

**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: 192.168.1.23 ens4: 172.25.250.23	ubuntu	ubuntu
devstack	ens3: 192.168.1.22 ens4: 172.25.250.22	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. Open the web browser.



2. Enter the IP address of the **devstack** machine (**192.168.1.22**) into the address bar, and log into the OpenStack Horizon Dashboard. The username is **admin** and the password is **secret**.



openstack®

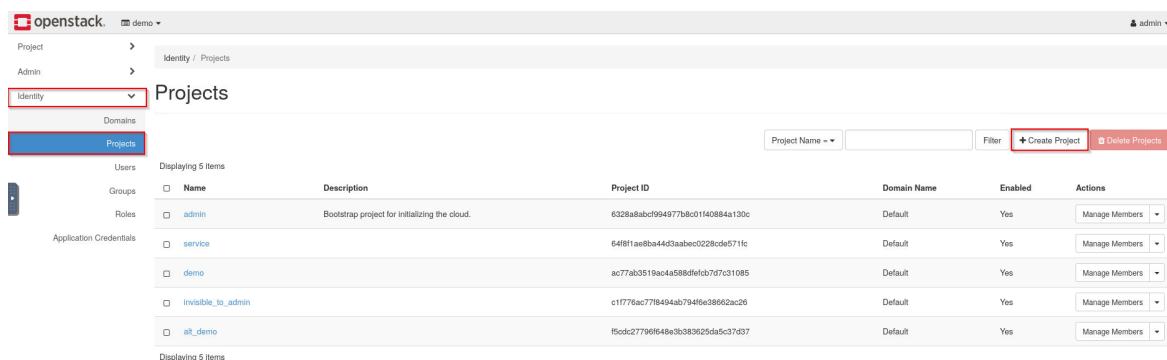
Log in

User Name

Password

Sign In

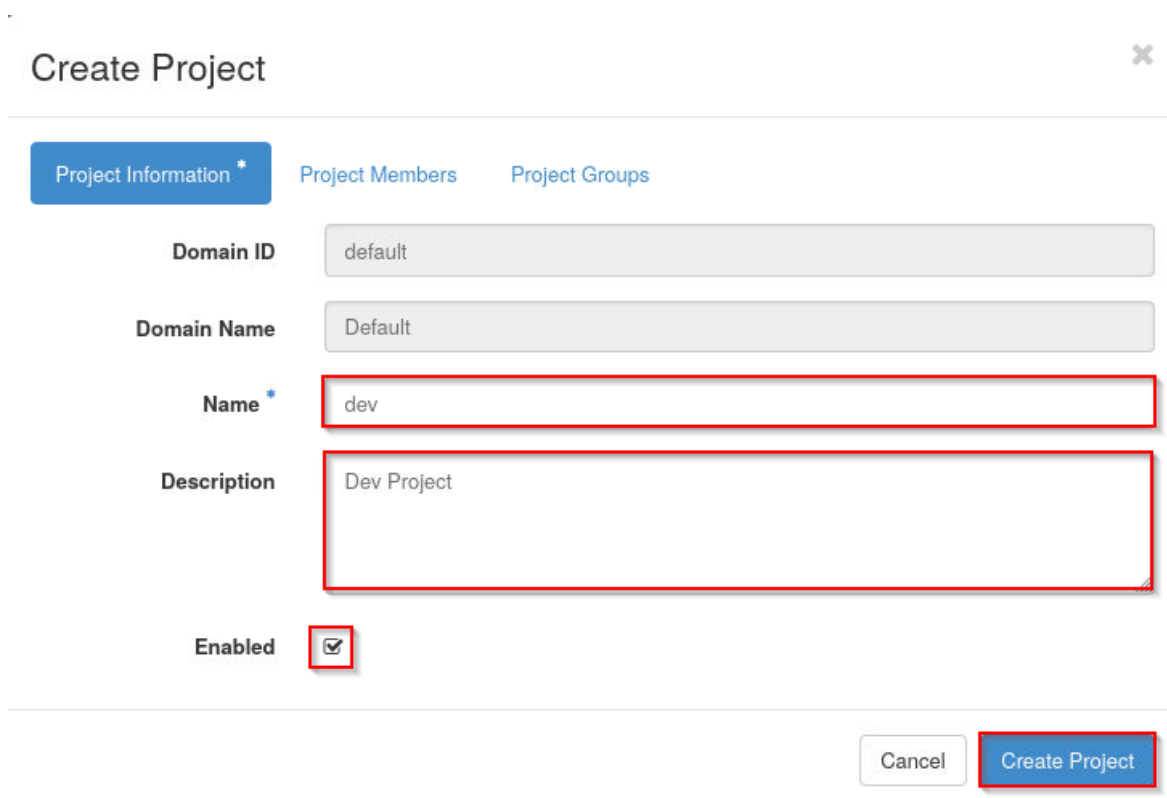
3. Create a project named **dev**. First, navigate to **Identity**→**Projects**, then click on **Create Project**.



