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

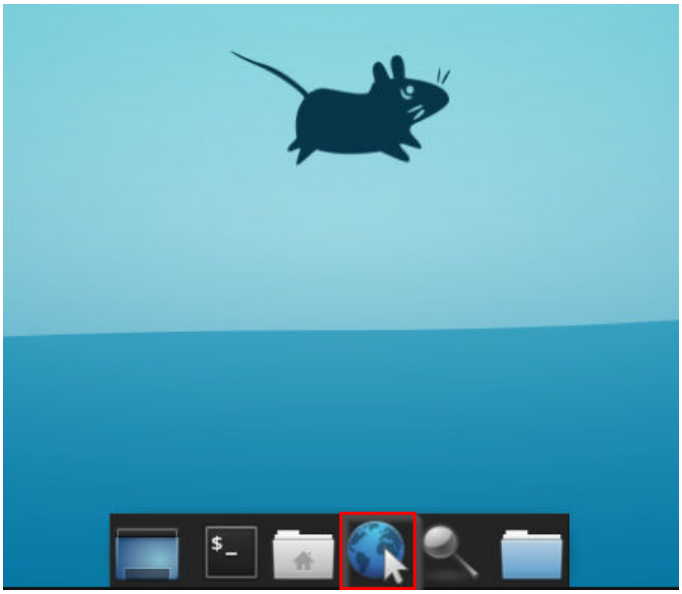
The information in the table below will be needed in order to complete the lab. The task sections below provide details on the use of this information.

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

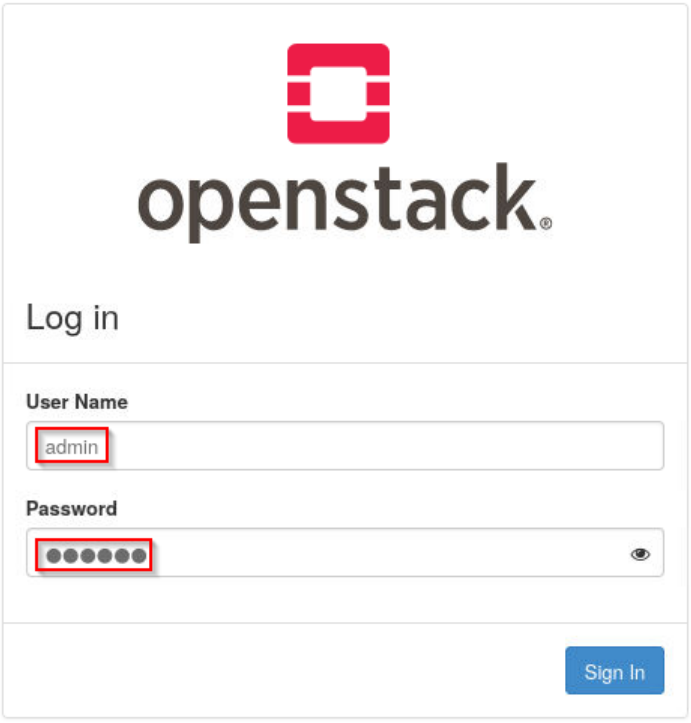
1 Create and Delete Projects Using the Horizon Dashboard

In this task, you will create and delete projects using the *Horizon Dashboard*.

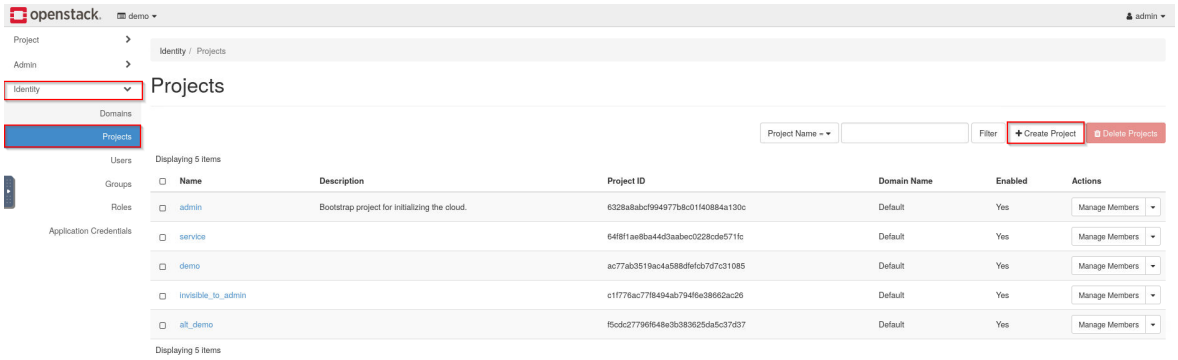
1. Open the web browser.



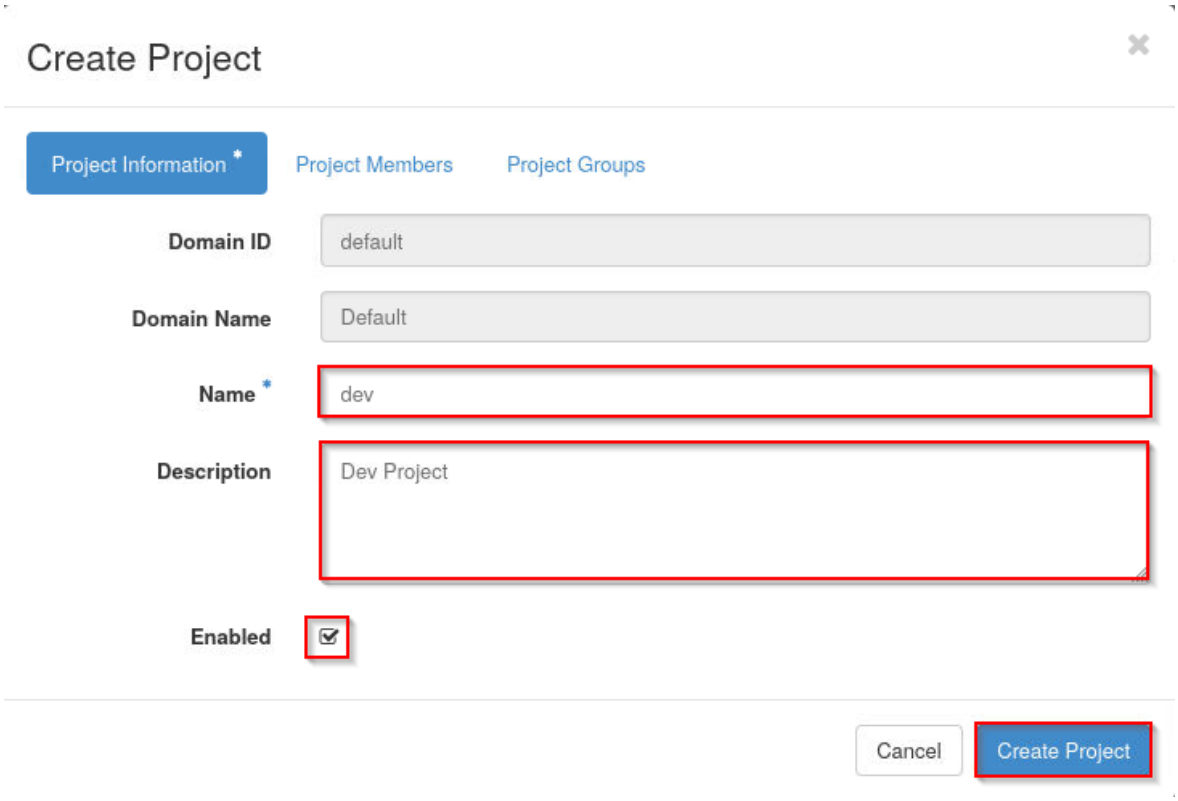
2. Enter the IP address of the **devstack** machine (**192.168.1.22**) into the address bar, and log into the OpenStack Horizon Dashboard. The username is **admin** and the password is **secret**.



