



OpenStack Labs

Lab 02: Organizing People and Resources

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Introduction

In this lab, you will manage projects, users, and roles.

Objectives

- Create and delete projects using the *Horizon Dashboard*.
- Create and delete projects using the *OpenStack Unified CLI*.
- Manage users using the *Horizon Dashboard*

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 Create and Delete Projects Using the Horizon Dashboard

In this task, you will create and delete projects 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**.

The screenshot shows the OpenStack Horizon login interface. At the top is the OpenStack logo. Below it is a large 'Log in' button. Underneath are two input fields: 'User Name' containing 'admin' and 'Password' containing '*****'. Both fields have a red border around them. At the bottom right is a blue 'Sign In' button.

- 1.5.** Create a project named **dev**. First, navigate to **Identity > Projects**, then click on **Create Project**.

Name	Description	Project ID	Domain Name	Enabled	Actions
admin	Bootstrap project for initializing the cloud.	6328aa8abcf994977b8cd011408841a130c	Default	Yes	Manage Members
service		64f8f1ae8ba44d3aabec0228cde571fc	Default	Yes	Manage Members
demo		ac77ab03519aca4a588dfefcb7d7c31085	Default	Yes	Manage Members
invisible_to_admin		c1f778ac7718494ab794f6e38862ac26	Default	Yes	Manage Members
alt_demo		f50dc27796f649e38383625da5c37d37	Default	Yes	Manage Members

- 1.6.** Enter **dev** in the **Name** field and **Dev Project** in the **Description** field. Leave the **Enabled** check box selected, then click on **Create Project**.

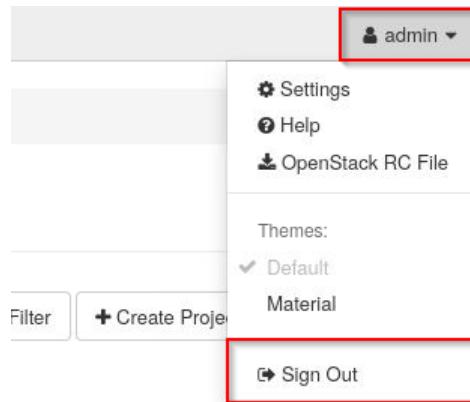
Create Project

Project Information *		Project Members	Project Groups
Domain ID	default		
Domain Name	Default		
Name *	dev		
Description	Dev Project		
Enabled	<input checked="" type="checkbox"/>		
<input type="button" value="Cancel"/> <input style="background-color: #0070C0; color: white; border: 1px solid #0070C0; border-radius: 5px; padding: 5px; margin-left: 10px;" type="button" value="Create Project"/>			

Note

Notice the **dev** project now appears in the *Horizon Dashboard*.

- 1.7.** Log out of the Horizon Dashboard by clicking on admin at the top right and selecting **Sign Out**.

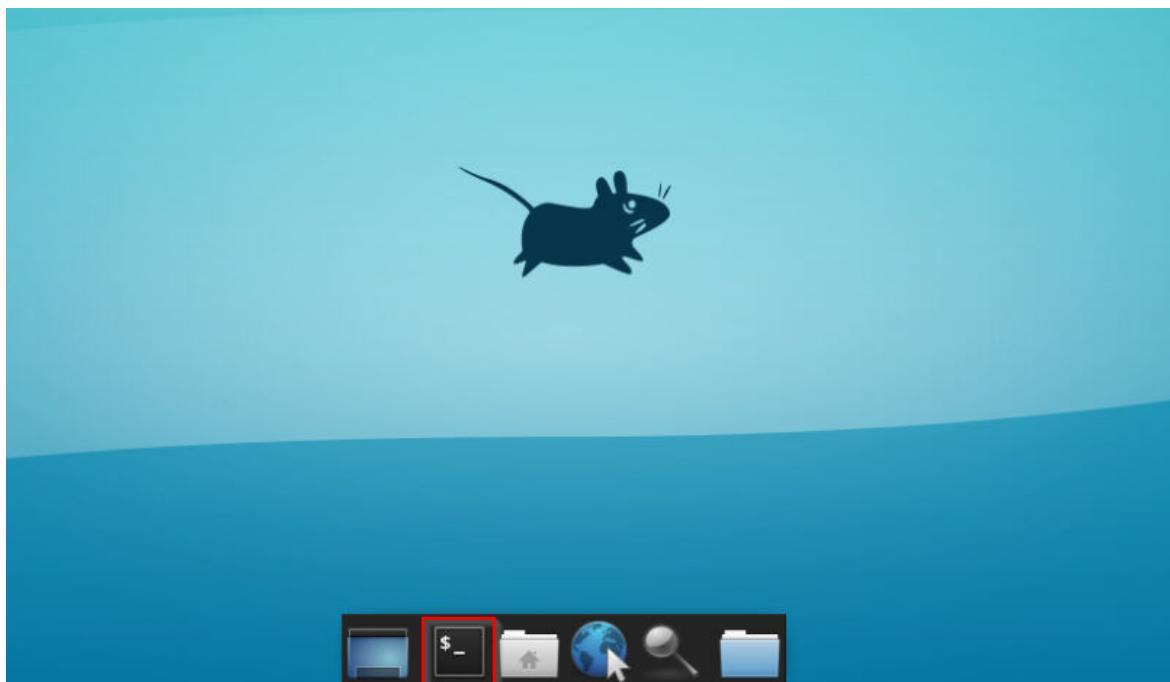


1.8. Close the web browser and continue to the next task.

2 Create and Delete Projects Using the OpenStack Unified CLI

In this task, you will use the *OpenStack Unified CLI* to create a project from the command line.

- 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.** Use the source command with the **keystonerc-admin** argument to access OpenStack as the admin.