The screenshot shows the OpenStack Identity Projects page. The left sidebar has a menu with 'Identity' selected and 'Projects' highlighted. The main area shows a table of projects. At the top right, there are buttons for 'Create Project' and 'Delete Projects'. The table has columns for Name, Description, Project ID, Domain Name, Enabled, and Actions.

Name	Description	Project ID	Domain Name	Enabled	Actions
admin	Bootstrap project for initializing the cloud.	6328a8abcf994977b8c0140884a130c	Default	Yes	Manage Members
service		64f8f1ae8ba44d3aabc0228cde571f	Default	Yes	Manage Members
demo		ac77ab3519ac4a588dfcb7d7c31085	Default	Yes	Manage Members
invisible_to_admin		c1f776ac778494ab794f6e38662ac26	Default	Yes	Manage Members
alt_demo		f50dc27796f648e3c583625da5c37d37	Default	Yes	Manage Members

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



The screenshot shows the 'Create Project' form. It has tabs for 'Project Information', 'Project Members', and 'Project Groups'. The 'Project Information' tab is active. The form has fields for 'Domain ID' (default), 'Domain Name' (Default), 'Name' (dev), 'Description' (Dev Project), and 'Enabled' (checked). At the bottom right, there are 'Cancel' and 'Create Project' buttons.

**Create Project**

Project Information \* Project Members Project Groups

Domain ID default

Domain Name Default

Name \* dev

Description Dev Project

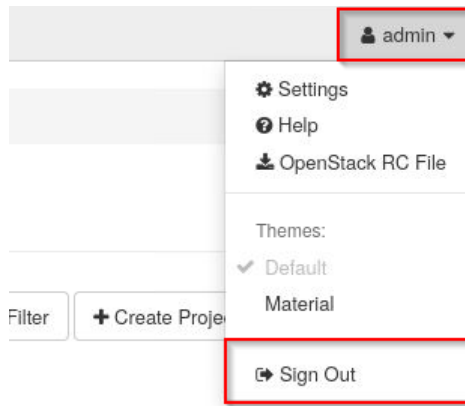
Enabled ☒

Cancel Create Project

**Note**

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

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



6. 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.

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

```
ubuntu@workstation:~$ source ~/keystoneadmin
```

```
ubuntu@workstation:~$ source keystoneadmin
ubuntu@workstation:~$
```

3. 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 **texttt\**, and press **Enter** to get the > and continue typing the rest of the command.