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



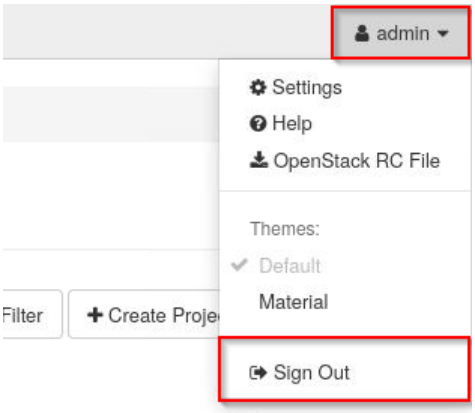
4. Enter **dev** in the *Name* field and **Dev Project** in the *Description* field. Leave the **Enabled** check box selected, then click on **Create Project**.



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**.

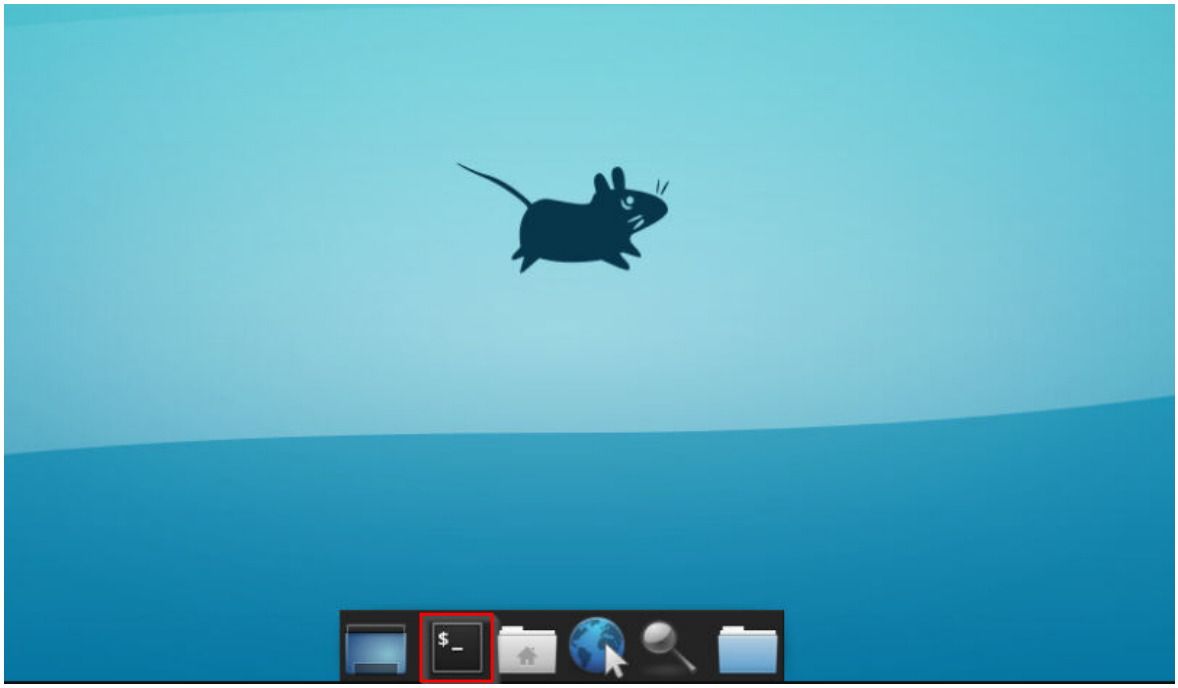


6. Close the web browser and continue to the next task.

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 **keystonerc-admin** argument to access OpenStack as the admin.

