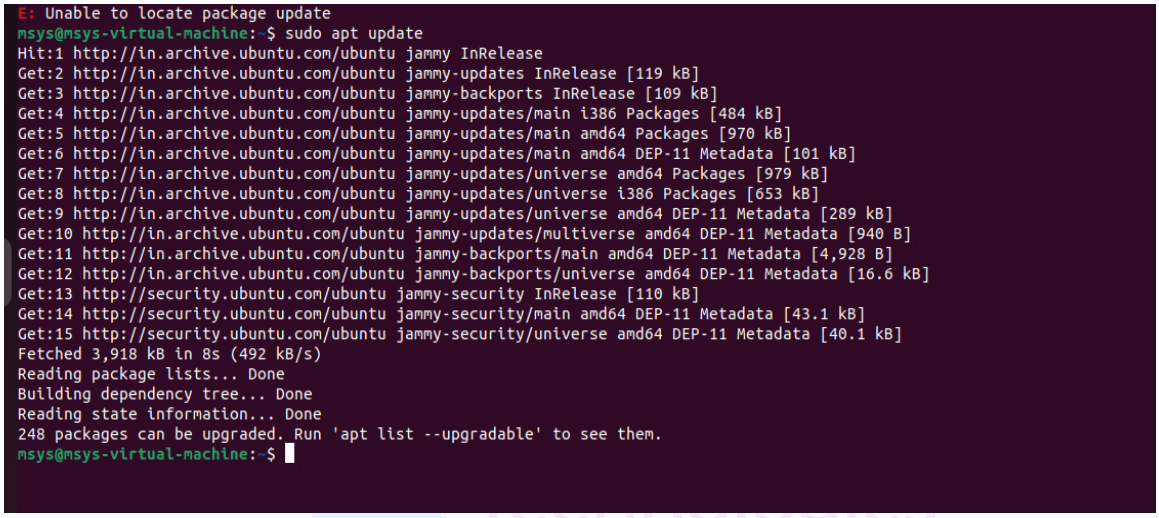
Horizon Devstack:

Step1: Create a virtual machine of Ubuntu 22.04 OS version with 8 cpu, 16 GB RAM and 100 GB of hard disk.

Step2: Enable ssh server (Optional) by using the following series of commands.



- sudo apt update
- sudo apt install openssh-server
- sudo systemctl start ssh
- sudo systemctl enable ssh
- sudo systemctl status ssh

Step3: Add stack user

DevStack should be run as a non-root user with sudo enabled. Create a separate stack user as shown below:

```
msys@msys-virtual-machine:~$ sudo useradd -s /bin/bash -d /opt/stack -m stack
[sudo] password for msys:
```

Note: Enter the password to create a new stack user

Step4: User Permissions

Ensure home directory for the stack user has executable permission for all.

```
msys@msys-virtual-machine:~$ sudo chmod +x /opt/stack
```

Step5: Since this user will be making many changes to your system, it should have sudo privileges:

```
msys@msys-virtual-machine:~$ echo "stack ALL=(ALL) NOPASSWD: ALL" | sudo tee
/etc/sudoers.d/stack
stack ALL=(ALL) NOPASSWD: ALL
msys@msys-virtual-machine:~$ sudo -u stack -i
```

Step6: Download Devstack

The **devstack** repo contains a script that installs OpenStack and templates for configuration files.

```
stack@msys-virtual-machine:~$ git clone https://opendev.org/openstack/devstack
Cloning into 'devstack'...
remote: Enumerating objects: 50332, done.
remote: Counting objects: 100% (30535/30535), done.
remote: Compressing objects: 100% (10159/10159), done.
remote: Total 50332 (delta 29806), reused 20376 (delta 20376), pack-reused 19797
Receiving objects: 100% (50332/50332), 9.34 MiB | 2.87 MiB/s, done.
Resolving deltas: 100% (35758/35758), done.
```

Step7: Change directory to devstack directory:

```
stack@msys-virtual-machine:~$ cd devstack
stack@msys-virtual-machine:~/devstack$
```

Note: Before proceeding with cloning, make sure that system possesses the git package. To install git:

```
stack@msys-virtual-machine:~$ sudo apt install git
```

Step8: Create local.conf.

