

INSTALACION Y CONFIGURACION OPENSTACK

La instalación de OpenStack se realiza sobre el sistema operativo Ubuntu 14.04 LTS Desktop.

Se comprueba si los scripts de configuración de OpenStack están disponibles dentro de una carpeta raíz del sistema operativo.

El acceso a la carpeta principal del OpenStack, se realiza de la siguiente manera:

```
root@ubuntumaster:/home/ubuntumaster# cd openstackgeek/icehouse
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse#
```

Los scripts de configuración serán ejecutados en el siguiente orden:

NETWORKING

El paquete de instalación que permite definir la conectividad de red y direccionamiento en la nube, se ejecuta con el comando `./openstack_networking.sh`.

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./openstack_networking.sh
Reading package lists... Done
Building dependency tree
Reading state information... Done

libencode-locale-perl libexporter-lite-perl libfakeroot libfdt1
libfile-listing-perl libfont-afm-perl libhtml-form-perl libhtml-format-perl
libhtml-parser-perl libhtml-tagset-perl libhtml-tree-perl
libhttp-cookies-perl libhttp-daemon-perl libhttp-date-perl
libhttp-message-perl libhttp-negotiate-perl libio-html-perl
libio-stringy-perl libjson-perl libjson-xs-perl liblwp-mediatypes-perl
liblwp-protocol-https-perl libnet-http-perl libnetcf1
libparse-debcontrol-perl librados2 librbd1 libsd1.2debian libseccomp2
libsigsegv2 libspice-server1 libstdc++-4.8-dev libtie-ixhash-perl
libusbredirparser1 libvirt0 libwww-perl libwww-robotrules-perl libxen-4.4
libxenstore3.0 libxml2-utils msr-tools python-cheetah python-libvirt
python-vm-builder python3-magic qemu-keymaps qemu-system-common
qemu-system-x86 qemu-utils seabios sharutils wdiff
Suggested packages:
default-mta mail-transport-agent augeas-doc debtags bsd-mailx mailx
cvs-buildpackage devscripts-el gnuplot libterm-size-perl libyaml-syck-perl
mutt svn-buildpackage w3m debian-keyring equivs libsoap-lite-perl
mini-dinstall python-bzrlib g++-multilib g++-4.8-multilib gcc-4.8-doc
libstdc++6-4.8-dbg gawk-doc augeas-tools libdata-dump-perl
libcrypt-ssleay-perl libstdc++-4.8-doc radvd lvm2 libauthen-ntlm-perl
python-markdown python-pygments python-memcache samba vde2 sqbios
```

Con este script se instalan los siguientes servicios:

- ✓ Vlan qemu-kvm
- ✓ Ntp

Una vez terminada la ejecución del script, es necesario configurar la interfaz Ethernet con una dirección IPv4 estática no enrutable y una dirección IPv6 auto configurable. Para ello, se edita manualmente el archivo ubicado en la ruta `/etc/network/interfaces`.

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# nano /etc/network/interfaces
```

```
GNU nano 2.2.6 File: /etc/network/interfaces
# interfaces(5) file used by ifup(8) and ifdown(8)
auto lo
iface lo inet loopback
# loopback
auto lo
iface lo inet loopback
iface lo inet6 loopback

# primary interface
auto eth0
iface eth0 inet static
address 10.0.1.100
netmask 255.255.255.0
gateway 10.0.1.1
dns-nameservers 8.8.8.8

# ipv6 configuration
iface eth0 inet6 auto

[ Wrote 19 lines ]
^G Get Help      ^O WriteOut     ^R Read File    ^Y Prev Page    ^K Cut Text     ^C Cur Pos
^X Exit          ^J Justify      ^W Where Is     ^V Next Page    ^U UnCut Text   ^T To Spell
```

Luego, editar el archivo ubicado en la ruta **/etc/hosts** para incluir una entrada al controlador.

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# nano /etc/hosts
```

```
ubuntumaster@ubuntumaster-SVE14A25CLW: ~/openstackgeek/icehouse
GNU nano 2.2.6 File: /etc/hosts Modified
127.0.0.1 localhost
10.0.1.100 ubuntumaster-SVE14A25CLW

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

^G Get Help      ^O WriteOut     ^R Read File    ^V Prev Page    ^X Cut Text     ^C Cur Pos
^X Exit          ^J Justify      ^M Where Is     ^N Next Page    ^U UnCut Text   ^T To Spell
```

Reiniciar el equipo para guardar la configuración realizada.

Después de editar la configuración de red, es necesario verificar si el servidor soporta la virtualización del procesador con el script `./openstack_serve_test.sh`.