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

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

4. 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:~$
```

5. 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.

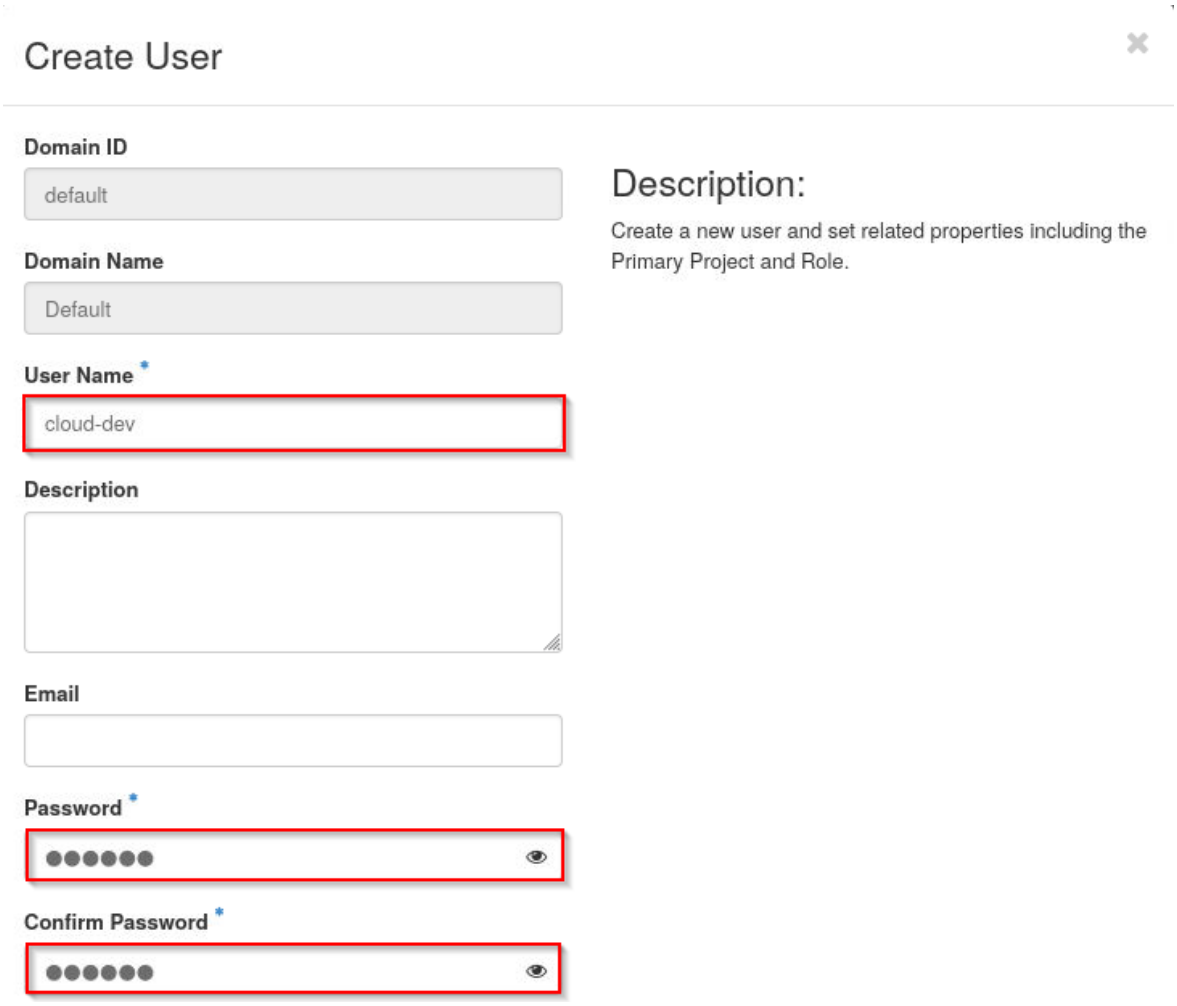
3 Managing Users Using the Horizon Dashboard

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**.

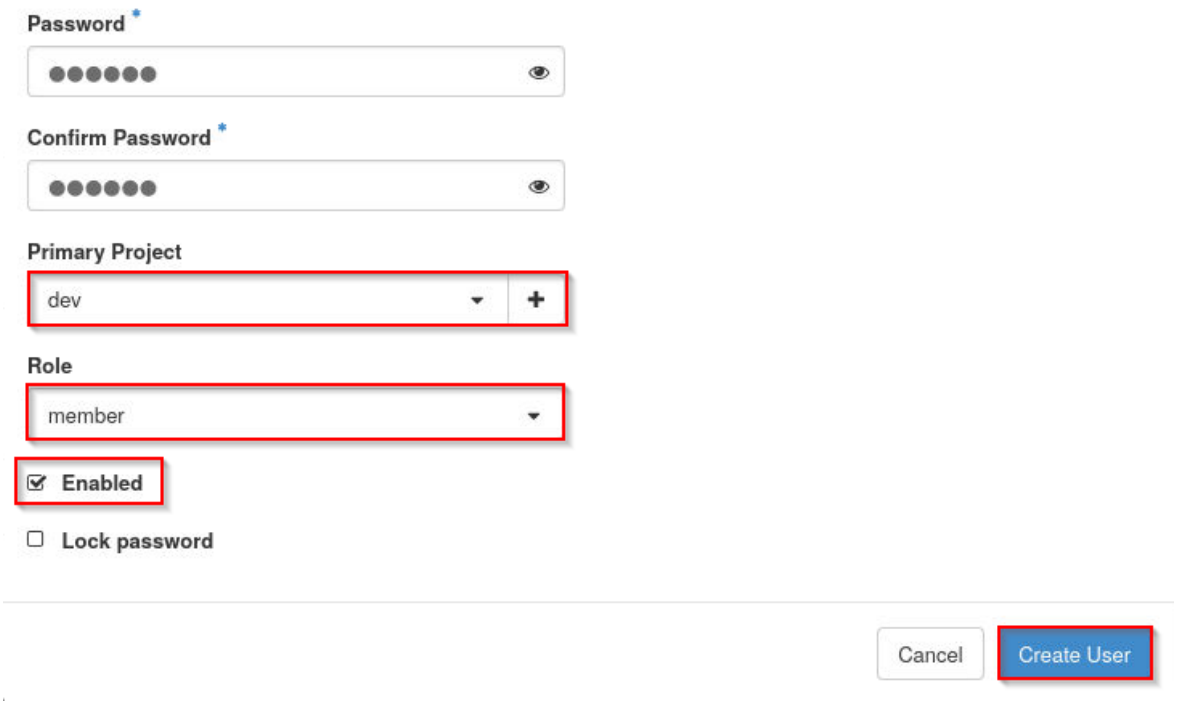
3. In the *Create User* dialog box, enter **cloud-dev** in the *User Name* field, and **secret** in the *Password* and *Confirm Password* fields.



Tip

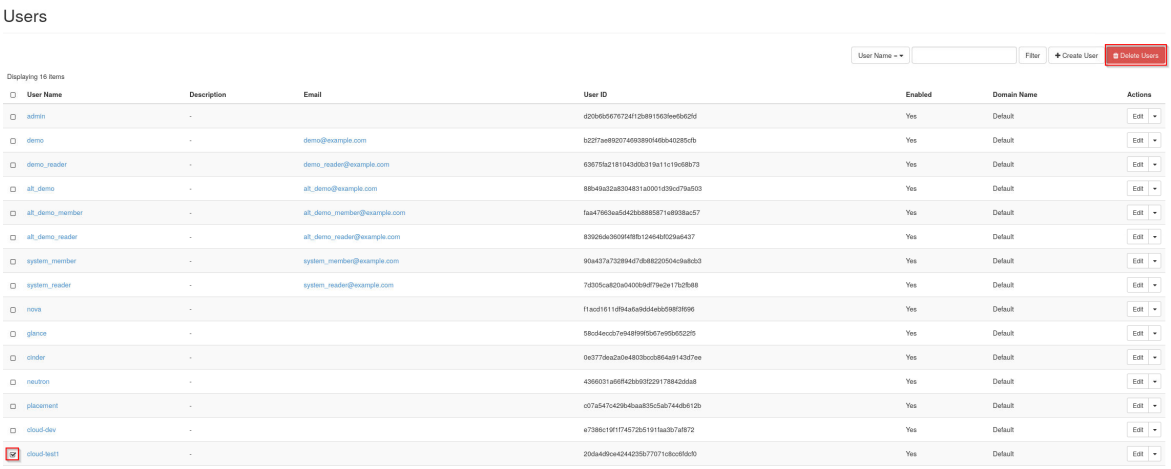
You will need to use the scroll bar on the right side of the dialog box to scroll down for more fields.

4. 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**.

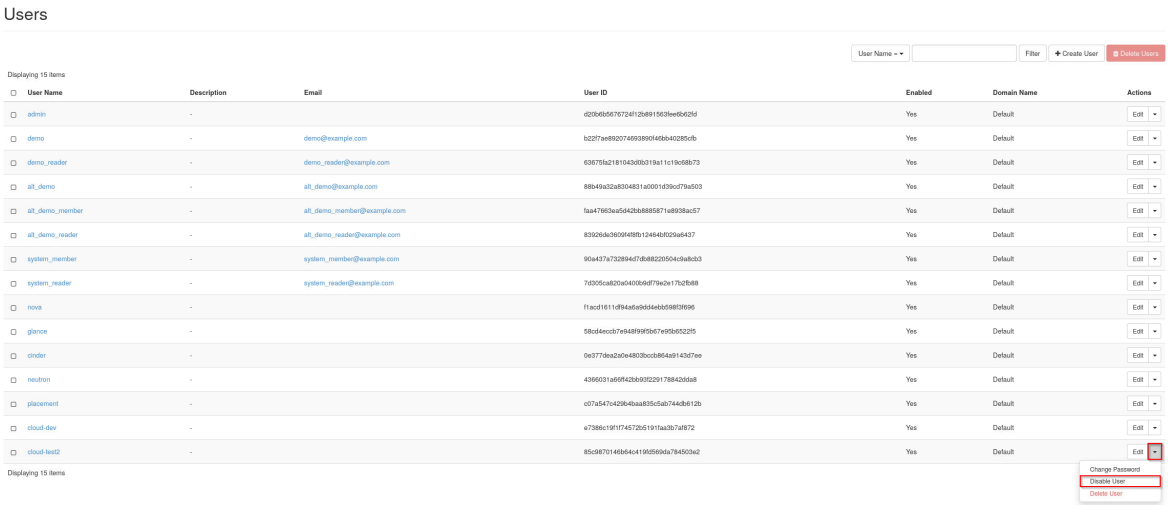


5. Repeat steps 2 through 4 to create the **cloud-test1** and **cloud-test2** user accounts.

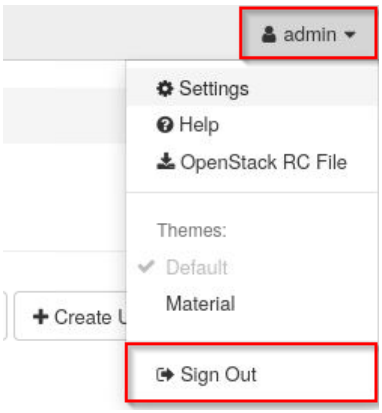