- 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:~$
```

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

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

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

6. 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:~$
```

7. Leave the terminal window open and continue to the next task.

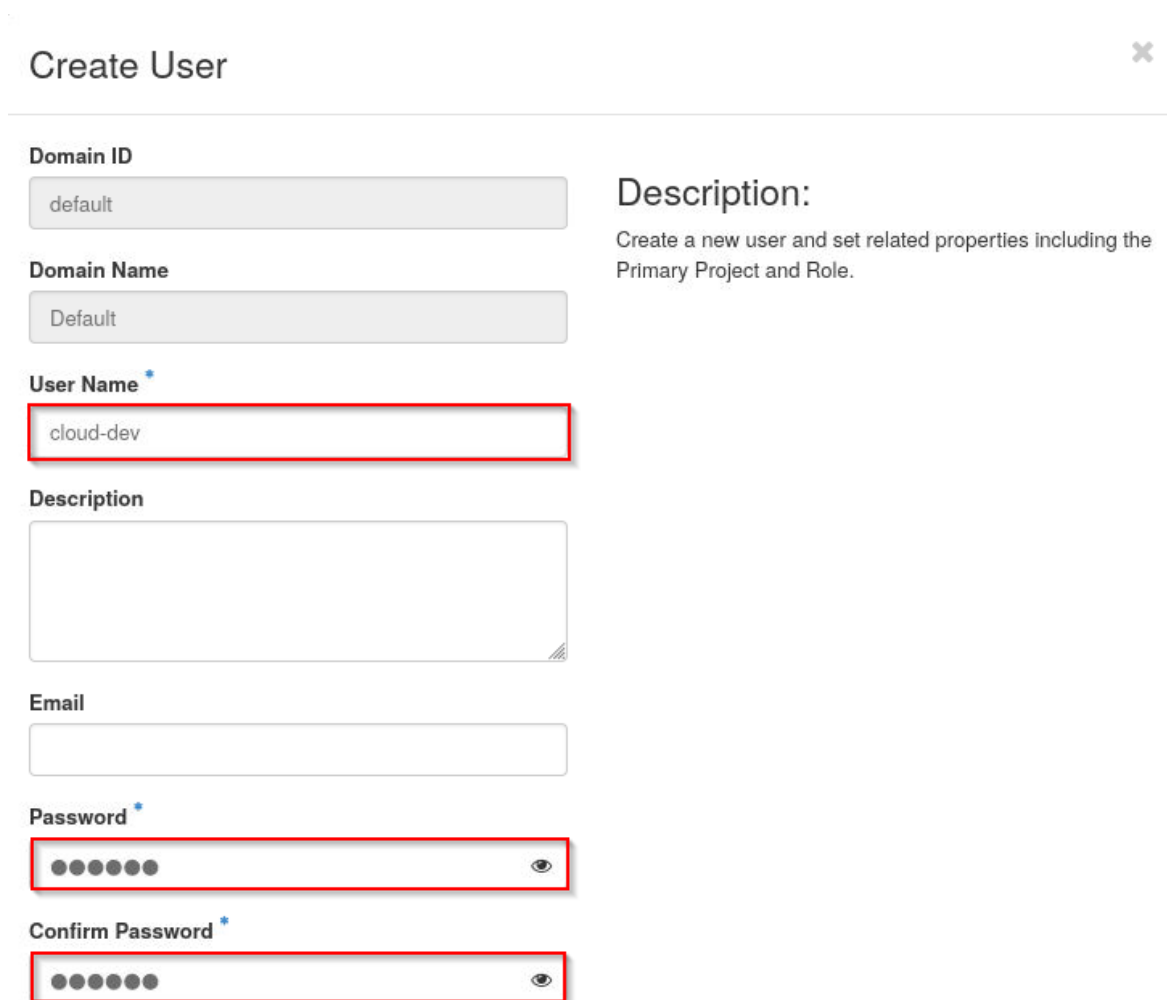
### 3 Managing Users Using the Horizon Dashboard

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

1. Open the web browser, navigate to the OpenStack login page at **http://192.168.1.22**, 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.
2. First, navigate to **Identity**→**Users** and click on **Create User**.