```
root@ubuntumaster:~/openstackgeek/icehouse# ./openstack_server_
test.sh
#####
#####

Your system isn't configured to run KVM properly. Investigate this before conti
nuing.

You can still modify /etc/nova/nova.conf (once nova is installed) to emulate acc
eleration:

[libvirt]
virt_type = qemu

#####
#####
```

Cuando el equipo no soporta la virtualización (KVM), se debe habilitar desde la BIOS. Luego, es necesario actualizar el repositorio del sistema operativo.

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./openstack_system
update.sh
Ign http://security.ubuntu.com trusty-security InRelease
Get:1 http://security.ubuntu.com trusty-security Release.gpg [933 B]
Ign http://extras.ubuntu.com trusty InRelease
Get:2 http://security.ubuntu.com trusty-security Release [63,5 kB]
Get:3 http://extras.ubuntu.com trusty Release.gpg [72 B]
Hit http://extras.ubuntu.com trusty Release
Ign http://co.archive.ubuntu.com trusty InRelease
Get:4 http://security.ubuntu.com trusty-security/main Sources [79,6 kB]
Hit http://extras.ubuntu.com trusty/main Sources
Ign http://co.archive.ubuntu.com trusty-updates InRelease
Get:5 http://security.ubuntu.com trusty-security/restricted Sources [2.061 B]
Hit http://extras.ubuntu.com trusty/main amd64 Packages
Get:6 http://security.ubuntu.com trusty-security/universe Sources [21,9 kB]
Get:7 http://security.ubuntu.com trusty-security/multiverse Sources [1.922 B]
Ign http://co.archive.ubuntu.com trusty-backports InRelease
Hit http://extras.ubuntu.com trusty/main i386 Packages
Get:8 http://security.ubuntu.com trusty-security/main amd64 Packages [264 kB]
Hit http://co.archive.ubuntu.com trusty Release.gpg
100% [8 Packages bzip2 0 B] [Waiting for headers] [Waiting for headers] [Waitin
```

DEFINICIÓN Y ASIGNACIÓN DE LAS VARIABLES DE ENTORNO

Se inicia ejecutando el script a continuación:

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./openstack_setup.sh
```

Ingresar el nombre de la interfaz de red de área local del equipo. En este caso la Ethernet configurada anteriormente Eth0.

```
#####
Enter the device name for this rig's NIC (eth0 etc.) : eth0
#####
The IP address on this rig's NIC is probably 192.168.54.10. If that's wrong, ctrl-c and edit this script.
#####
```

Se pregunta si el equipo se va a configurar como controlador, la respuesta debe ser afirmativa, en caso contrario se estará configurando un nodo por lo cual pedirá la url generada desde el servidor controlador.

```
#####
Is this the controller node? y
```

Indicar una contraseña que se utilizará para que los servicios de OpenStack puedan comunicarse con MySQL.

```
Enter a password to be used for the OpenStack services to talk to MySQL:
```

Definir la dirección de correo electrónico para cuentas de servicio

```
Enter the email address for service accounts vycardo@poligran.edu.co
```

Digitar nombre que se utilizara como región por defecto

```
Enter a short name to use for your default region: Bogota
```

Se pregunta si el equipo controlador es multi-nodo, la respuesta debe ser afirmativa, para la inclusión de los nodos.

```
Is this a multi node installation? y
```

El script de configuración emite una URL que será utilizada para la configuración de los nodos.

```
The following URL will be used for configuring the other rigs in this cluster. Copy it.
```

```
https://sgsprunge.appspot.com/e5TYP269J7u0LqaP
```

```
#####
```

SPLUNK

Con el fin de controlar y supervisar los eventos generados por la ejecución de los paquetes en el transcurso de la instalación de OpenStack, obteniendo como resultado un log de actividades.

Se ejecuta el script `./openstack_splunk.sh`

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./openstack_splunk.sh

#####

This script is installing and configuring Splunk for ingestion of the OpenStack logs. Splunk can
be used to debug and monitor your OpenStack configuration. Access it from the following URL:

http://192.168.54.10:8000/

#####

--2015-05-01 15:28:46-- http://www.splunk.com/page/download_track?file=6.1.3/splunk/linux/splunk-6.1.3-220630-Linux-x86
_64.tgz&ac=&wget=true&name=wget&platform=Linux&architecture=x86_64&version=6.1.3&product=splunk&typed=release
Resolving www.splunk.com (www.splunk.com)... 54.230.81.179, 54.192.82.136, 54.192.81.243, ...
Connecting to www.splunk.com (www.splunk.com)|54.230.81.179|:80... connected.
HTTP request sent, awaiting response... 302 Moved Temporarily
Location: http://download.splunk.com/products/splunk/releases/6.1.3/splunk/linux/splunk-6.1.3-220630-Linux-x86_64.tgz [f
ollowing]
--2015-05-01 15:28:47-- http://download.splunk.com/products/splunk/releases/6.1.3/splunk/linux/splunk-6.1.3-220630-Linu
x-x86_64.tgz
Resolving download.splunk.com (download.splunk.com)... 54.192.81.118, 54.230.83.142, 54.192.81.98, ...
Connecting to download.splunk.com (download.splunk.com)|54.192.81.118|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 81883463 (78M) [application/x-gzip]
Saving to: 'splunk-6.1.3-220630-Linux-x86_64.tgz'

2% [>] 1.709.701 747KB/s
```