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

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

- 2.3.** List the existing OpenStack projects.

```
ubuntu@workstation:~$ openstack project list
```

```
ubuntu@workstation:~$ openstack project list
+-----+-----+
| ID          | Name   |
+-----+-----+
| 39e851b14f864573aad60582c35e40dc | demo   |
| 3d65ee93169c4e4fb53ef87a7398e2e | alt_demo |
| b66a24ad2cccd49b79cale0c07b3b3258 | service |
| bb23f57aff584133a0657ee0fc7ffd3f | invisible_to_admin |
| c823d25ab1dd4384905c02db249f1785 | dev     |
| eb2dcd08d8ae46ffac3f16c3973ef61d | admin   |
+-----+-----+
ubuntu@workstation:~$ █
```

- 2.4. Enter the command below to create a project named **testing**.

```
ubuntu@workstation:~$ openstack project create \
> --description testing \
> --enable testing
```

```
ubuntu@workstation:~$ openstack project create \
> --description testing \
> --enable testing
+-----+-----+
| Field      | Value   |
+-----+-----+
| description | testing |
| domain_id  | default |
| enabled     | True    |
| id          | df6f709eb9d44ce88271c4e666b2e6f4 |
| is_domain   | False   |
| name        | testing |
| options     | {}      |
| parent_id   | default |
| tags         | []      |
+-----+-----+
ubuntu@workstation:~$ █
```

Tip

When typing the command make sure there is a space between `create` and the `\`, and press **Enter** to get the `>` and continue typing therest of the command.

- 2.5. Enter the command below to verify the project has been created.

```
ubuntu@workstation:~$ openstack project list
```

```
ubuntu@workstation:~$ openstack project list
+-----+-----+
| ID          | Name |
+-----+-----+
| 6328a8abcf994977b8c01f40884a130c | admin |
| 64f8f1ae8ba44d3aabec0228cde571fc | service |
| 7720ff4082c3472b93ffca8d0fbf3dec | dev   |
| ac77ab3519ac4a588dfefcb7d7c31085 | demo   |
| c1f776ac77f8494ab794f6e38662ac26 | invisible_to_admin |
| df6f709eb9d44ce88271c4e666b2e6f4 | testing |
| f5cdc27796f648e3b383625da5c37d37 | alt_demo |
+-----+-----+
ubuntu@workstation:~$ █
```

- 2.6. Delete the **testing** project by entering the command below.

```
ubuntu@workstation:~$ openstack project delete testing
```

```
ubuntu@workstation:~$ openstack project delete testing
ubuntu@workstation:~$ █
```

- 2.7. Verify the **testing** project has been deleted by listing the projects again and noting that **testing** no longer appears.

```
ubuntu@workstation:~$ openstack project list
```

```
ubuntu@workstation:~$ openstack project list
+-----+-----+
| ID          | Name |
+-----+-----+
| 6328a8abcf994977b8c01f40884a130c | admin |
| 64f8f1ae8ba44d3aabec0228cde571fc | service |
| 7720ff4082c3472b93ffca8d0fbf3dec | dev   |
| ac77ab3519ac4a588dfefcb7d7c31085 | demo   |
| c1f776ac77f8494ab794f6e38662ac26 | invisible_to_admin |
| f5cdc27796f648e3b383625da5c37d37 | alt_demo |
+-----+-----+
ubuntu@workstation:~$ █
```

- 2.8. Leave the terminal window open and continue to the next task.

3 Managing Users Using the Horizon Dashboard

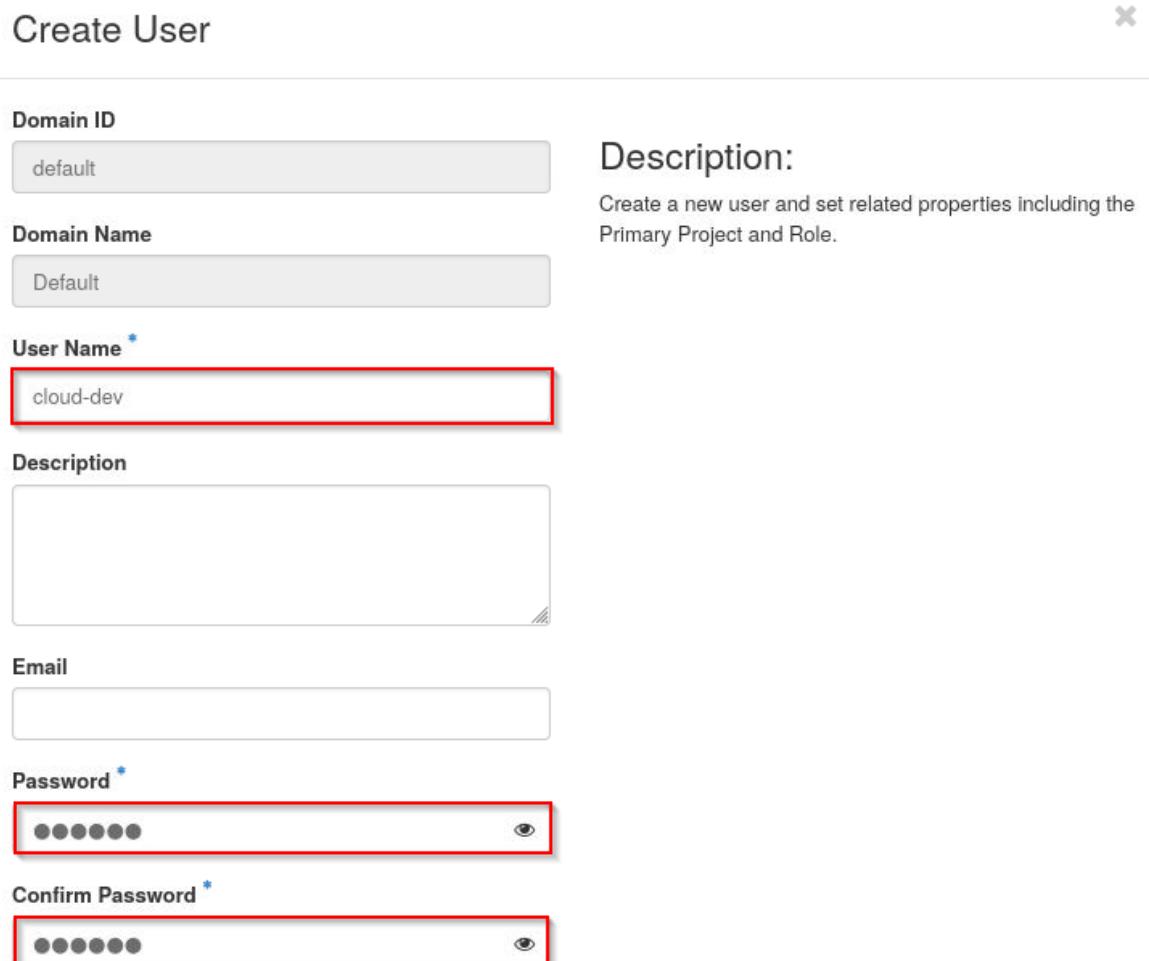
In this task, you will use the *Horizon Dashboard* to manage users.