6. Delete the **cloud-test1** user account. On the *Users* tab, select the **cloud-test1** user account checkbox and click on **Delete Users** and then confirm the deletion in the dialog box.



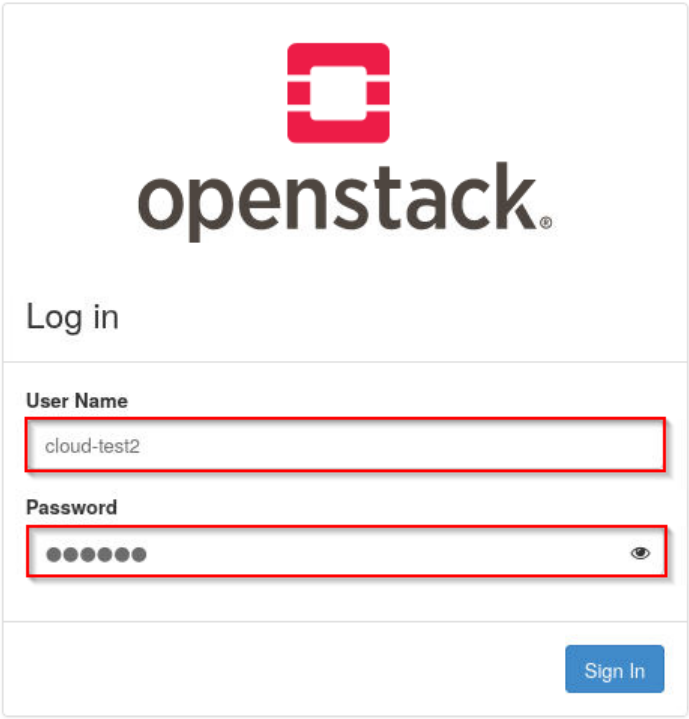
7. Disable the **cloud-test2** user account. On the *Users* tab, select **Disable User** under the *Actions* column for the **cloud-test2** user account entry.



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



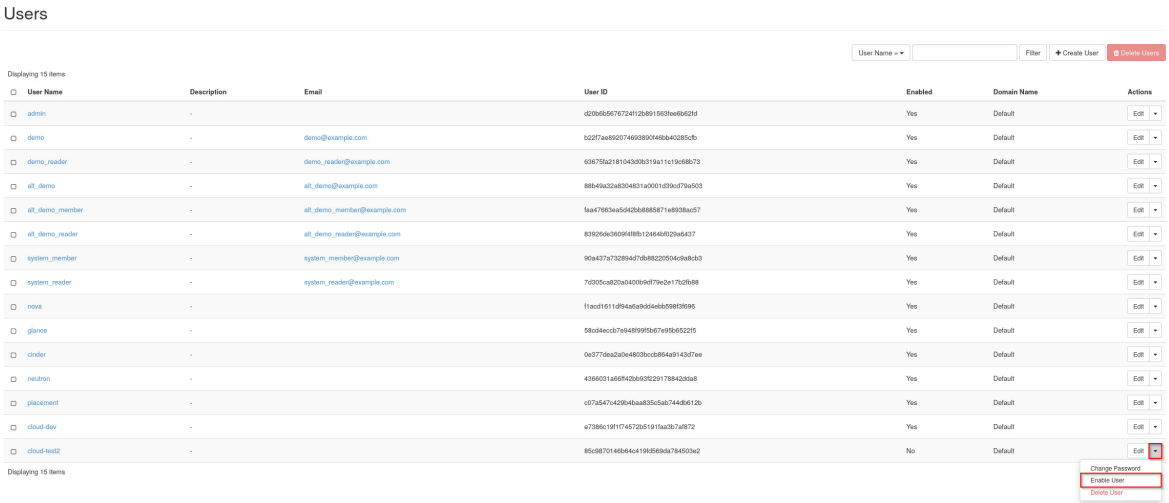
9. At the Horizon Dashboard screen, attempt to log in as **cloud-test2** with the password **secret**.



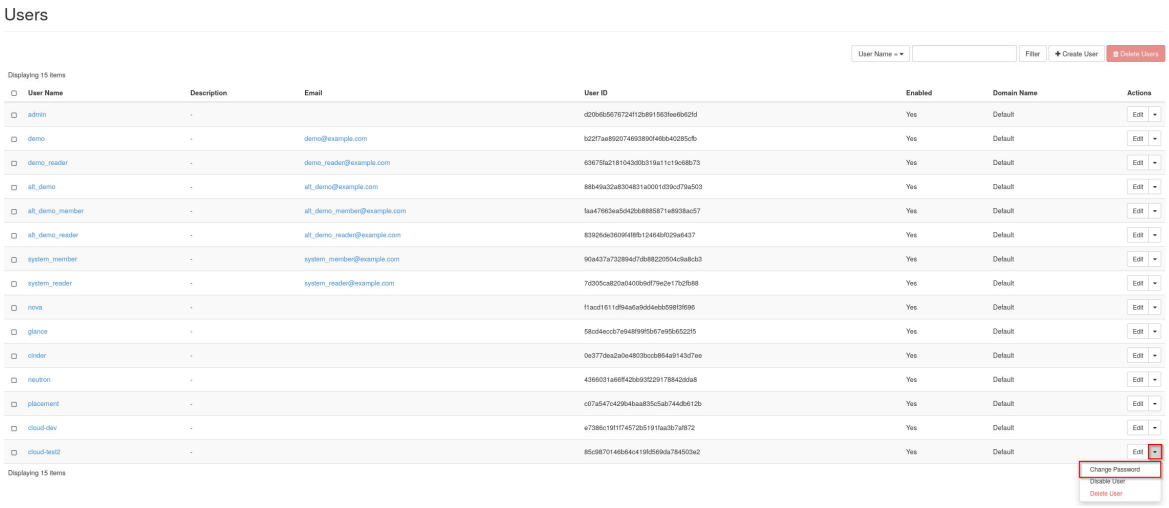
Note

Notice the user account is disabled as intended.

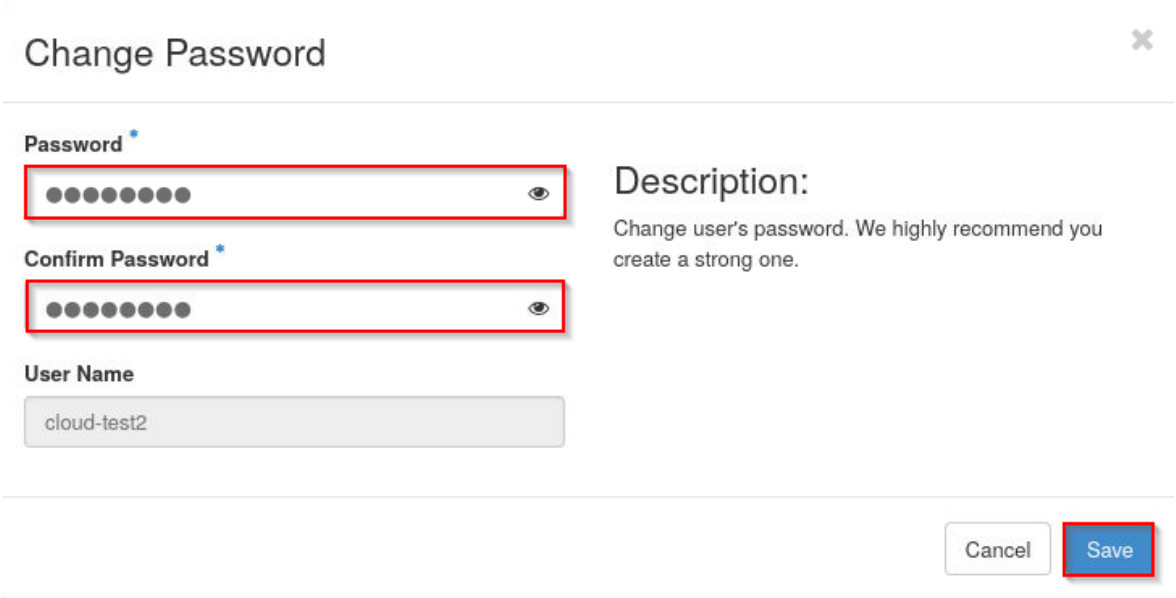
10. Log back into the dashboard as **admin** and re-enable the **cloud-test2** user. Navigate to **Identity→Users**. Click on the drop down in the *Actions* column in the row for **cloud-test2** and select **Enable User**.



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



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



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:~$
```