Se puede acceder a través de la siguiente URL (asumiendo que utiliza la dirección IP o nombre correcto del controlador): **http://ubuntumaster:8000**

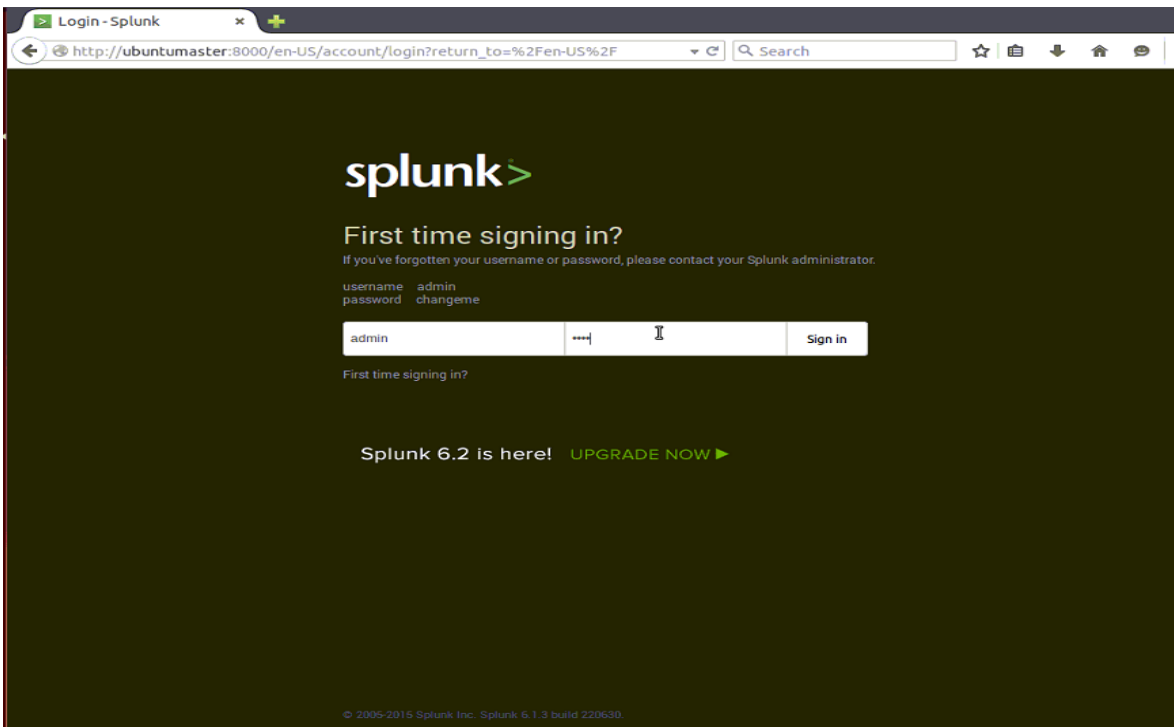
```
.....+++++
.....+++++
writing new private key to 'privKeySecure.pem'
-----
Signature ok
subject=/CN=ubuntumaster/O=SplunkUser
Getting CA Private Key
writing RSA key
Done

If you get stuck, we're here to help.
Look for answers here: http://docs.splunk.com

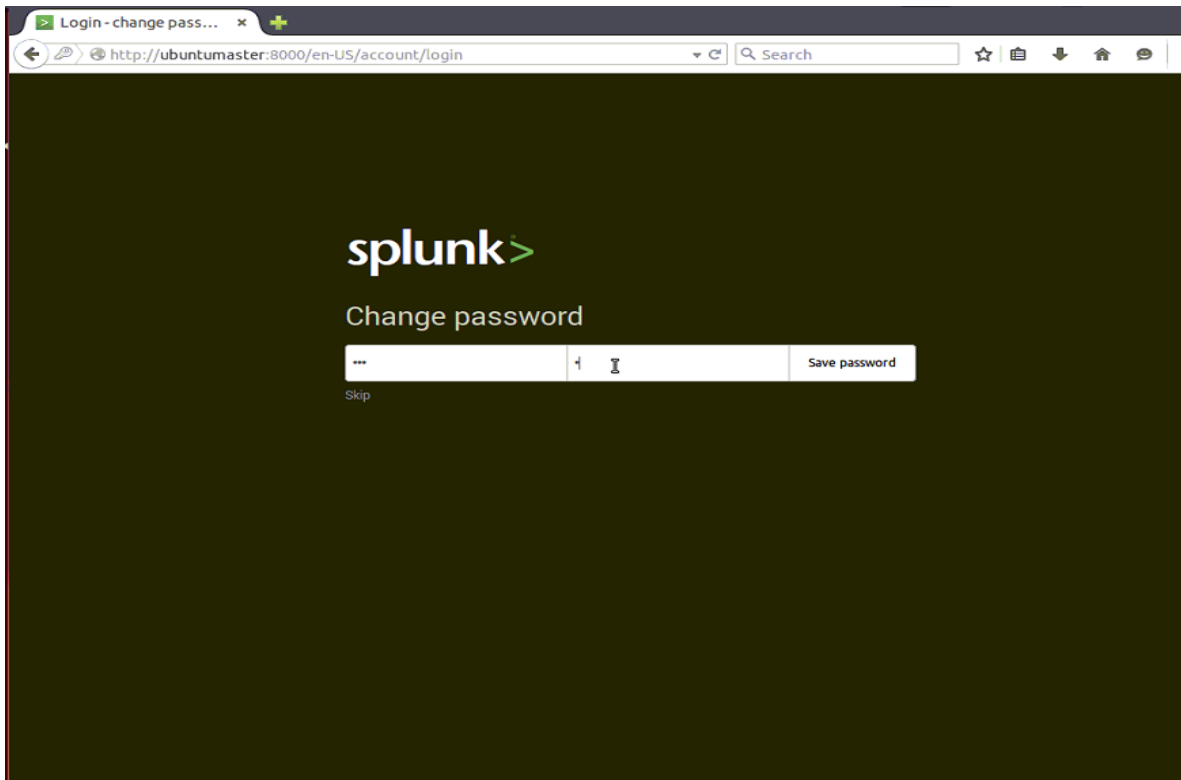
The Splunk web interface is at http://ubuntumaster:8000

#####
```