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 'Create User' dialog box is shown. It contains the following fields:

- Domain ID:** default
- Domain Name:** Default
- User Name:** cloud-dev
- Description:** (empty text area)
- Email:** (empty text field)
- Password:** secret
- Confirm Password:** secret

The 'Description' field has a placeholder text: "Create a new user and set related properties including the Primary Project and Role."

**Tip**

You will need to use the scroll bar on the right side of the dialog box to scroll down for more fields.

- After scrolling down, 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**.

**Password** \*

•••••

**Confirm Password** \*

•••••

**Primary Project**

dev

**Role**

member

☒ **Enabled**

☐ **Lock password**

Cancel Create User

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

Displaying 16 Items

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-	-	0205656578724712689158328e9b62d	Yes	Default	Edit
demo	-	demo@example.com	62277e8920749399048b43285fb	Yes	Default	Edit
demo_reader	-	demo_reader@example.com	636756218104369319a11c19d8b73	Yes	Default	Edit
alt_demo	-	alt_demo@example.com	8849a2a3a334831a0001d39d79d503	Yes	Default	Edit
alt_demo_member	-	alt_demo_member@example.com	faa47963a05426b885871e930ba57	Yes	Default	Edit
alt_demo_reader	-	alt_demo_reader@example.com	83926a36509f8fb124648f029a437	Yes	Default	Edit
system_member	-	system_member@example.com	90a437a732894d7b8822554c9abdd3	Yes	Default	Edit
system_reader	-	system_reader@example.com	7d305ca825a430b8f79a2c17a2b48	Yes	Default	Edit
nova	-	-	f1a0d1611d94a5a8d4e4b58989896	Yes	Default	Edit
glance	-	-	58d44ecb7e48999567e95953225	Yes	Default	Edit
cinder	-	-	0a377d8a2a6e48030cd85a8143d7ee	Yes	Default	Edit
neutron	-	-	4366031a6f428a03229178843d5d8	Yes	Default	Edit
placement	-	-	c074547a2b426a8a05c5ab744db12b	Yes	Default	Edit
cloud-dev	-	-	47886c191f7457265191a3b7a7b72	Yes	Default	Edit
<input checked="" type="checkbox"/> cloud-test1	-	-	205a489ca424235270771d0c85d30	Yes	Default	Edit

- 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

Displaying 15 items

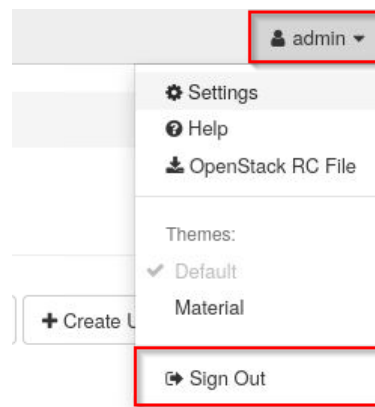
User Name  Filter [+ Create User](#) [+ Delete User](#)

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-		d20569557672d172d8915639e95d21d	Yes	Default	<a href="#">Edit</a>
demo	-	demo@example.com	6227ae89207493990468b43285db	Yes	Default	<a href="#">Edit</a>
demo_reader	-	demo_reader@example.com	636759a2181043d9219a11c19cd8873	Yes	Default	<a href="#">Edit</a>
alt_demo	-	alt_demo@example.com	88d49a2a3830481a001d39cd79d503	Yes	Default	<a href="#">Edit</a>
alt_demo_member	-	alt_demo_member@example.com	faa47663a0542b6885871e838a257	Yes	Default	<a href="#">Edit</a>
alt_demo_reader	-	alt_demo_reader@example.com	83926da3090948b12464d029a437	Yes	Default	<a href="#">Edit</a>
system_member	-	system_member@example.com	90a437a732894d7b88225504c8ab03	Yes	Default	<a href="#">Edit</a>
system_reader	-	system_reader@example.com	7d305ca021a0308a879a3e17a2b48	Yes	Default	<a href="#">Edit</a>
nova	-		f1acd1611d94a5a64a4a658983896	Yes	Default	<a href="#">Edit</a>
glance	-		58d4e0cb7e9489995d67e95802295	Yes	Default	<a href="#">Edit</a>
cinder	-		0ec377d6a2a0e4803cc854a9143d7ee	Yes	Default	<a href="#">Edit</a>
neutron	-		4360031a69f42b3d92291784d3d68	Yes	Default	<a href="#">Edit</a>
placement	-		c07454742064baa355fab744b4b12b	Yes	Default	<a href="#">Edit</a>
cloud-dev	-		a738619f1974572b6191fa3b7a7b72	Yes	Default	<a href="#">Edit</a>
cloud-test2	-		85c887014884a4119d5896a78403a2	Yes	Default	<a href="#">Edit</a>