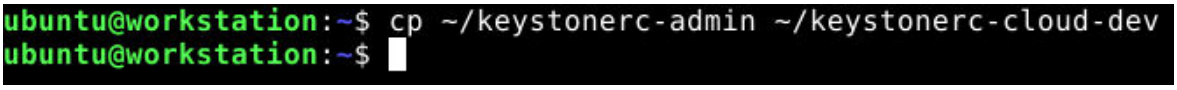
5. The **cloud-test3** user will also need to be assigned a role to a project before being able to perform any actions. Assign a role with the command below.

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

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

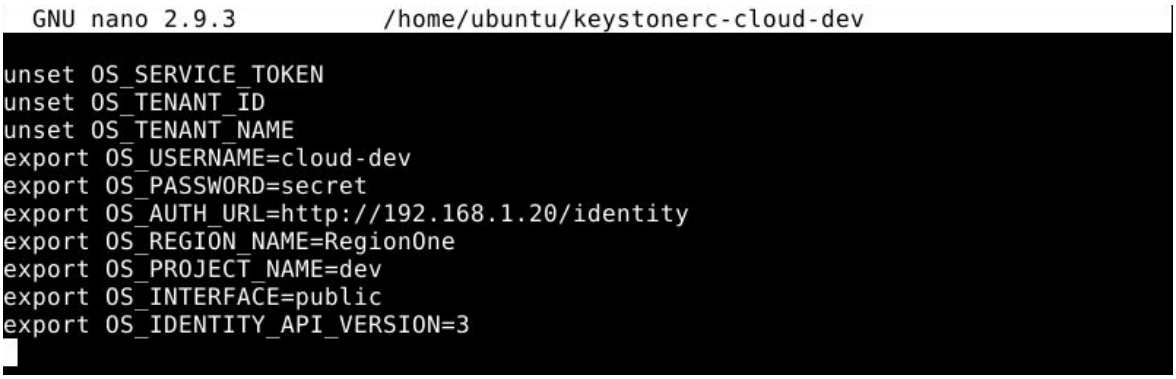
6. Copy the existing ~/**keystonerc-admin** file to ~/**keystonerc-cloud-dev** by entering the command below.