Inicio de sesión Splunk



Es necesario cambiar la contraseña de inicio de sesión.



Mediante la interfaz de Splunk se puede observar la secuencia de actividades (Descripción y hora).

The screenshot shows the Splunk Search & Reporting interface. The search query is "earliest=rt-5m&latest=rt&q=". The results show 37 events matched. The table below displays the first few events:

i	Time	Event
>	5/1/15 4:01:45.425 PM	2015-05-01 16:01:45.425 14957 WARNING keystoneclient.middleware.auth_token [-] Configuring auth _uri to point to the public identity endpoint is required; clients may not be able to authenticate against an admin endpoint host = ubuntu... source = /var/log/glance/api.log ; sourcetype = api-too_small
>	5/1/15 4:01:45.268 PM	2015-05-01 16:01:45.268 14967 WARNING keystoneclient.middleware.auth_token [-] Configuring auth _uri to point to the public identity endpoint is required; clients may not be able to authenticate against an admin endpoint host = ubuntu... source = /var/log/glance/registry.log ; sourcetype = registry-too_small
>	5/1/15 4:01:45.086 PM	2015-05-01 16:01:45.086 14957 WARNING glance.store [-] Deprecated: glance.store.s3.Store not found in 'known_store'. Stores need to be explicitly enabled in the configuration file. host = ubuntu... source = /var/log/glance/api.log ; sourcetype = api-too_small
>	5/1/15 4:01:45.083 PM	2015-05-01 16:01:45.083 14957 WARNING glance.store [-] Deprecated: glance.store.vmware_datastore.Store not found in 'known_store'. Stores need to be explicitly enabled in the configuration file. host = ubuntu... source = /var/log/glance/api.log ; sourcetype = api-too_small
>	5/1/15 4:01:45.053 PM	2015-05-01 16:01:45.053 14957 WARNING glance.store [-] Deprecated: glance.store.swift.Store not found in 'known_store'. Stores need to be explicitly enabled in the configuration file. host = ubuntu... source = /var/log/glance/api.log ; sourcetype = api-too_small
>	5/1/15 4:01:45.043 PM	2015-05-01 16:01:45.043 14957 WARNING glance.store [-] Deprecated: glance.store.cinder.Store not found in 'known_store'. Stores need to be explicitly enabled in the configuration file. host = ubuntu... source = /var/log/glance/api.log ; sourcetype = api-too_small