- 3.1. Open the web browser, navigate to the OpenStack login page at **http://192.168.1.20**, and log in with username **admin** and password **secret** as before. In the following steps, you will create users named **cloud-dev**, **cloud-test1**, and **cloud-test2**; set all of these account passwords to **secret**; and add these accounts to the **dev** project.
- 3.2. First, navigate to **Identity > Users** and click on **Create User**.



The screenshot shows the OpenStack Identity / Users interface. The left sidebar has 'Identity' selected. The main area displays a table of users with one entry: 'admin'. The 'Create User' button at the top right is highlighted with a red box.

- 3.3. In the *Create User* dialog box, enter **cloud-dev** in the *User Name* field, and **secret** in the *Password* and *Confirm Password* fields.



The screenshot shows the 'Create User' dialog box. The 'User Name' field contains 'cloud-dev' and is highlighted with a red box. The 'Password' and 'Confirm Password' fields both contain '*****' and are also highlighted with red boxes. Other fields like 'Domain ID', 'Domain Name', 'Description', 'Email', and 'Primary Project' are present but not highlighted.

Tip

You may need to use the scroll bar on the right side of the dialog box to see the rest of the fields.

- 3.4.** After scrolling down if necessary, select the **dev** project from the *Primary Project* drop down. Leave the *Role* set to **member**, and leave the **Enabled** check box selected. Click on **Create User**.

The screenshot shows the 'Create User' dialog box. It includes fields for 'Password' and 'Confirm Password' (both masked with dots), a dropdown for 'Primary Project' (set to 'dev'), a dropdown for 'Role' (set to 'member'), a checked checkbox for 'Enabled', an unchecked checkbox for 'Lock password', and buttons for 'Cancel' and 'Create User'.

- 3.5.** Repeat steps 2 through 4 to create the **cloud-test1** and **cloud-test2** user accounts.

- 3.6.** Delete the **cloud-test1** user account. On the *Users* tab, select the **cloud-test1** user account checkbox and click on **Delete Users** and then confirm the deletion in the dialog box.

Users							
User Name	Description	Email	User ID	Enabled	Domain Name	Actions	
admin	-	-	d20b60676724125b915639e0b625d	Yes	Default	Edit	Delete
demo	-	demo@example.com	b237ae8920746938901449ba40285cfb	Yes	Default	Edit	Delete
demo_reader	-	demo_reader@example.com	6367562191043050319a11c19c6fb73	Yes	Default	Edit	Delete
alt_demo	-	alt_demo@example.com	88549ad2a8304831a001d39cd79a603	Yes	Default	Edit	Delete
alt_demo_member	-	alt_demo_member@example.com	faa47653aa542bb8895871d8938ac57	Yes	Default	Edit	Delete
alt_demo_reader	-	alt_demo_reader@example.com	832026a3609485b1214a0f029a6437	Yes	Default	Edit	Delete
system_member	-	system_member@example.com	90a437a732894d7db8225054cde8bd3	Yes	Default	Edit	Delete
system_reader	-	system_reader@example.com	7d3050c86c0a404009d79e17b2e48	Yes	Default	Edit	Delete
nova	-	-	ffec0f1011df94aef8a545e6b59f83996	Yes	Default	Edit	Delete
glance	-	-	5b045ed05794999676795b05225	Yes	Default	Edit	Delete
cinder	-	-	0e377dea2a0e4803bc0b854a9143d7ee	Yes	Default	Edit	Delete
neutron	-	-	4366031a6f8428690223178426d8	Yes	Default	Edit	Delete
placement	-	-	c07a547c429b4baa55c5ab744dbd12b	Yes	Default	Edit	Delete
cloud-dev	-	-	e7388c19f17457265191aa3b7a972	Yes	Default	Edit	Delete
<input checked="" type="checkbox"/> cloud-test1	-	-	20da4d9ea244239b77071dc0d6d0	Yes	Default	Edit	Delete

- 3.7.** Disable the **cloud-test2** user account. On the *Users* tab, select **Disable User** under the *Actions* column for the **cloud-test2** user account entry.

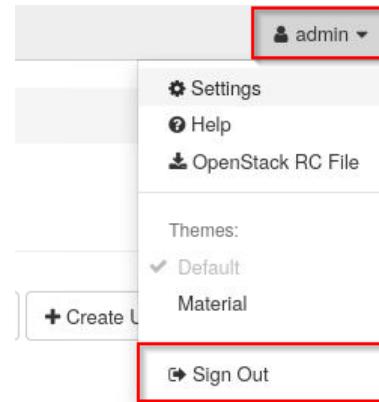
Users

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-		0206056167241208915639e7eb0d2d	Yes	Default	Edit
demo	-	demo@example.com	b227ae892074a93890f4a2ba4285cfb	Yes	Default	Edit
demo_reader	-	demo_reader@example.com	636759a2181042803019a1c1c068b73	Yes	Default	Edit
alt_demo	-	alt_demo@example.com	88b49a32a8304831a0001639c79a503	Yes	Default	Edit
alt_demo_member	-	alt_demo_member@example.com	faa47953ea542a88985871a8938ac57	Yes	Default	Edit
alt_demo_reader	-	alt_demo_reader@example.com	83296a436704a85124840202a6437	Yes	Default	Edit
system_member	-	system_member@example.com	90a437a73289427d88225054de8b03	Yes	Default	Edit
system_reader	-	system_reader@example.com	7d305ca820a404006d7f9e2e17b2b88	Yes	Default	Edit
nova	-		f1acd1011d94a7a9a4546a598f3f996	Yes	Default	Edit
glance	-		58d4edcc07949a999b67679505225	Yes	Default	Edit
cinder	-		0e377dea20a04a903cc085a9145d7ee	Yes	Default	Edit
neutron	-		4366031a6f942b9b032291789426dd8	Yes	Default	Edit
placement	-		c07a5474209b40aa55cd5a7448d612b	Yes	Default	Edit
cloud-dev	-		e7386c19117457265191faa3b7a972	Yes	Default	Edit
cloud-test2	-		85d98701404b64119d566eda7a5002	Yes	Default	Edit <input checked="" type="checkbox"/>