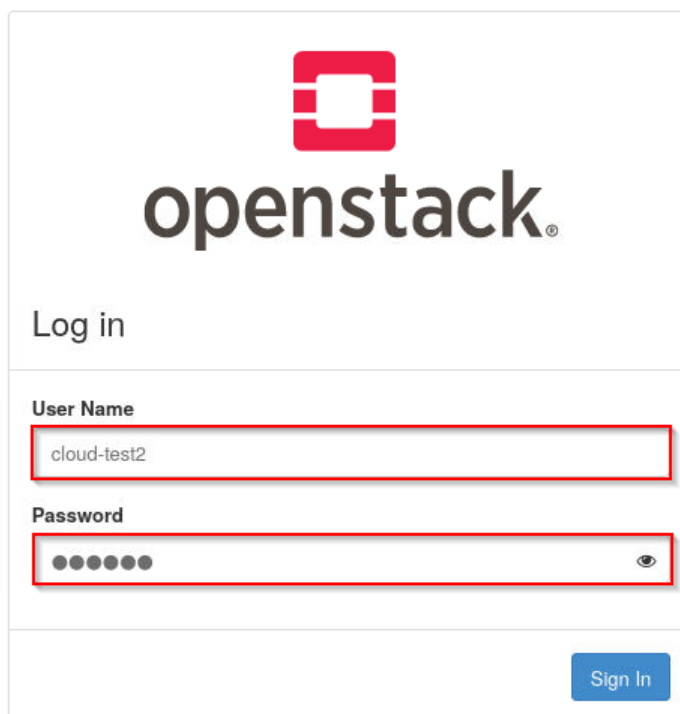
Displaying 15 items

[Change Password](#)  
[Create User](#)  
[Delete User](#)

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



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



The image shows the OpenStack login interface. At the top is the OpenStack logo. Below it is the text "Log in". There are two input fields: "User Name" with the value "cloud-test2" and "Password" with masked characters. A "Sign In" button is at the bottom right.

### Note

Notice the user account is disabled as intended.

- Log back into the dashboard as **admin** 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

Displaying 15 items

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-		d209d5676724712b8915633e6b62d	Yes	Default	Edit
demo	-	demo@example.com	1227ae9207489390492b40265cb	Yes	Default	Edit
demo_reader	-	demo_reader@example.com	636759218104383319a11c19c8b73	Yes	Default	Edit
alt_demo	-	alt_demo@example.com	88b49a20a304831a001059d79a503	Yes	Default	Edit
alt_demo_member	-	alt_demo_member@example.com	1aa47963aa55a3b6885871e833a57	Yes	Default	Edit
alt_demo_reader	-	alt_demo_reader@example.com	83926dc3609f48b12464029a6437	Yes	Default	Edit
system_member	-	system_member@example.com	90a437a732894c71b88220504c9b33	Yes	Default	Edit
system_reader	-	system_reader@example.com	7d305ca020a04059d79a2e17c2b68	Yes	Default	Edit
nova	-		1racd1611d940a9a5d5a6c0983996	Yes	Default	Edit
glance	-		58c4ecb7e48999567e95e05225	Yes	Default	Edit
cinder	-		0a3779a2b3a4803bc0864a9143f7ee	Yes	Default	Edit
neutron	-		4366031a69f2a6929291784335a8	Yes	Default	Edit
placement	-		c07a547a29baa835cab744b412b	Yes	Default	Edit
cloud-dev	-		e7386198174572951915a3b7a872	Yes	Default	Edit
cloud-test2	-		85c86701e884c41958595a784503a2	No	Default	Edit Change Password Enable User Delete User