Create a new file “local.conf” using vi text editor and add the following passwords as shown in the below image in white text .

```
ADMIN_PASSWORD=Master123
DATABASE_PASSWORD=Master123
RABBIT_PASSWORD=Master123
SERVICE_PASSWORD=$ADMIN_PASSWORD
```

Warning: Only use alphanumeric characters as passwords.

Step9: Update and Upgrade all packages

During the upgrade process, if we get the error as follows:

Fetched 353 MB in 1 min 13s (4,830 kB/s)
E: Failed to fetch
http://172.30.32.2:8090/ips/block/webcat?cat=1026&pl=1&lu=0&url=aHR0cDovL2luLmFyY2hpdmUudWJ1bnR1LmNvbS91YnVudHUvcG9vbC9tYWluL2xpYm0vbGlibWJpbS9saWJtYmltLXBybyb3h5XzEuMjguMC0xJTdldWJ1bnR1MjAuMDQuMV9hbWQ2NC5kZWI~ 403 Forbidden [IP: 172.30.32.2 8090]
E: Failed to fetch
http://172.30.32.2:8090/ips/block/webcat?cat=1026&pl=1&lu=0&url=aHR0cDovL2luLmFyY2hpdmUudWJ1bnR1LmNvbS91YnVudHUvcG9vbC9tYWluL2xpYnEvbGlcW1pL2xpYnFtaS1wcm94eV8xLjMyLjAtMXVidW50dTAuMjIuMDQuMV9hbWQ2NC5kZWI~ 403 Forbidden [IP: 172.30.32.2 8090]

E: Unable to fetch some archives, maybe run apt-get update or try with --fix-missing?

Feasible solutions to resolve the errors:

1. **Enable ha proxy service :**

```
stack@msys-virtual-machine:~/devstack$ sudo apt install haproxy
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  vim-haproxy haproxy-doc
The following NEW packages will be installed:
  haproxy
0 upgraded, 1 newly installed, 0 to remove and 248 not upgraded.
Need to get 1,645 kB of archives.
After this operation, 3,690 kB of additional disk space will be used.
Ign:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 haproxy amd64
2.4.22-0ubuntu0.22.04.2
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 haproxy amd64
2.4.22-0ubuntu0.22.04.2 [1,645 kB]
Fetched 1,645 kB in 2s (1,000 kB/s)
Selecting previously unselected package haproxy.
(Reading database ... 200991 files and directories currently installed.)
Preparing to unpack .../haproxy_2.4.22-0ubuntu0.22.04.2_amd64.deb ...
Unpacking haproxy (2.4.22-0ubuntu0.22.04.2) ...
Setting up haproxy (2.4.22-0ubuntu0.22.04.2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/haproxy.service →
/lib/systemd/system/haproxy.service.
Processing triggers for rsyslog (8.2112.0-2ubuntu2.2) ...
Processing triggers for man-db (2.10.2-1) ...
```

2. **Enable firewall settings and ufw service:**

```
stack@msys-virtual-machine:~/devstack$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? Y
Firewall is active and enabled on system startup
stack@msys-virtual-machine:~/devstack$
stack@msys-virtual-machine:~/devstack$
stack@msys-virtual-machine:~/devstack$ sudo ufw allow 80/tcp
sudo ufw allow 443/tcp
Rule added
Rule added (v6)
Rule added
Rule added (v6)
stack@msys-virtual-machine:~/devstack$ sudo ufw allow 22/tcp
Rule added
Rule added (v6)
stack@msys-virtual-machine:~/devstack$ sudo ufw allow ssh
Skipping adding existing rule
Skipping adding existing rule (v6)
stack@msys-virtual-machine:~/devstack$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
80/tcp                     ALLOW       Anywhere
443/tcp                    ALLOW       Anywhere
22/tcp                     ALLOW       Anywhere
80/tcp (v6)                ALLOW       Anywhere (v6)
443/tcp (v6)               ALLOW       Anywhere (v6)
22/tcp (v6)                ALLOW       Anywhere (v6)
```