INSTALACIÓN Y CONFIGURACIÓN DE BASE DE DATOS

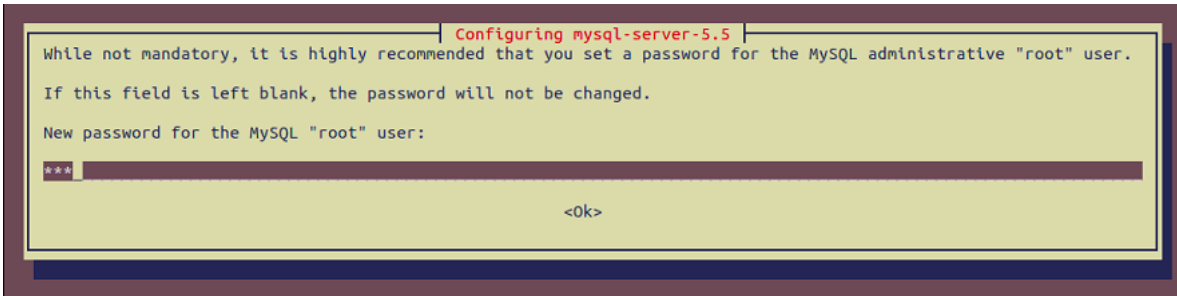
El siguiente comando instala MySQL y RabbitMQ.

```

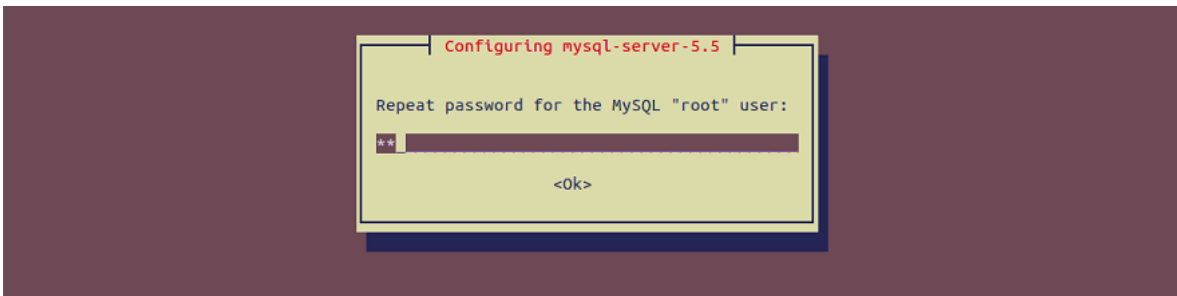
root@ubuntumaster:~/openstackgeek/icehouse# ./openstack_mysql.sh
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  erlang-asni erlang-base erlang-corba erlang-crypto erlang-diameter
  erlang-edoc erlang-eldap erlang-erl-docgen erlang-eunit erlang-ic
  erlang-inets erlang-mnesia erlang-nox erlang-odbc erlang-os-mon
  erlang-parsetools erlang-percept erlang-public-key erlang-runtime-tools
  erlang-snmp erlang-ssh erlang-ssl erlang-syntax-tools erlang-tools
  erlang-webtool erlang-xmerl libodbc1 libsctp1 lksctp-tools
Suggested packages:
  erlang erlang-manpages erlang-doc xsitproc fop erlang-ic-java
  erlang-observer libmyodbc odbc-postgresql tdsodbc unixodbc-bin
  libcache-memcached-perl libmemcached
The following NEW packages will be installed:
  erlang-asni erlang-base erlang-corba erlang-crypto erlang-diameter
  erlang-edoc erlang-eldap erlang-erl-docgen erlang-eunit erlang-ic
  erlang-inets erlang-mnesia erlang-nox erlang-odbc erlang-os-mon
  erlang-parsetools erlang-percept erlang-public-key erlang-runtime-tools
  erlang-snmp erlang-ssh erlang-ssl erlang-syntax-tools erlang-tools
  erlang-webtool erlang-xmerl libodbc1 libsctp1 lksctp-tools memcached
  python-memcache rabbitmq-server
0 upgraded, 32 newly installed, 0 to remove and 201 not upgraded.

```

Durante la instalación, es solicitada la contraseña de MySQL que se definió anteriormente, con el fin de establecer una contraseña al usuario root.

