SRV-ATTR:hypervisor_hostname | devstack |
| OS-EXT-SRV-ATTR:instance_name | instance-00000002 |
| OS-EXT-STS:power_state | Running |
| OS-EXT-STS:task_state | None |
| OS-EXT-STS:vm_state | active |
| OS-SRV-USG:launched_at | 2024-06-10T16:42:42.000000 |
| OS-SRV-USG:terminated_at | None |
| accessIPv4 |
| accessIPv6 |
| addresses | shared=192.168.233.166 |
| config_drive |
| created | 2024-06-10T16:42:39Z |
| flavor | m1.small (2) |
| hostId | 1b8dbd84262b5472c62a2892fd623993d3a98d2faf2f7862e90ce419 |
| id | c67ff809-ff02-443f-9015-c30dbb33e45d |
| image | ubuntu (329d361e-f6dc-4b72-b200-3de0ec230e65) |
| key_name | None |
| name | prod-instance |
| progress | 0 |
| project_id | 39e851b14f864573aad60582c35e40dc |
| properties |
| security_groups | name='default' |
| status | ACTIVE |
| updated | 2024-06-10T16:42:43Z |
| user_id | 14f5376f00c04e90b7103dd8d4263040 |
| volumes_attached |
+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$
```

### Tip

The UUID for the instance **prod-instance** can be used in place of **prod-instance** in the above command to identify the instance.

- 2.16.** Enter the command below to display the instance's console URL. Then right click on the URL and select **Open Link**.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack console url show prod-instance
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack console url show prod-instance
+-----+-----+
| Field | Value
+-----+-----+
| type  | novnc
| url   | http://192.168.1.20:6080/vnc_lite.html?path=%3Ftoken%3D3fe6f85c-3540-47f3-bd8f-657b249938cb
+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ 
```

- 2.17.** The web browser will open directly to the instance's console through noVNC. Log into **prod-instance** using **root** as the username and **secret** as the password. Then use the ping command to verify connectivity with the DHCP server (**192.168.233.2**).

```
$ ping -c3 192.168.233.2
```

```
Connected to QEMU (Instance-00000002)
root@prod-instance:"# ping -c3 192.168.233.2
PING 192.168.233.2 (192.168.233.2) 56(84) bytes of data.
64 bytes from 192.168.233.2: icmp_seq=1 ttl=64 time=5.85 ms
64 bytes from 192.168.233.2: icmp_seq=2 ttl=64 time=3.25 ms
64 bytes from 192.168.233.2: icmp_seq=3 ttl=64 time=1.59 ms

--- 192.168.233.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 1.585/3.559/5.849/1.754 ms
root@prod-instance:"# _
```

### Note

You should receive three successful ping replies.

- 2.18.** Close the web browser and change focus back to the previous terminal window.
- 2.19.** The instance is now ready to be deleted, but first list the servers so that the effect of the next step can be observed.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server list
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server list
+-----+-----+-----+-----+-----+
| ID           | Name      | Status | Networks       | Image    | Flavor   |
+-----+-----+-----+-----+-----+
| c67ff809-ff02-443f-9015-c30dbb33e45d | prod-instance | ACTIVE | shared=192.168.233.166 | ubuntu | m1.small |
+-----+-----+-----+-----+-----+
[ubuntu@workstation (keystone-admin)]:~$ 
```

- 2.20.** Enter the command below to delete the instance.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server delete prod-instance
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server delete prod-instance
[ubuntu@workstation (keystone-admin)]:~$ █
```

- 2.21. Ensure that the instance was deleted by seeing that the server list is empty.

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server list
```

```
[ubuntu@workstation (keystone-admin)]:~$ openstack server list
[ubuntu@workstation (keystone-admin)]:~$ █
```

- 2.22. The lab is now complete.