3. **Temporary disable proxy**

```
stack@msys-virtual-machine:~/devstack$ unset http_proxy
stack@msys-virtual-machine:~/devstack$ unset https_proxy
```

4. **Change the Ubuntu mirror to the latest one in /etc/apt/sources.list file .**

Note : Refer the following link for latest Ubuntu mirrors:https://launchpad.net/ubuntu/+mirror/ubuntu-archive.mirror.net.in-archive

Open the file /etc/apt/sources.list

Replace existing Ubuntu mirror with the latest mirror according to our os version.

deb-src http://in.archive.ubuntu.com/ubuntu/

deb https://ubuntu-archive.mirror.net.in/ jammy main

5. **Again try to update and upgrade**

```
sudo apt update
sudo apt upgrade --fix-missing
```

Step9: Run the script now.

```
./stack.sh
```

Output:

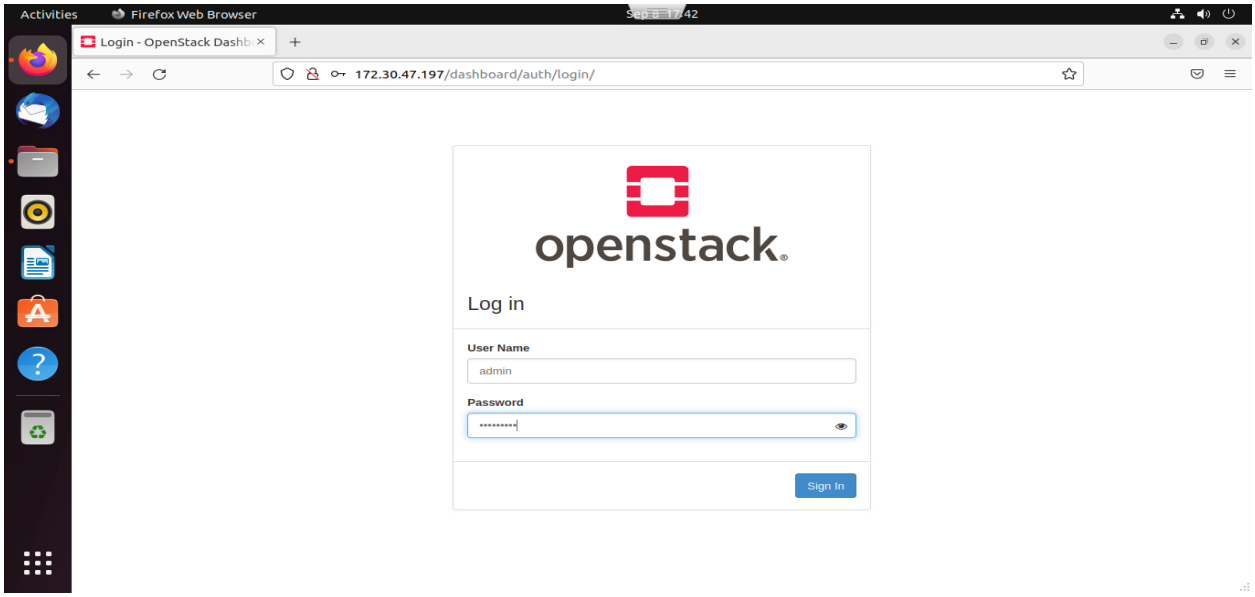
This is your host IP address: 172.30.47.197
This is your host IPv6 address: ::1
Horizon is now available at http://172.30.47.197/dashboard
Keystone is serving at http://172.30.47.197/identity/
The default users are: admin and demo