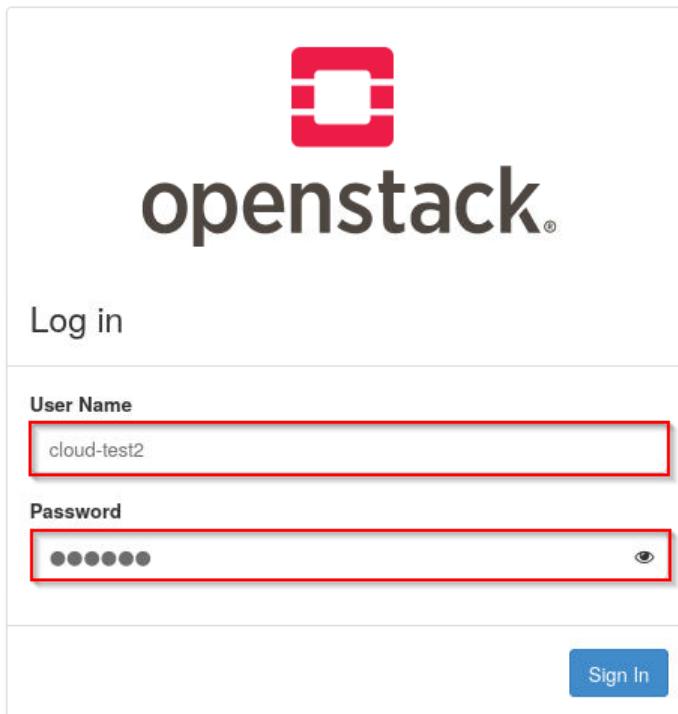
Displaying 15 items

Change Password Disable User Delete User

- 3.8.** Log out of the dashboard as **admin**. Select the *admin* drop down at the top right and click on **Sign Out**.



- 3.9.** At the Horizon Dashboard screen, attempt to log in as **cloud-test2** with the password **secret**.



Note

Notice the user account is disabled as intended.

- 3.10.** Log back into the dashboard as **admin** using the password **secret** and re-enable the **cloud-test2** user. Navigate to **Identity > Users**. Click on the drop down in the *Actions* column in the row for **cloud-test2** and select **Enable User**.

Users

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-		d20be567672412b891563fed9b2fd	Yes	Default	<input type="button" value="Edit"/>
demo	-	demo@example.com	b2d7aa8920744993890448b4a0285cfb	Yes	Default	<input type="button" value="Edit"/>
demo_reader	-	demo_reader@example.com	636779fa2181043d36319a11c19d88673	Yes	Default	<input type="button" value="Edit"/>
alt_demo	-	alt_demo@example.com	88149a32a30a4831a000103kd77a503	Yes	Default	<input type="button" value="Edit"/>
alt_demo_member	-	alt_demo_member@example.com	f8a47983ea5d4288bb8858571e8938a57	Yes	Default	<input type="button" value="Edit"/>
alt_demo_reader	-	alt_demo_reader@example.com	83f295de3909488b12464b029a6437	Yes	Default	<input type="button" value="Edit"/>
system_member	-	system_member@example.com	90a437a732894d7b88220504a9a8cb3	Yes	Default	<input type="button" value="Edit"/>
system_reader	-	system_reader@example.com	76905c820a3a409a979a2e17b2f888	Yes	Default	<input type="button" value="Edit"/>
nova	-		f1acd1611d94a5e9d54eb505983f6996	Yes	Default	<input type="button" value="Edit"/>
glance	-		58c04ec0b7e948999f867e95b652215	Yes	Default	<input type="button" value="Edit"/>
cinder	-		0e977fe3a20e4803cc864ad9143d7ee	Yes	Default	<input type="button" value="Edit"/>
neutron	-		4366031af8f428693229178843d98	Yes	Default	<input type="button" value="Edit"/>
placement	-		c07a547x429baaa55c5ab744db612b	Yes	Default	<input type="button" value="Edit"/>
cloud-dev	-		a7389c191174572b5191aa9b7a972	Yes	Default	<input type="button" value="Edit"/>
cloud-test2	-		85c9870146864c19b956da784509e2	No	Default	<input type="button" value="Edit"/> <input checked="" type="button" value="Change Password"/> <input type="button" value="Enable User"/> <input type="button" value="Delete User"/>

- 3.11.** Select the same drop down, but this time click on **Change Password**.

Users

Displaying 15 items

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-	demo@example.com	d20bd567672412b891563feeb6b2fd	Yes	Default	<button>Edit</button>
demo	-	demo_reader@example.com	b227fa892017460398046ba4bc85cfb	Yes	Default	<button>Edit</button>
demo_reader	-	demo_reader@example.com	63675fa21b1045d8019a11c19c88673	Yes	Default	<button>Edit</button>
alt_demo	-	alt_demo@example.com	88049c32aa30a403140001d9cd79a503	Yes	Default	<button>Edit</button>
alt_demo_member	-	alt_demo_member@example.com	faa47603ea554208885871e893ba57	Yes	Default	<button>Edit</button>
alt_demo_reader	-	alt_demo_reader@example.com	831926dc369f488b11464b0206437	Yes	Default	<button>Edit</button>
system_member	-	system_member@example.com	90a437a732894a71b88220504c9efcb3	Yes	Default	<button>Edit</button>
system_reader	-	system_reader@example.com	76305c820fa40059d979e2e1762fb88	Yes	Default	<button>Edit</button>
nova	-		f1cc0f1611d4a8a95c5ab468d95983995	Yes	Default	<button>Edit</button>
glance	-		68c04ec07e94899f56795b653215	Yes	Default	<button>Edit</button>
cinder	-		0e3771ea32a0e4030ccb8044014307ee	Yes	Default	<button>Edit</button>
neutron	-		436601a6f42d26922917884358	Yes	Default	<button>Edit</button>
placement	-		c07a547c429b4baaa95c5ab744db612b	Yes	Default	<button>Edit</button>
cloud-dev	-		a7388c19f17457285191aa07a872	Yes	Default	<button>Edit</button>
cloud-test2	-		85c9870146864c419b9569da7a4502e2	Yes	Default	<button>Edit</button>

Displaying 15 items

- 3.12.** Change the password for **cloud-test2** to **password**. Enter **password** into the **Password** and **Confirm Password** fields, then click on **Save**.