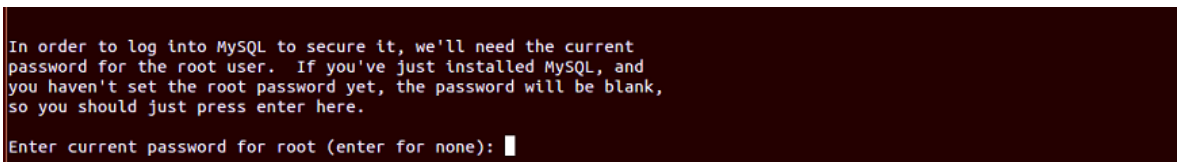


Confirmar la contraseña

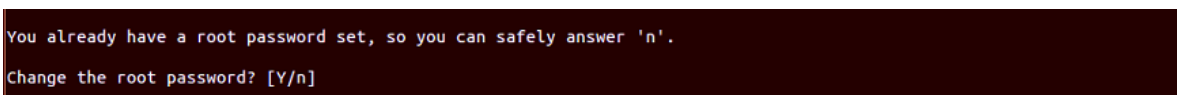


Para finalizar la instalación satisfactoriamente, seguir los pasos a continuación:

Ingresar la contraseña correspondiente al usuario root de MySQL



El script pregunta si desea cambiar la contraseña al usuario root, la respuesta debe ser negativa.



De forma predeterminada, la instalación de MySQL tiene un usuario anónimo, lo que permite que cualquier persona ingrese en el motor de base de datos sin necesidad de tener una cuenta de usuario creada. Se debe eliminar esta opción antes de pasar a un entorno de producción.



Normalmente, conectarse con el usuario root únicamente debe permitirse desde 'localhost'. Esto asegura que no sea adivinada la contraseña administradora de la red.

Por ello, se deshabilita el inicio de sesión de forma remota para el usuario root.

```
Disallow root login remotely? [Y/n] y
... Success!
```

Por defecto MySQL viene con un 'test' de base de datos que cualquiera puede acceder. Debe ser eliminado.

```
Remove test database and access to it? [Y/n] y
- Removing privileges on test database...
... Success!
```

Recargar tablas de privilegios

```
Reload privilege tables now? [Y/n] y
... Success!
```

Confirmar la creación de la base de datos y usuarios, se utiliza la misma contraseña que se definió en la configuración de MySQL.

```
#####
Creating OpenStack databases and users. Use the same password you gave the MySQL setup.
#####
Enter password:
#####
```

KEYSTONE

Es utilizado por OpenStack para proporcionar autenticación y autorización de alto nivel en todos los servicios instalados. Se inicia la instalación de Keystone escribiendo el siguiente comando:

```
root@ubuntumaster: /home/ubuntumaster/openstackgeek/icehouse# ./openstack_keystone.sh

The following NEW packages will be installed:
 keystone libjs-jquery libjs-sphinxdoc libjs-underscore librabbitmq1
 libyaml-0-2 python-amqp python-anyjson python-babel python-babel-localedata
 python-decorator python-dns python-dogpile.cache python-dogpile.core
 python-eventlet python-formencode python-greenlet python-iso8601
 python-jsonschema python-keystone python-keystoneclient python-kombu
 python-ldap python-librabbitmq python-migrate python-mock python-netaddr
 python-openid python-oslo.config python-oslo.messaging python-passlib
 python-paste python-pastedeploy python-pastedeploy-tpl python-pastescript
 python-pbr python-prettytable python-pycadf python-repoze.lru python-routes
 python-scgl python-sqlalchemy python-sqlalchemy-ext python-stevedore
 python-tempita python-tz python-webob python-yaml
0 upgraded, 48 newly installed, 0 to remove and 201 not upgraded.
Need to get 6.319 kB of archives.
After this operation, 38,8 MB of additional disk space will be used.
Get:1 http://co.archive.ubuntu.com/ubuntu/ trusty/main librabbitmq1 amd64 0.4.1-1 [35,2 kB]
Get:2 http://co.archive.ubuntu.com/ubuntu/ trusty-updates/main libyaml-0-2 amd64 0.1.4-3ubuntu3.1 [48,1 kB]
Get:3 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-mock all 1.0.1-3 [23,8 kB]
Get:4 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-jsonschema all 2.3.0-1build1 [27,2 kB]
Get:5 http://co.archive.ubuntu.com/ubuntu/ trusty/main libjs-jquery all 1.7.2+dfsg-2ubuntu1 [78,8 kB]
Get:6 http://co.archive.ubuntu.com/ubuntu/ trusty/main libjs-underscore all 1.4.4-2ubuntu1 [45,6 kB]
Get:7 http://co.archive.ubuntu.com/ubuntu/ trusty-updates/main libjs-sphinxdoc all 1.2.2+dfsg-1ubuntu1.1 [41,4 kB]
Get:8 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-decorator all 3.4.0-2build1 [19,2 kB]
Get:9 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-pbr all 0.7.0-0ubuntu2 [36,1 kB]
Get:10 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-sqlalchemy all 0.8.4-1build1 [532 kB]
Get:11 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-tempita all 0.5.2-1build1 [13,8 kB]
Get:12 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-migrate all 0.8.2-3ubuntu1 [122 kB]
14% [12 python-migrate 1.211 B/122 kB 1%]
```

