Linux Academy

Live! Lab

Configure Access and Security for Instances

Contents

Lab Connection Information

- Labs may take up to five minutes to build
- Access to the Horizon Dashboard is provided on the Live! Lab page, along with your login credentials
- SSH information is provided on the Live! Lab page
- Labs will automatically end once the alloted amount of time finishes

Related Courses

OpenStack Foundation Certifed Administrator

Related Videos

Manage Project Security Group Rules

Assign a Security Group to an Instance

Access an Instance Using a Key Pair

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Introduction

When we create virtual machines, we want to ensure they are secure. This lab covers two ways in which we can secure our servers: Through the use of a key pair, and through OpenStack security groups.

Log in to the Horizon Dashboard as the *demo* tenant, navigating to **Access & Security** Go to the **API Access** tab, then **Download OpenStack RC File**.

Using the provided SSH Details, log in to the server from your terminal. Either copy the OpenStack RC file to a new file named *demo.sh* or `scp` the file to the server, ensuring *demo.sh* is the file's name.

Source the file, inputting your *demo* user's password when prompted:

```
root@openstack:~# source demo.sh
```

Creating a Key Pair

To securely access any virtual machines, we need to create a key pair using `nova`:

```
root@openstack:~# nova keypair-add key > key.pem
```

`ls` to view the created *key.pem* file, then change permissions:

```
root@openstack:~# chmod 600 key.pem
```

To ensure nova has access to the key pair, run:

```
root@openstack:~# nova keypair-list
+------+------+-------------------------------------------------+
| Name | Type | Fingerprint                                     |
+------+------+-------------------------------------------------+
| key  | ssh  | 4f:1b:98:71:7f:89:64:dc:c4:7d:1f:69:0b:e1:72:cf |
+------+------+-------------------------------------------------+
```

Creating a Security Group

With our key pair added with `nova`, we now need to add a security group. To view the current security groups, run:

```
root@openstack:~# nova secgroup-list
+--------------------------------------+---------+------------------------+
| Id                                   | Name    | Description            |
+--------------------------------------+---------+------------------------+
| 0141e32d-d153-4646-a091-c863f1c3b680 | default | Default security group |
+--------------------------------------+---------+------------------------+
```

A *default* security group is already available, but we are creating our own. In this instance, we are creating one for our web servers. Create the initial group:

```
root@openstack:~# nova secgroup-create webserversg "Security group for web servers"
+--------------------------------------+-------------+---------------------------------+
| Id                                   | Name        | Description                     |
+--------------------------------------+-------------+---------------------------------+
| d7ad8471-29cf-4ee7-ac41-e52af83f28e4 | webserversg | Security group for web servers |
+--------------------------------------+-------------+---------------------------------+
```

`webserversg` is the name we gave the security group, whereas the words contained between quotes are the description.

Should you view the list of security groups again, the new *webserversg* group is now available.

Adding Firewall Rules

To view the default firewall rules for our newly-created *webserversg* security group, use the `nova secgroup-list-rules` command:

```
root@openstack:~# nova secgroup-list-rules webserversg
+-------------+-----------+---------+-----------+--------------+
| IP Protocol | From Port | To Port | IP Range  | Source Group |
+-------------+-----------+---------+-----------+--------------+
+-------------+-----------+---------+-----------+--------------+
```

Currently, we do not have any rules. We want to add a rule for SSH access:

```
root@openstack:~# nova secgroup-add-rule webserversg tcp 22 22 0.0.0.0/0
+-------------+-----------+---------+-----------+--------------+
| IP Protocol | From Port | To Port | IP Range  | Source Group |
+-------------+-----------+---------+-----------+--------------+
| tcp         | 22        | 22      | 0.0.0.0/0 |              |
+-------------+-----------+---------+-----------+--------------+
```

The command defines the security group we are working with (`webserversg`), the protocol we are using (`tcp`) the **from** and **to** ports (`22` and `22`), and the CIDR block notation from which to accept connections from. `0.0.0.0/0` allows connections from anywhere, but if you are connecting from a single IP address, this can be fine-tuned for additional security.

If we view the rules for our *webserversg* group now, we can see that port 22 is open.