Change Password

Change Password

Password *

Confirm Password *

User Name

Description:

Change user's password. We highly recommend you create a strong one.

- 3.13.** Log out of the dashboard and log back in as **cloud-test2** with the password **password** to verify the password has been changed.

- 3.14.** Log out of the dashboard and close the web browser. Continue to the next task.

4 Managing Users Using the OpenStack Unified CLI

In this task, you will manage users using the *OpenStack Unified CLI*.

- 4.1. Open a terminal if you do not already have one running, and navigate to the home directory.
- 4.2. Source the credential for **admin** using the **keystonerc-admin** file by entering the command below.

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

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

- 4.3. List the existing OpenStack users.

```
ubuntu@workstation:~$ openstack user list
```

```
ubuntu@workstation:~$ openstack user list
+-----+-----+
| ID          | Name      |
+-----+-----+
| 14f5376f00c04e90b7103dd8d4263040 | admin     |
| 603b42080bb549d7ad3217eb456e7a55 | demo      |
| a7cee45b0f484fca8980c71e2243d2e1 | 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 |
| 65180428a6e54ddeb205a4ceca929dfb | cloud-dev  |
| f0a4c38a3c304d908f1bf6123792f64b | cloud-test2 |
+-----+-----+
ubuntu@workstation:~$ █
```

- 4.4. Create the **cloud-test3** user as a member of **dev** with a password of **secret** and an email address of **ubuntu@workstation.lab.example.com** using the command below.

```
ubuntu@workstation:~$ openstack user create \
> --project dev \
> --password secret \
> --enable cloud-test3
```

```
ubuntu@workstation:~$ openstack user create \
> --project dev \
> --password secret \
> --enable cloud-test3
+-----+-----+
| Field | Value |
+-----+-----+
| default_project_id | c823d25ab1dd4384905c02db249f1785 |
| domain_id | default |
| enabled | True |
| id | 94509fac9822464ba03455434f125b06 |
| name | cloud-test3 |
| options | {} |
| password_expires_at | None |
+-----+-----+
ubuntu@workstation:~$ █
```

Tip

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

- 4.5.** Verify the user was created using the command below.

```
ubuntu@workstation:~$ openstack user list
```

```
ubuntu@workstation:~$ openstack user list
+-----+-----+
| ID          | Name   |
+-----+-----+
| d20b6b5676724f12b891563fee6b62fd | admin  |
| b22f7ae892074693890f46bb40285cfb | demo   |
| 63675fa2181043d0b319a11c19c68b73 | demo_reader |
| 88b49a32a8304831a0001d39cd79a503 | alt_demo |
| faa47663ea5d42bb8885871e8938ac57 | alt_demo_member |
| 83926de3609f4f8fb12464bf029a6437 | alt_demo_reader |
| 90a437a732894d7db88220504c9a8cb3 | system_member |
| 7d305ca820a0400b9df79e2e17b2fb88 | system_reader |
| f1acd1611df94a6a9dd4ebb598f3f696 | nova   |
| 58cd4eccb7e948f99f5b67e95b6522f5 | glance  |
| 0e377dea2a0e4803bccb864a9143d7ee | cinder  |
| 4366031a66ff42bb93f229178842dda8 | neutron |
| c07a547c429b4baa835c5ab744db612b | placement |
| e7386c19f1f74572b5191faa3b7af872 | cloud-dev |
| 85c9870146b64c419fd569da784503e2 | cloud-test2 |
| 18d19faba6b6456691b35cd88630173c | cloud-test3 |
+-----+-----+
ubuntu@workstation:~$ █
```

- 4.6. The **cloud-test3** user will also need to be assigned a role to a project before being able to perform any actions. List the available roles to choose an appropriate one.

```
ubuntu@workstation:~$ openstack role list
```

```
ubuntu@workstation:~$ openstack role list
+-----+-----+
| ID          | Name   |
+-----+-----+
| 06a95c82ba3d4100a1d0f60bb905103c | reader |
| 2c3b8113b193450aae853366edde59cf | member |
| 3e87224510c64534ab79f89dale4bc30 | service |
| 7fead54bd7254e19953681eff51bb8d7 | manager |
| 8dcf33f6eba64391b67ef08c5fae8c80 | ResellerAdmin |
| 8eccccc9d106748ba9c3f69a594a035ee | admin   |
| c885d097a99c4311842278b3c65e54ce | anotherrole |
+-----+-----+
ubuntu@workstation:~$ █
```

- 4.7. Assign a role with the command below.

```
ubuntu@workstation:~$ openstack role add \
> --project dev \
> --user cloud-test3 \
> member
```

```
ubuntu@workstation:~$ openstack role add \
> --project dev \
> --user cloud-test3 \
> member
ubuntu@workstation:~$ █
```

- 4.8. Copy the existing `~/keystonerc-admin` file to `~/keystonerc-cloud-dev` by entering the command below.

```
ubuntu@workstation:~$ cp ~/keystonerc-admin ~/keystonerc-cloud-dev
```

```
ubuntu@workstation:~$ cp ~/keystonerc-admin ~/keystonerc-cloud-dev
ubuntu@workstation:~$ █
```

Tip

To avoid any confusion about which user's credentials you are currently using, you can set the PS1 environment variable in the keystone file so that the terminal prompt shows the active user. For example, the line `export PS1='[\u@\h \W(keystone-cloud-dev)]$ '` will make the terminal prompt appear as `[ubuntu@workstation ~(keystone-cloud-dev)]$`.