Displaying 15 items

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

## Users

Displaying 15 items

User Name  Filter [Create User](#) [Delete User](#)

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-	-	c209556767241128915623ee8b2d1d	Yes	Default	<a href="#">Edit</a>
demo	-	demo@example.com	52277a8920748939046b40285cb	Yes	Default	<a href="#">Edit</a>
demo_reader	-	demo_reader@example.com	93675a218104383019a11c19c58b73	Yes	Default	<a href="#">Edit</a>
alt_demo	-	alt_demo@example.com	8849a32a5304851a001d39a279a503	Yes	Default	<a href="#">Edit</a>
alt_demo_member	-	alt_demo_member@example.com	1aa476b3ea59a3a889871e8938a357	Yes	Default	<a href="#">Edit</a>
alt_demo_reader	-	alt_demo_reader@example.com	83926a3630948f8124440f029a437	Yes	Default	<a href="#">Edit</a>
system_member	-	system_member@example.com	90a437a73229a67f8982255a4c9ab33	Yes	Default	<a href="#">Edit</a>
system_reader	-	system_reader@example.com	7d305ca22a3a40b6a4f79a2b17a2b68	Yes	Default	<a href="#">Edit</a>
novs	-	-	11ac01811a94a3a35a5a5a5a5a5a5a5a5a	Yes	Default	<a href="#">Edit</a>
glance	-	-	58c4a4cc37e94899f2a67e95b63225	Yes	Default	<a href="#">Edit</a>
cluster	-	-	0a3770a2a3a4833c3b5a4a143d7ee	Yes	Default	<a href="#">Edit</a>
neutron	-	-	436001a6f42b832291784235a8	Yes	Default	<a href="#">Edit</a>
placement	-	-	c07a547a429a4a35a5a5a5a5a5a5a5a5a	Yes	Default	<a href="#">Edit</a>
cloud-dev	-	-	a739a1981174572b1919a3b7a7b72	Yes	Default	<a href="#">Edit</a>
cloud-test2	-	-	85c8670148b4a413b5b5a5a7a4303a2	Yes	Default	<a href="#">Edit</a>

Displaying 15 items

[Change Password](#)  
[Create User](#)  
[Delete User](#)

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

Change Password

Password

Confirm Password

User Name

cloud-test2

Cancel

Save

Description:

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

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

1. Open a terminal if you do not already have one running, and navigate to the home directory.
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:~$
```

3. 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 \
> --email ubuntu@workstation.lab.example.com \
> cloud-test3
```

```
ubuntu@workstation:~$ openstack user create \
> --project dev \
> --password secret \
> --email ubuntu@workstation.lab.example.com \
> cloud-test3
+-----+-----+
| Field | Value |
+-----+-----+
| default_project_id | 7720ff4082c3472b93ffca8d0fbf3dec |
| domain_id | default |
| email | ubuntu@workstation.lab.example.com |
| enabled | True |
| id | 18d19faba6b6456691b35cd88630173c |
| 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. 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:~$
```

5. The **cloud-test3** user will also need to be assigned a role to a project before being able to perform any actions. 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:~$
```

- 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:~$
```

- 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
```

### 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)]$`.

- Repeat steps 6 and 7, this time for user **cloud-test3**.
- 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:~$
```

10. 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:~$
```

11. 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-99065fcb20ff)
ubuntu@workstation:~$
```