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



7. 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
```



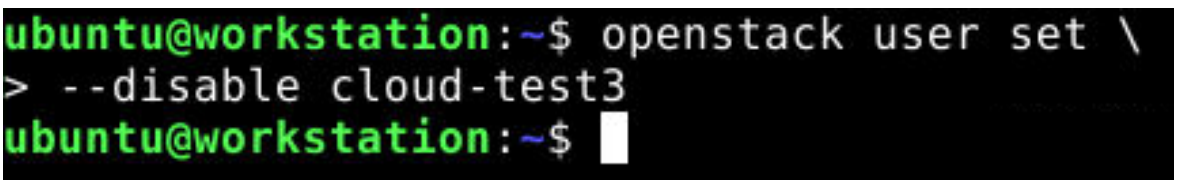
Tip

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)]$`.

8. Repeat steps 6 and 7, this time for user **cloud-test3**.

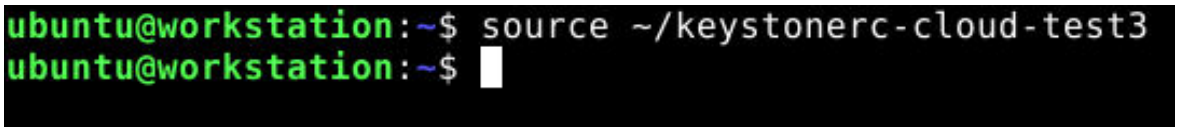
9. Disable the **cloud-test3** account by entering the command below

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



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
```



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

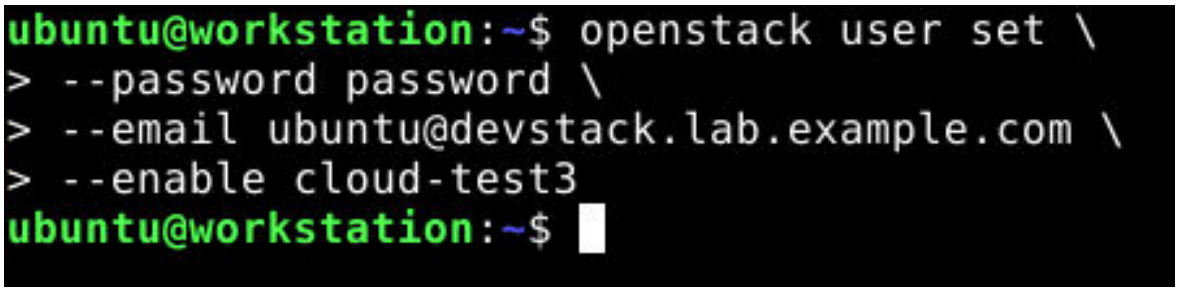
```
ubuntu@workstation:~$ openstack flavor list
```

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
```

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
```