- 4.9. Edit the `~/keystonerc-cloud-dev` file and modify the `OS_USERNAME`, `OS_PASSWORD`, and `OS_PROJECT_NAME` using the nano command. Modify the file so the content matches below. When you are finished, press **CTRL+X**, then **Y** to accept the file changes. Press **Enter** to save and exit nano.

```
ubuntu@workstation:~$ nano ~/keystonerc-cloud-dev
```

```
GNU nano 2.9.3          /home/ubuntu/keystonerc-cloud-dev

unset OS_SERVICE_TOKEN
unset OS_TENANT_ID
unset OS_TENANT_NAME
export OS_USERNAME=cloud-dev
export OS_PASSWORD=secret
export OS_AUTH_URL=http://192.168.1.20/identity
export OS_REGION_NAME=RegionOne
export OS_PROJECT_NAME=dev
export OS_INTERFACE=public
export OS_IDENTITY_API_VERSION=3
```

- 4.10.** Repeat steps 8 and 9, this time for user **cloud-test3**.

- 4.11.** Disable the **cloud-test3** account by entering the command below

```
ubuntu@workstation:~$ openstack user set \
> --disable cloud-test3
```

```
ubuntu@workstation:~$ openstack user set \
> --disable cloud-test3
ubuntu@workstation:~$
```

- 4.12.** To verify that the **cloud-test3** account is disabled, first source the `~/keystonerc-cloud-test3` keystone credentials file for the **cloud-test3** user by entering the command below.

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-test3
```

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-test3
ubuntu@workstation:~$
```

- 4.13.** Now try listing a flavor by running the command below and take note of the response.

```
ubuntu@workstation:~$ openstack flavor list
```

```
ubuntu@workstation:~$ openstack flavor list
The request you have made requires authentication. (HTTP 401) (Request-ID: req-8
d2eec10-6d30-4b88-858d-99065fc20ff)
ubuntu@workstation:~$
```

- 4.14.** Source the keystone credentials using the **admin** user keystone file so that further changes can be made to the accounts.

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

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

- 4.15. Enable the **cloud-test3** user account, change the password to **password**, and change the email address to **ubuntu@devstack.lab.example.com**.

```
openstack user set \  
> --password password \  
> --enable cloud-test3
```

```
ubuntu@workstation:~$ openstack user set \  
> --password password \  
> --enable cloud-test3  
ubuntu@workstation:~$ █
```

- 4.16. Set the password, **password** in the keystone credential file for **cloud-test3**. Modify the file so the content matches below. When you are finished, press **CTRL+X**, then **Y** to accept the file changes. Press **Enter** to save and exit nano.

```
ubuntu@workstation:~$ nano ~/keystonerc-cloud-test3
```

```
GNU nano 2.9.3          /home/ubuntu/keystonerc-cloud-test3  
  
unset OS_SERVICE_TOKEN  
unset OS_TENANT_ID  
unset OS_TENANT_NAME  
export OS_USERNAME=cloud-test3  
export OS_PASSWORD=password  
export OS_AUTH_URL=http://192.168.1.20/identity  
export OS_REGION_NAME=RegionOne  
export OS_PROJECT_NAME=dev  
export OS_INTERFACE=public  
export OS_IDENTITY_API_VERSION=3
```

- 4.17. Source the **~/keystonerc-cloud-test3** keystone credentials file for the **cloud-test3** user.

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-test3
```

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-test3  
ubuntu@workstation:~$ █
```

- 4.18. Now that the **cloud-test3** user has been enabled, verify that the openstack flavor list command returns a list of available flavors.

```
ubuntu@workstation:~$ 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

- 4.19. Source the keystone credentials file for the **admin** user.

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

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

- 4.20. Delete the **cloud-test2** and **cloud-test3** user accounts.

```
ubuntu@workstation:~$ openstack user delete cloud-test2
ubuntu@workstation:~$ openstack user delete cloud-test3
```

```
ubuntu@workstation:~$ openstack user delete cloud-test2
ubuntu@workstation:~$ openstack user delete cloud-test3
ubuntu@workstation:~$
```

- 4.21. Verify that the users have been deleted.