Para verificar la lista de usuarios, utilizar las siguientes líneas de comando.

```
#####
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./stackrc
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# keystone user-list
WARNING: Bypassing authentication using a token & endpoint (authentication-credentials are being ignored).
+-----+-----+-----+-----+
|          id          | name | enabled |          email          |
+-----+-----+-----+-----+
| e8146af62d914c03af82befc63a642 | admin | True   | vycardoza@poligran.edu.co |
| 7c2616b946c04cfeaefcb1b82ce04957 | cinder | True   | vycardoza@poligran.edu.co |
| 56a2e44742834f4e8652f0e61e98aa94 | demo   | True   | vycardoza@poligran.edu.co |
| afe0532c63854415b4c0c5d2fcb2eb | glance | True   | vycardoza@poligran.edu.co |
| 43cb7e0dd9fe442d9d357698e8567224 | nova   | True   | vycardoza@poligran.edu.co |
+-----+-----+-----+-----+
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse#
```

GLANCE

Es el servicio encargado de proporcionar inscripción y entrega de discos e imágenes de aplicaciones y/o sistemas operativos. Las imágenes almacenadas se utilizan como plantillas.

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./openstack_glance.sh
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  python-json-patch python-json-pointer python-jsonpatch python-warlock
The following NEW packages will be installed:
  python-glanceclient python-json-patch python-json-pointer python-jsonpatch
  python-warlock
0 upgraded, 5 newly installed, 0 to remove and 201 not upgraded.
Need to get 55,9 kB of archives.
After this operation, 477 kB of additional disk space will be used.
Get:1 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-json-pointer all 1.0-2build1 [5.158 B]
Get:2 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-jsonpatch all 1.3-4 [9.088 B]
Get:3 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-json-patch all 1.3-4 [2.312 B]
Get:4 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-warlock all 1.1.0-0ubuntu2 [5.278 B]
Get:5 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-glanceclient all 1:0.12.0-0ubuntu1 [34,1 kB]
Fetched 55,9 kB in 1s (35,0 kB/s)
Selecting previously unselected package python-json-pointer.
(Reading database ... 177969 files and directories currently installed.)
Preparing to unpack .../python-json-pointer_1.0-2build1_all.deb ...
Unpacking python-json-pointer (1.0-2build1) ...
Selecting previously unselected package python-jsonpatch.
Preparing to unpack .../python-jsonpatch_1.3-4_all.deb ...
Unpacking python-jsonpatch (1.3-4) ...
```

Una vez la instalación finalice, consultar las imágenes disponibles en el sistema.

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# glance image-list
+-----+-----+-----+-----+-----+-----+
| ID          | Name          | Disk Format | Container Format | Size      | Status |
+-----+-----+-----+-----+-----+-----+
| 9536b3b0-f76b-417f-9fe2-984d40b91731 | Cirros 0.3.0 | qcow2      | bare             | 13167616 | active |
| 2017fb37-8448-4406-86e0-ba8689f5e25f | Ubuntu Precise 12.04 LTS | qcow2      | bare             | 262275584 | active |
+-----+-----+-----+-----+-----+-----+
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse#
```

CINDER

Se utiliza para proporcionar los archivos de volumen adicionales para instancias en ejecución.