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
```

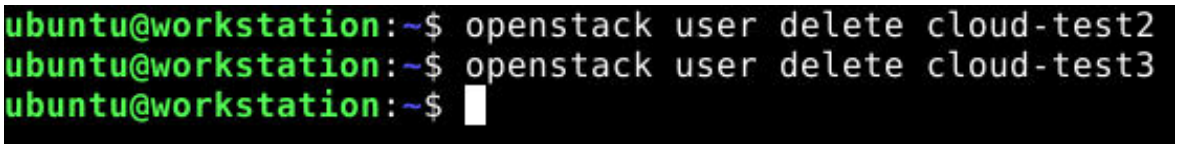
```
ubuntu@workstation:~$ openstack flavor list
+----+-----------+-------+------+-----------+-------+-----------+
| ID | Name      |   RAM | Disk | Ephemeral | VCPUs | Is Public |
+----+-----------+-------+------+-----------+-------+-----------+
| 1  | m1.tiny   |   512 |    1 |         0 |     1 | True      |
| 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
```

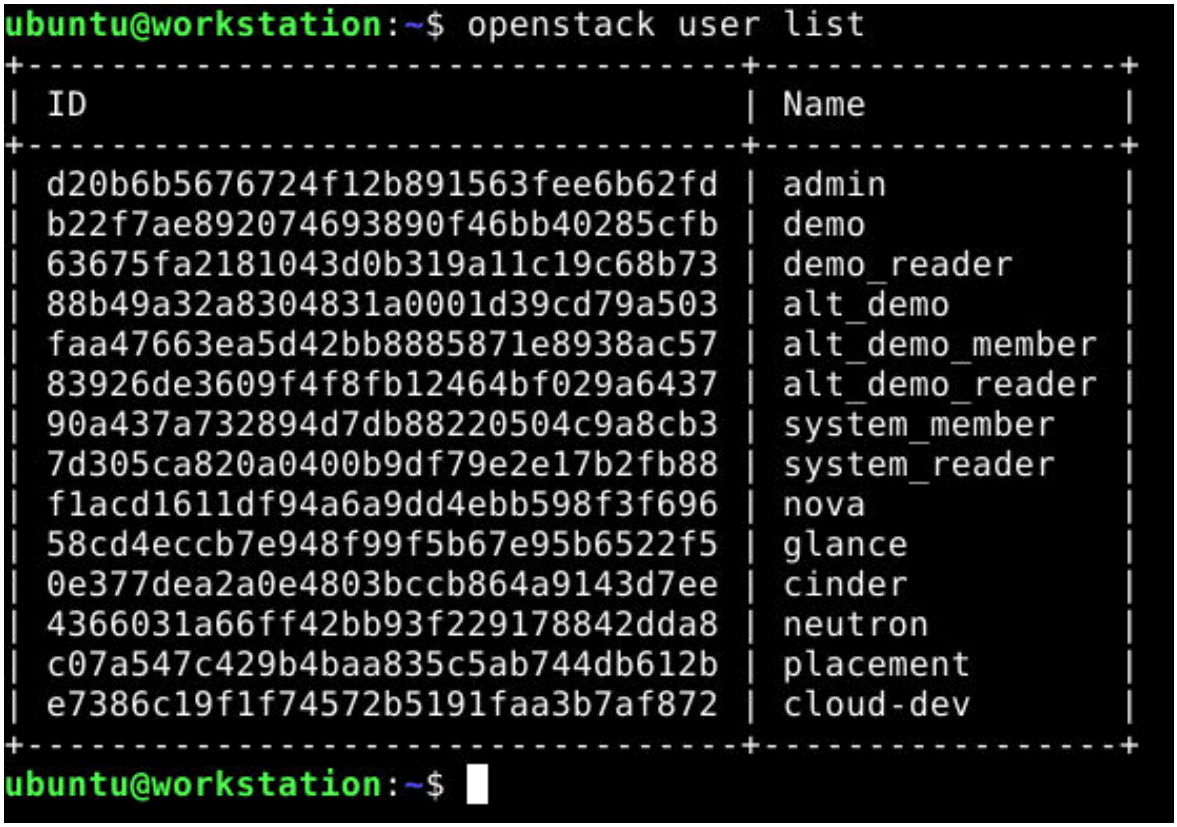
18. Delete the **cloud-test2** and **cloud-test3** user accounts.

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



19. Verify that the users have been deleted.

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



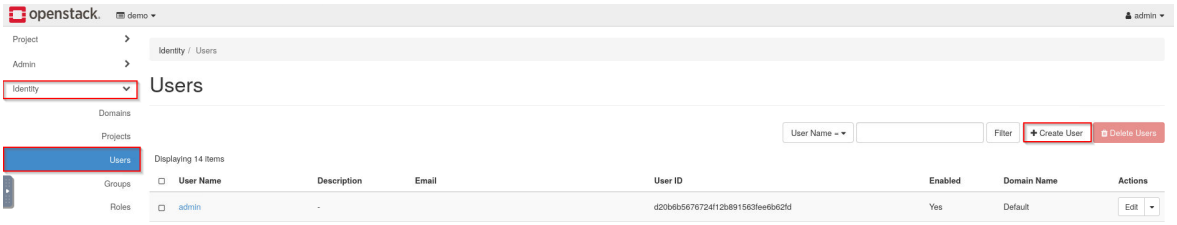
20. Leave the terminal window open and continue on to the next task.

5 Assigning User Roles and Privileges Using the Horizon Dashboard

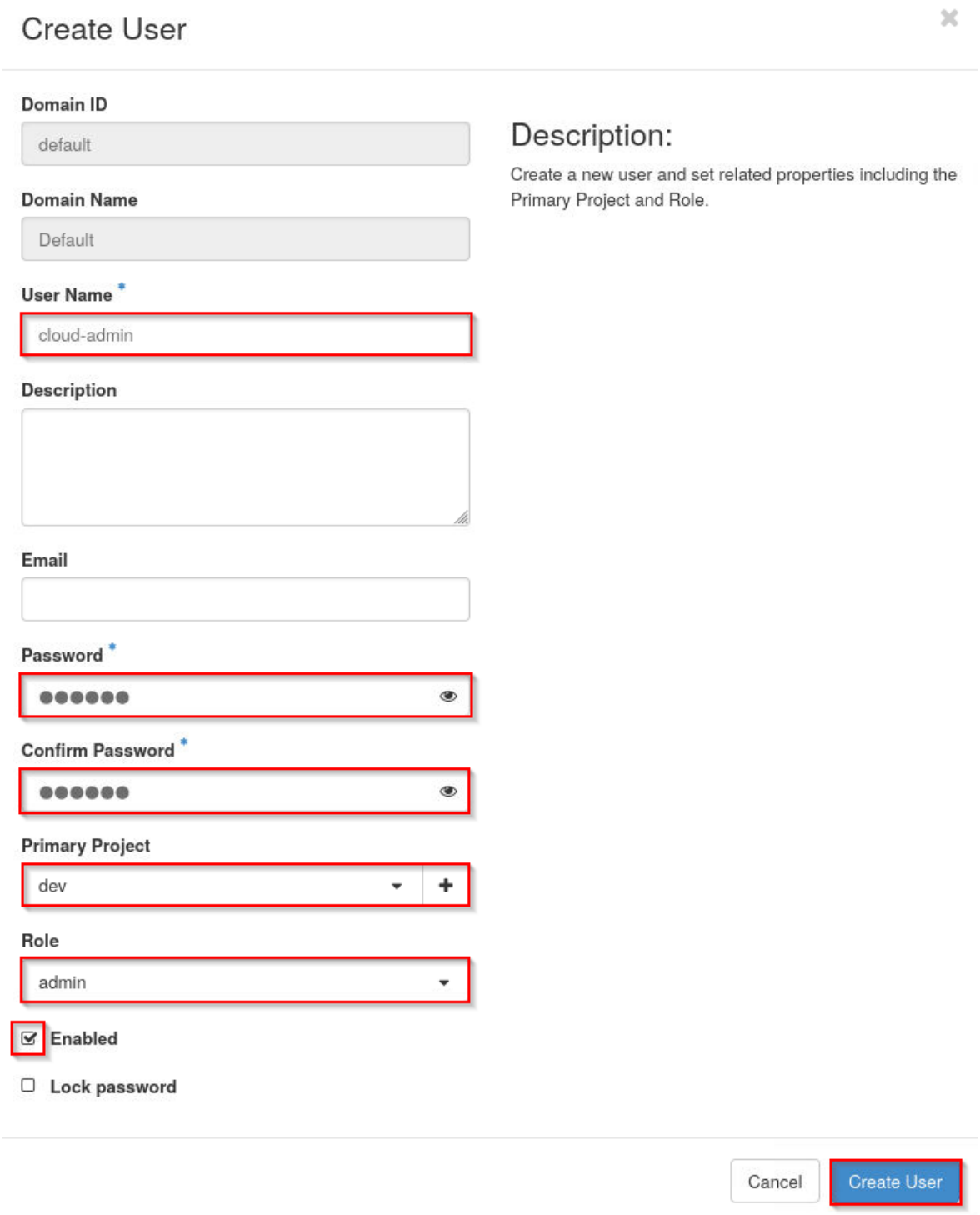
In this task, you will assign user roles privileges using the *Horizon Dashboard*.

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.

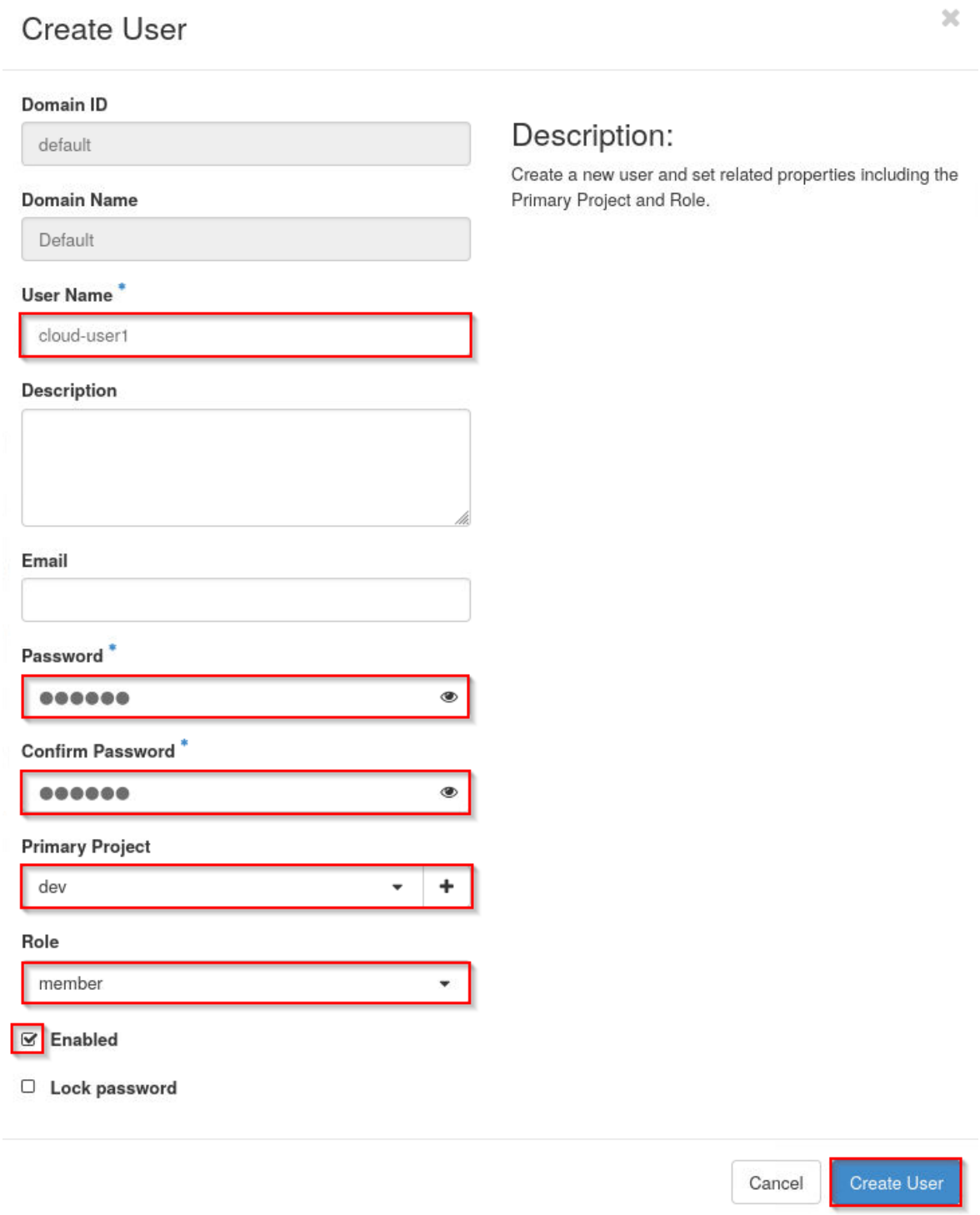


Tip

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

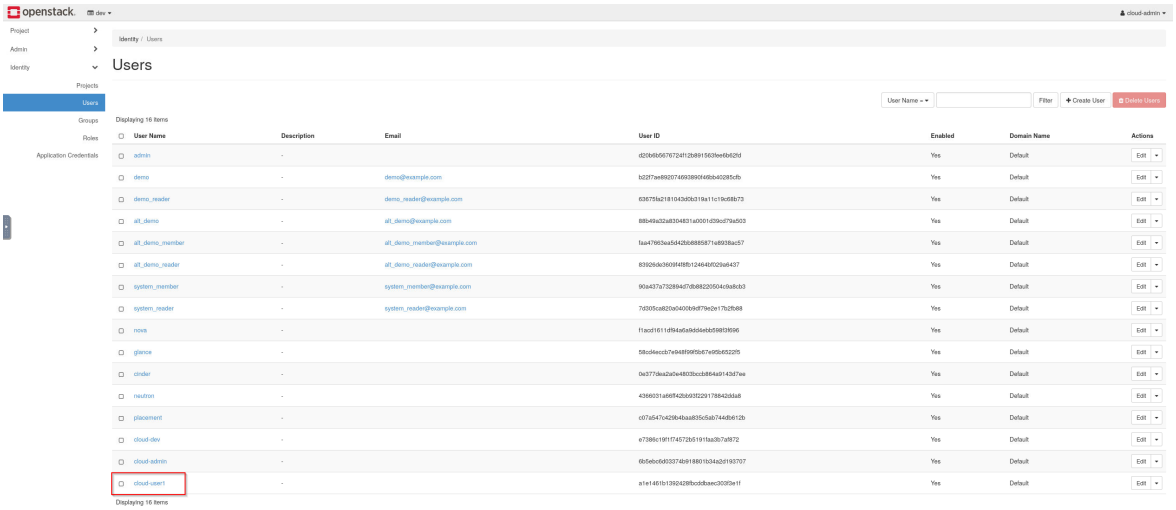