```
ubuntu@workstation:~$ openstack user list
```

```
ubuntu@workstation:~$ openstack user list
+-----+-----+
| ID          | Name   |
+-----+-----+
| d20b6b5676724f12b891563fee6b62fd | admin  |
| b22f7ae892074693890f46bb40285cfb | demo   |
| 63675fa2181043d0b319a11c19c68b73 | demo_reader |
| 88b49a32a8304831a0001d39cd79a503 | alt_demo |
| faa47663ea5d42bb8885871e8938ac57 | alt_demo_member |
| 83926de3609f4f8fb12464bf029a6437 | alt_demo_reader |
| 90a437a732894d7db88220504c9a8cb3 | system_member |
| 7d305ca820a0400b9df79e2e17b2fb88 | system_reader |
| f1acd1611df94a6a9dd4ebb598f3f696 | nova   |
| 58cd4eccb7e948f99f5b67e95b6522f5 | glance  |
| 0e377dea2a0e4803bccb864a9143d7ee | cinder  |
| 4366031a66ff42bb93f229178842dda8 | neutron |
| c07a547c429b4baa835c5ab744db612b | placement |
| e7386c19f1f74572b5191faa3b7af872 | cloud-dev |
+-----+-----+
ubuntu@workstation:~$ █
```

- 4.22. Leave the terminal window open and continue on to the next task.

5 Assigning User Roles and Privileges Using the Horizon Dashboard

In this task, you will assign user roles privileges using the *Horizon Dashboard*.

- 5.1. Open the web browser, navigate to the OpenStack login page at <http://192.168.1.20>, and log in with username **admin** and password **secret** as before.
- 5.2. Navigate to **Identity > Users** and click on the **Create User** button.

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-		be70ca5c1a9e46eb8be7b25a6cd18ba	Yes	Default	Edit

- 5.3. Create the **cloud-admin** user with **admin** privileges. In the dialog box, enter **cloud-admin** in the *User Name* field, and enter **secret** in the *Password* and *Confirm Password* fields. Select the **dev** project from the *Primary Project* dropdown, and select **admin** in the *Role* dropdown. Finally, leave the **Enabled** checkbox selected and click the **Create User** button.

Create User

**Domain ID****Description:**

Create a new user and set related properties including the Primary Project and Role.

Domain Name**User Name *****Description****Email****Password *** **Confirm Password *** **Primary Project** **Role** **Enabled** **Lock password****Cancel****Create User****Tip**

You may need to use the scroll bar on the right of the dialog to scroll down to see the projects and roles.

- 5.4. Log out of the dashboard by clicking the **admin** drop down in the top right corner, then clicking **Sign Out**, and log back into the dashboard as the newly created **cloud-admin** user with password **secret**.
- 5.5. Verify that the **cloud-admin** user has **admin** privileges by creating a user named **cloud-user1**. Navigate to **Identity > Users** and click on the **Create User** button as before. In the dialog box, enter **cloud-user1** in the *User Name* field and **secret** in the *Password* and *Confirm Password* fields. Select the **dev** project from the *Primary Project* dropdown, leave the *Role* set to **member**, and leave the **Enabled** checkbox selected. Click the **Create User** button.

Create User

Domain ID

default

Domain Name

Default

User Name *

cloud-user1

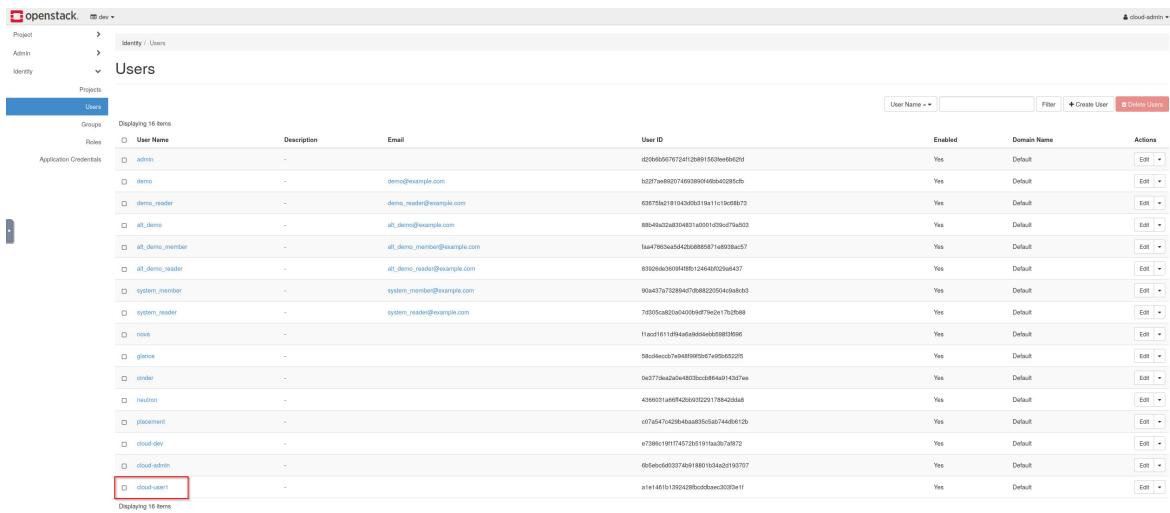
Description:

Create a new user and set related properties including the Primary Project and Role.

Description**Email****Password *****Confirm Password *****Primary Project****Role** Enabled Lock password[Cancel](#)[Create User](#)**Tip**

You may need to use the scroll bar on the right of the dialog to scroll down to see the projects and roles.

- 5.6.** Verify that the **cloud-user1** account appears in the user list.



User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-	-	d29fb6b5676742f1398915639eeb62d	Yes	Default	Edit
demo	-	demo@example.com	b237ae98027469989916bb40283fcf	Yes	Default	Edit
demo_reader	-	demo_reader@example.com	636756d181043d03019a1c19d873	Yes	Default	Edit
alt_demo	-	alt_demo@example.com	88649a02a02a0481a001c020007fa055	Yes	Default	Edit
alt_demo_member	-	-	faa1765aa5a426286885771e0303a57	Yes	Default	Edit
alt_demo_reader	-	alt_demo_reader@example.com	839264a36094ff8b1246480729a47	Yes	Default	Edit
system_member	-	system_member@example.com	90a437c722994d72880230040a0a8b3	Yes	Default	Edit
system_reader	-	system_reader@example.com	767056ca0202a040094977e0c17b2688	Yes	Default	Edit
nova	-	-	f1ac1811954a6a9d56e6bd8082050	Yes	Default	Edit
glance	-	-	5b6ec6cc574049ff95b747d956232	Yes	Default	Edit
cinder	-	-	0a3773ea2624e48020c8864a143f7ee	Yes	Default	Edit
neutron	-	-	4390031a6ef426039220179a42d368	Yes	Default	Edit
placement	-	-	c076547c429404ba83fcfaab744b812b	Yes	Default	Edit
cloud-dev	-	-	e7386e19f17457265191aa307a79f72	Yes	Default	Edit
cloud-admin	-	-	659ebc60332749f1880104a26193707	Yes	Default	Edit
cloud-user	-	-	a1e1461b1392429f00dbbae20202e11	Yes	Default	Edit

5.7. Log out of the dashboard, close the web browser, and continue to the next task.

6 Assigning User Roles and Privileges Using the OpenStack Unified CLI

In this task, you will assign user roles and privileges using the *OpenStack Unified CLI*.

- 6.1. Open a terminal window if one is not already running.
- 6.2. Source the `~/keystonerc-admin` keystone credentials file for the **admin** user by entering the command below.

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

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

- 6.3. Create the user **cloud-user2** with the password **secret**, and make it a member of the **dev** project.

```
ubuntu@workstation:~$ openstack user create \
> --password secret \
> --project dev \
> cloud-user2
```

```
ubuntu@workstation:~$ openstack user create \
> --password secret \
> --project dev \
> cloud-user2
+-----+
| Field          | Value
+-----+
| default_project_id | 7720ff4082c3472b93ffca8d0fbf3dec |
| domain_id      | default |
| enabled         | True   |
| id              | 447c8a8ec61a4356a641423339a5b935 |
| name            | cloud-user2 |
| options          | {}    |
| password_expires_at | None  |
+-----+
ubuntu@workstation:~$ █
```

- 6.4. The user **cloud-user2** is not assigned a role by default and must be assigned one. Assign the **admin** user role to the **cloud-user2** user.