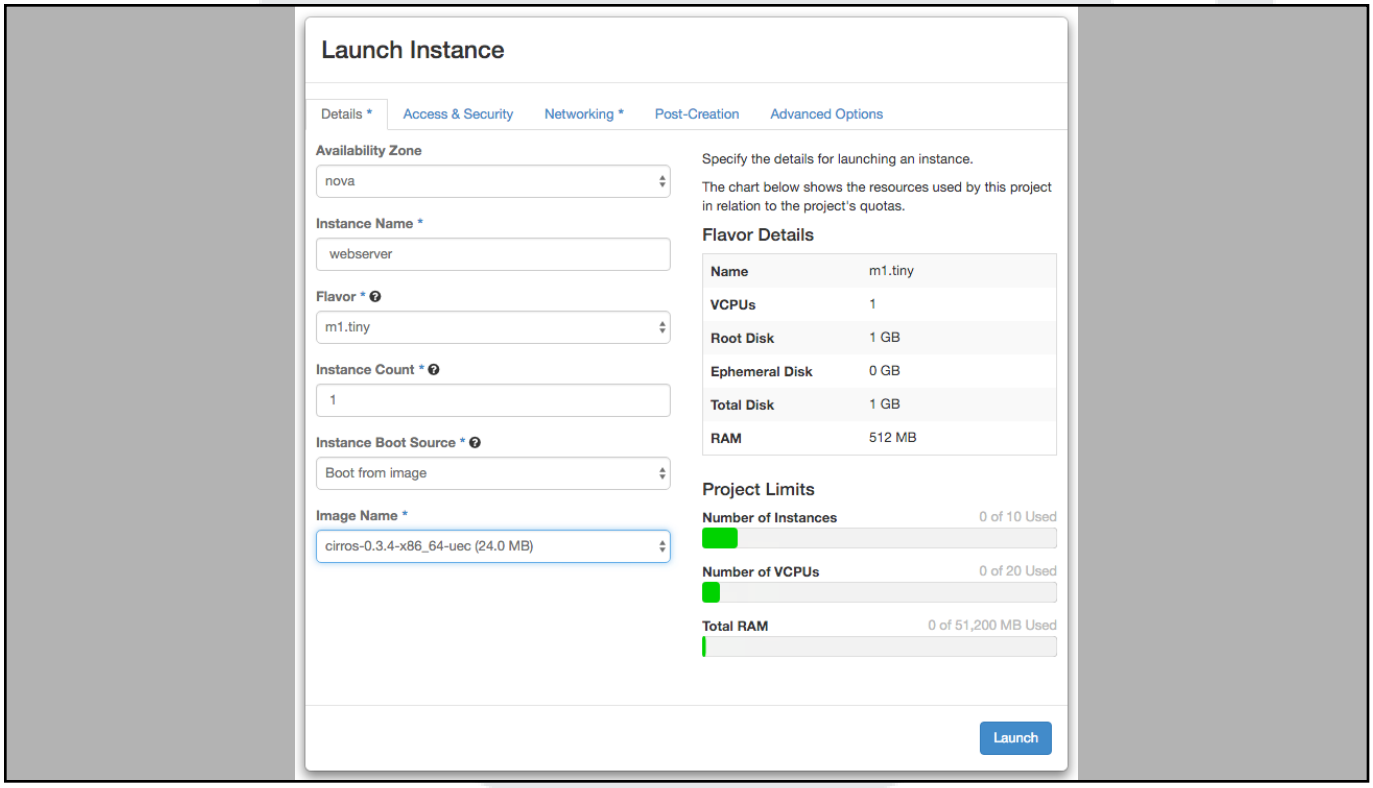
We also want to allow *icmp* to ping servers:

```
root@openstack:~# nova secgroup-add-rule webserversg icmp -1 -1 0.0.0.0/0
+-------------+-----------+---------+-----------+--------------+
| IP Protocol | From Port | To Port | IP Range  | Source Group |
+-------------+-----------+---------+-----------+--------------+
| icmp        | -1        | -1      | 0.0.0.0/0 |              |
+-------------+-----------+---------+-----------+--------------+
```

Launching a Secure Instance

To test SSH access, we need to spin up a new instance using the *webserversg* security group.

Return to the Horizon Dashboard, and select **Instances**, under **Compute**. Click **Launch Instance**.



From the **Details** tab, give the instance a **Name** of *webserver*, a **Flavor** of *m1.tiny*, and an **Instance Count** of *1*. Set the **Instance Boot Source** to *Boot from image*, and select the *cirros-* image from the **Image Name** list. Do not launch.

Go to the **Access & Security** tab, and ensure the *key* key pair is selected. Select the *webserversg* **Security Group**. Move to the **Networking** tab to ensure the *private* network is selected. **Launch**.

With the instance up and running, return to the terminal and run:

```
root@openstack:~# nova list
+--------------+-----------+--------+------------+-------------+-----------------------+
| ID           | Name      | Status | Task State | Power State | Networks              |
+--------------+-----------+--------+------------+-------------+-----------------------+
| 2812fb94-5c05 | webserver | ACTIVE | -          | Running     | private=fda9, 10.0.0.3 |
+--------------+-----------+--------+------------+-------------+-----------------------+
```

You can see that your new instance is active, and located at the private IP of *10.0.0.3*. Test that you can ping the server:

```
root@openstack:~# ping 10.0.0.3
```

Using the Key Pair & Deleting Security Groups

SSH into the Instance

From the terminal, we can now use the *key.pem* key pair to SSH into the new instance:

```
root@openstack:~# ssh -i key.pem cirros@10.0.0.3
```

You are now in the new instance. Exit:

```
$ exit
```

Deleting Security Group

Before we delete the security group, we need to remove the instance using it. Return to the Horizon Dashboard, navigating to the **Instances** page. Select and **Terminate Instace[s]**.

Once terminated, return to the terminal. View your security groups:

```
root@openstack:~# nova secgroup-list
+--------------------------------------+-------------+---------------------------------+
| Id                                   | Name        | Description                     |
+--------------------------------------+-------------+---------------------------------+
| 0141e32d-d153-4646-a091-c863f1c3b680 | default     | Default security group          |
| d7ad8471-29cf-4ee7-ac41-e52af83f28e4 | webserversg | Security group for web servers |
+--------------------------------------+-------------+---------------------------------+
```

To delete the *webserversg* instance, run:

```
root@openstack:~# nova secgroup-delete webserversg
+--------------------------------------+-------------+---------------------------------+
| Id                                   | Name        | Description                     |
```

```
+--------------------------------------+-------------+--------------------------------+
| d7ad8471-29cf-4ee7-ac41-e52af83f28e4 | webserversg | Security group for web servers |
+--------------------------------------+-------------+--------------------------------+
```

List the security groups again; only the *default* group should be available.