4. Log out of the dashboard by clicking the **admin** drop down in the top right corner, then clicking **Sign Out**, and log back into the dashboard as the newly created **cloud-admin** user with password **secret**.

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.



Tip

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



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

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

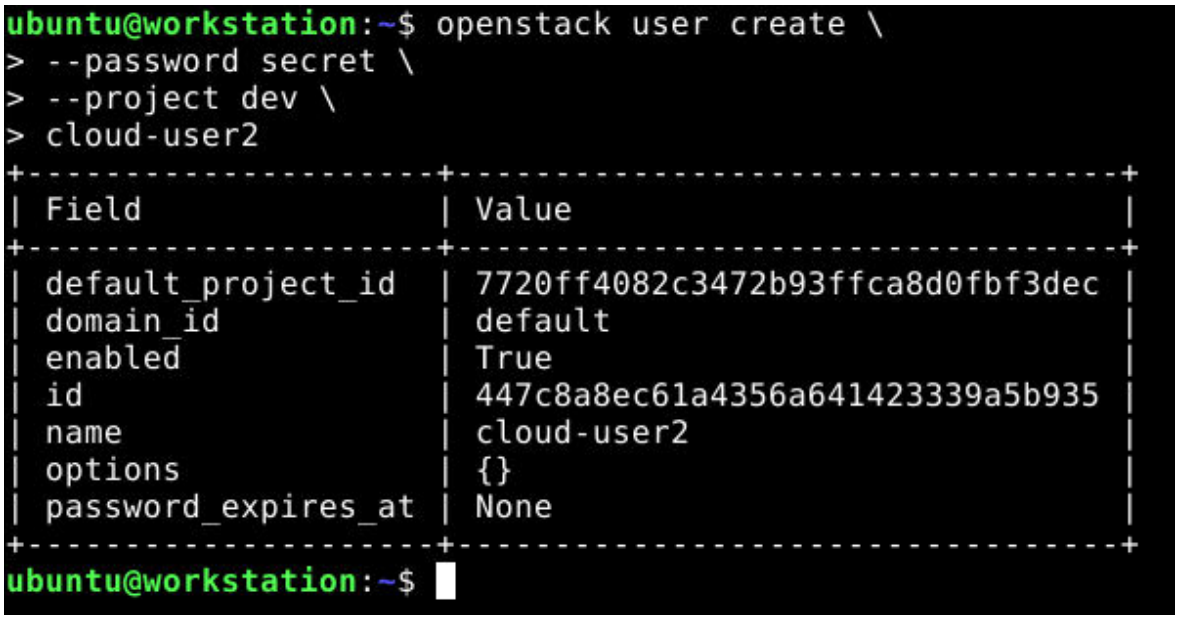
In this task, you will assign user roles and privileges using the *OpenStack Unified CLI*.

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
```

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
```



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:~$
```

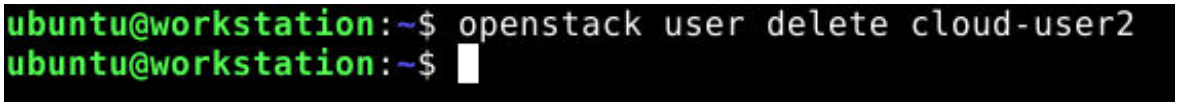
8. Delete the **cloud-user1** user.

```
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
```



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
```

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

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

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:~$
```

13. 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:~$
```

14. The lab is now complete.