```
ubuntu@workstation:~$ openstack role add \
> --user cloud-user2 \
> --project dev \
> admin
```

```
ubuntu@workstation:~$ openstack role add \
> --user cloud-user2 \
> --project dev \
> admin
ubuntu@workstation:~$ █
```

- 6.5. Verify that the **cloud-user2** is in the **admin** user role for the **dev** project.

```
ubuntu@workstation:~$ openstack role assignment list \
> --user cloud-user2 \
> --project dev \
> --names
```

```
ubuntu@workstation:~$ openstack role assignment list \
> --user cloud-user2 \
> --project dev \
> --names
+-----+-----+-----+-----+
| Role | User           | Group | Project      | Domain | Inherited |
+-----+-----+-----+-----+
| admin | cloud-user2@Default |       | dev@Default |       | False    |
+-----+-----+-----+-----+
ubuntu@workstation:~$ █
```

- 6.6. Next, the admin role for **cloud-user2** will be used to perform an admin action. In particular, the admin privileges of **cloud-user2** will be used to delete another user. First, follow steps 8 and 9 from Section 4 to create the **~/keystonerc-cloud-user2** keystone credentials file for the **cloud-user2** user.

- 6.7. Source the **~/keystonerc-cloud-user2** keystone credentials file for the **cloud-user2** user.

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-user2
```

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-user2
ubuntu@workstation:~$ █
```

- 6.8. List the current OpenStack users to see the list of users that can be deleted.

```
ubuntu@workstation:~$ openstack user list
```

```
ubuntu@workstation:~$ openstack user list
+-----+-----+
| ID          | Name   |
+-----+-----+
| 14f5376f00c04e90b7103dd8d4263040 | admin  |
| 603b42080bb549d7ad3217eb456e7a55 | demo   |
| a7cee45b0f484fca8980c71e2243d2e1 | demo_reader |
| 8d21de784ae2493aa5c8cc73a82be6b3 | alt_demo |
| 7e7596f02f1c45afad1fcfd09de331781 | alt_demo_member |
| 44ffe37cf07948c88958066614ef5d74 | alt_demo_reader |
| 899fc9a9b17445b4aac553e4f5f192ec | system_member |
| 604adb2150514649a41eaee6273ceb2a | system_reader |
| ab546669b1cd44b3aa2305c303363425 | nova   |
| 82142039d42341718fb126134266ec80 | glance  |
| 0c5d50f813184b588f3bc0c91250c7d7 | cinder  |
| efc593f762a447dba12bf2fe870f1310 | neutron |
| c79e26f993fb45ab939e7d0bbe12c263 | placement |
| 65180428a6e54ddeb205a4ceca929dfb | cloud-dev |
| 0413d6b859e84ee9bb0654c3215ddc92 | cloud-admin |
| dcaf4ded739e493d9dfef8d41b8ba619 | cloud-user1 |
| ed8005b3086f4849aa74e80638f19720 | cloud-user2 |
+-----+
ubuntu@workstation:~$ █
```

- 6.9. Delete the **cloud-user1** user.

```
ubuntu@workstation:~$ openstack user delete cloud-user1
```

```
ubuntu@workstation:~$ openstack user delete cloud-user1
ubuntu@workstation:~$ █
```

- 6.10. Delete the **cloud-user2** user. This will delete the current user whose keystone credentials are being used.

```
ubuntu@workstation:~$ openstack user delete cloud-user2
```

```
ubuntu@workstation:~$ openstack user delete cloud-user2
ubuntu@workstation:~$ █
```

- 6.11. Since the **cloud-user2** user has been deleted, the keystone credentials no longer authenticate the user. You can verify this by attempting to list OpenStack users.

```
ubuntu@workstation:~$ openstack user list
```

```
ubuntu@workstation:~$ openstack user list
The request you have made requires authentication. (HTTP 401) (Request-ID: req-0
e1c626e-aa5d-4474-98bf-8d3f3eaf94af)
ubuntu@workstation:~$ █
```

- 6.12.** Source the `~/keystonerc-admin` keystone credentials file for the `cloud-admin` user.

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

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

- 6.13.** Verify that the `cloud-user1` and `cloud-user2` users have been deleted.

```
ubuntu@workstation:~$ openstack user list
```

ID	Name
d20b6b5676724f12b891563fee6b62fd	admin
b22f7ae892074693890f46bb40285cfb	demo
63675fa2181043d0b319a11c19c68b73	demo_reader
88b49a32a8304831a0001d39cd79a503	alt_demo
faa47663ea5d42bb8885871e8938ac57	alt_demo_member
83926de3609f4f8fb12464bf029a6437	alt_demo_reader
90a437a732894d7db88220504c9a8cb3	system_member
7d305ca820a0400b9df79e2e17b2fb88	system_reader
f1acd1611df94a6a9dd4ebb598f3f696	nova
58cd4eccb7e948f99f5b67e95b6522f5	glance
0e377dea2a0e4803bccb864a9143d7ee	cinder
4366031a66ff42bb93f229178842dda8	neutron
c07a547c429b4baa835c5ab744db612b	placement
e7386c19f1f74572b5191faa3b7af872	cloud-dev
6b5ebc6d03374b918801b34a2d193707	cloud-admin

- 6.14.** Source the `~/keystonerc-cloud-dev` keystone credentials for the `cloud-dev` user and attempt to list the users. Notice the error displayed when a non-privileged user runs a command that requires administrator privileges.

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-dev
ubuntu@workstation:~$ openstack user list
```

```
ubuntu@workstation:~$ source ~/keystonerc-cloud-dev
ubuntu@workstation:~$ openstack user list
You are not authorized to perform the requested action: identity:list_users. (HT
TP 403) (Request-ID: req-6afb4d87-75ec-4a68-add3-2fcacc0022b5)
ubuntu@workstation:~$ █
```

6.15. The lab is now complete.