12. 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:~$
```

13. 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 \
> --email ubuntu@devstack.lab.example.com \
> --enable cloud-test3
```

```
ubuntu@workstation:~$ openstack user set \
> --password password \
> --email ubuntu@devstack.lab.example.com \
> --enable cloud-test3
ubuntu@workstation:~$
```

14. 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
```

15. 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:~$
```

16. 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
```

```
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      |
+-----+-----+-----+-----+-----+-----+-----+
ubuntu@workstation:~$
```



17. Source the keystone credentials file for the **admin** user.

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

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

18. 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:~$
```

19. 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:~$
```

20. 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*.

1. Open the web browser, navigate to the OpenStack login page at **2**, and log in with username **admin** and password **secret** as before.
2. Navigate to **Identity**→**Users** and click on the **Create User** button.



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

default

Domain Name

Default

User Name \*

cloud-admin

Description

Email

Password \*

Confirm Password \*

Primary Project

Role

☒ Enabled

☐ Lock password

### Description:

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

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.



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. 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

Email

Password \*

Confirm Password \*

Primary Project

 ▼ +

Role

 ▼

Enabled



Lock password

### Description:

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

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.

openstack dev cloud-admin

Project: Identity / Users

Admin: Users

Identify: Users

Projects: Users

Groups: Users

Roles: Users

Application Credentials: Users

Displaying 16 items

User Name	Description	Email	User ID	Enabled	Domain Name	Actions
admin	-	-	420b8d517672471268915030e6b264	Yes	Default	Edit
demo	-	demo@example.com	62277ee80207465389568b40285c6b	Yes	Default	Edit
demo_reader	-	demo_reader@example.com	83877582181843053719a11c15a58173	Yes	Default	Edit
atl_demo	-	atl_demo@example.com	88b4b42d3a8704831a001836d73603	Yes	Default	Edit
atl_demo_member	-	atl_demo_member@example.com	5ae478635a5420a8895871a8938ac57	Yes	Default	Edit
atl_demo_reader	-	atl_demo_reader@example.com	83026a305948851244540702a6457	Yes	Default	Edit
system_member	-	system_member@example.com	90a437a72894a470888225544a8a63	Yes	Default	Edit
system_reader	-	system_reader@example.com	7d205c823a400d9f79a2e1752b48	Yes	Default	Edit
nova	-	-	f1acdf111d94a5a56a56a56a56a56a56	Yes	Default	Edit
glance	-	-	56b36a5c37648899567a95653220	Yes	Default	Edit
cinder	-	-	0a2773a2a2a4a803b0d88491143d74a	Yes	Default	Edit
neutron	-	-	4386031a8f9a2b302291784a23a8	Yes	Default	Edit
placement	-	-	c07a5f7a28a4a835c5a7448a12b	Yes	Default	Edit
cloud-dev	-	-	a7788a19f174372b1191a3b7a972	Yes	Default	Edit
cloud-admin	-	-	6b4b4b4b3374b1880103a4b193707	Yes	Default	Edit
cloud-user1	-	-	a1e1407b132d3292b0b0ac2022e1f	Yes	Default	Edit

Displaying 16 items

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

1. Open a terminal window if one is not already running.
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:~$
```

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:~$
```

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:~$
```

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. Next, the admin role for **cloud-user2** will be used to perform an admin action. First, follow steps 6 and 7 from Section 4 to create the `~/keystonerc-cloud-user2` keystone credentials file for the **cloud-user2** user.
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:~$
```

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

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

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

9. Delete the **cloud-user2** user.

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

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

10. 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
elc626e-aa5d-4474-98bf-8d3f3eaf94af)
ubuntu@workstation:~$
```

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

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

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

12. Verify that the **cloud-user1** and **cloud-user2** 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
6b5ebc6d03374b918801b34a2d193707	cloud-admin

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

- 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:~$ 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:~$
```

- The lab is now complete.