The password: Master123

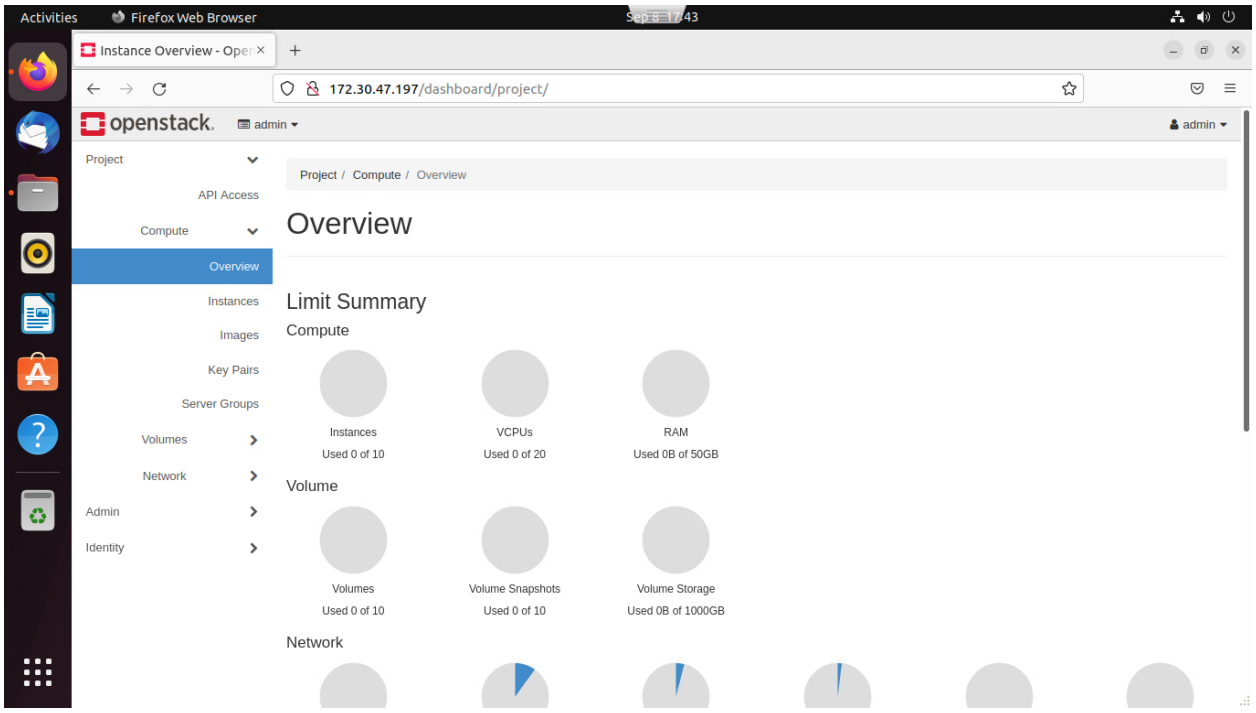
Services are running under systemd unit files.
For more information see:
https://docs.openstack.org/devstack/latest/systemd.html

DevStack Version: 2023.2
Change: a389128dba4ce7d7051b86f3ac7db4164d24b95f OVN: Let ironic manage the OVN startup in it's case. 2023-09-04 13:38:23 +0000
OS Version: Ubuntu 22.04 jammy

Login to the dashboard of openstack horizon using the credentials above.



After logged in:



To enable swift service for Object Storage:

Step1:

```
cd ~/devstack
./unstack.sh
./clean.sh
```

Step 2: Modify the local.conf

Open the file with : nano local.conf

Add the following in the file:

 # Enable Swift
enable_service s-proxy s-object s-container s-account

 # Swift configuration
SWIFT_HASH=66a3d6b56c1f479c8b4e70ab5c2000f5
SWIFT_REPLICAS=1

SWIFT_DATA_DIR=*/opt/stack/data/swift*

cd ~/devstack
./stack.sh

Finally, we can see the Object store section including containers and object upload.