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./openstack_cinder.sh
+
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  libdevmapper-event1.02.1 watershed
Suggested packages:
  thin-provisioning-tools
The following NEW packages will be installed:
  libdevmapper-event1.02.1 lvm2 watershed
0 upgraded, 3 newly installed, 0 to remove and 201 not upgraded.
Need to get 492 kB of archives.
After this operation, 1.427 kB of additional disk space will be used.
Get:1 http://co.archive.ubuntu.com/ubuntu/ trusty/main libdevmapper-event1.02.1 amd64 2:1.02.77-6ubuntu2 [10,8 kB]
Get:2 http://co.archive.ubuntu.com/ubuntu/ trusty/main watershed amd64 7 [11,4 kB]
Get:3 http://co.archive.ubuntu.com/ubuntu/ trusty/main lvm2 amd64 2.02.98-6ubuntu2 [470 kB]
Fetched 492 kB in 1s (279 kB/s)
```

Luego que la instalación de Cinder está completa, determinar la necesidad de espacio y ejecutar el script de creación de volumen de bucle de retorno (Se debe tener en cuenta que un archivo de bucle de retorno tiene por lo menos 1 GB de tamaño).

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# ./openstack_loop.sh
Enter the integer amount in gigabytes (min 1G) to use as a loopback file for Cinder: 30

Creating loopback file of size 30 GB at /cinder-volumes...
0+0 records in
0+0 records out
0 bytes (0 B) copied, 0,000272282 s, 0,0 kB/s

Physical volume "/dev/loop2" successfully created
Volume group "cinder-volumes" successfully created
+-----+-----+
| ID | Name |
+-----+-----+
| 32fb3f44-5d49-4ca7-aa10-0b38bd22a8c2 | Storage |
+-----+-----+
cinder-scheduler stop/waiting
cinder-scheduler start/running, process 24719
cinder-api stop/waiting
cinder-api start/running, process 24734
cinder-volume stop/waiting
cinder-volume start/running, process 24749
tgt stop/waiting
tgt start/running, process 24789
#####
```

Para consultar los tipos de almacenamiento instalados, ejecutar la siguientes instrucción

```
root@ubuntumaster:/home/ubuntumaster/openstackgeek/icehouse# cinder type-list
+-----+-----+
| ID | Name |
+-----+-----+
| 32fb3f44-5d49-4ca7-aa10-0b38bd22a8c2 | Storage |
+-----+-----+
```

NOVA (Controlador)

Es un controlador de estructura Cloud Computing, es parte principal de sistema de IaaS. Ofrece múltiples servicios para el control de redes, imágenes, arrancar y detener instancias.

```
root@ubuntu-master: /home/ubuntu-master/openstackgeek/icehouse# ./openstack_nova.sh
```

Cuando la instalación se haya completado, se pueden consultar los servicios que se ejecutan de la siguiente manera:

```
root@ubuntu-master: /home/ubuntu-master/openstackgeek/icehouse# nova-manage service list
Binary      Host              Zone      Status    State    Updated_At
nova-consoleauth  ubuntu-master    internal  enabled   :-)      2015-05-01 21:21:00
nova-conductor   ubuntu-master    internal  enabled   :-)      2015-05-01 21:21:01
nova-cert        ubuntu-master    internal  enabled   :-)      2015-05-01 21:21:00
nova-scheduler   ubuntu-master    internal  enabled   :-)      2015-05-01 21:21:01
nova-compute      ubuntu-master    nova     enabled   :-)      2015-05-01 21:21:01
nova-network     ubuntu-master    internal  enabled   :-)      2015-05-01 21:21:01
root@ubuntu-master: /home/ubuntu-master/openstackgeek/icehouse#
```

NOVA (Plataforma computo)

```
root@ubuntu-master: /home/ubuntu-master/openstackgeek/icehouse# ./openstack_nova_compute.sh
```

Ingresar el nombre del recurso para la NIC de la plataforma

```
Enter the device name for this rig's NIC (eth0, etc.) : eth0
Reading package lists... Done
Building dependency tree
Reading state information... Done
nova-compute is already the newest version.
nova-compute set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 201 not upgraded.
nova-network stop/waiting
nova-network start/running, process 39085
nova-compute stop/waiting
nova-compute start/running, process 39112
nova-novncproxy stop/waiting
nova-novncproxy start/running, process 39127
#####
Install complete. Log into the controller and run a 'nova-manage service list' to check.
#####
```

Una vez que la plataforma de cómputo se ha configurado, verificar de nuevo los servicios de Nova.

```
root@ubuntu-master: /home/ubuntu-master/openstackgeek/icehouse# nova-manage service list
Binary      Host              Zone      Status    State    Updated_At
nova-consoleauth  ubuntu-master    internal  enabled   :-)      2015-05-01 21:23:21
nova-conductor   ubuntu-master    internal  enabled   :-)      2015-05-01 21:23:21
nova-cert        ubuntu-master    internal  enabled   :-)      2015-05-01 21:23:20
nova-scheduler   ubuntu-master    internal  enabled   :-)      2015-05-01 21:23:21
nova-compute      ubuntu-master    nova     enabled   :-)      2015-05-01 21:23:21
nova-network     ubuntu-master    internal  enabled   :-)      2015-05-01 21:23:21
root@ubuntu-master: /home/ubuntu-master/openstackgeek/icehouse#
```

A continuación se crea un rango de red privada IPv4, el cual será utilizado para indicar las IPs a cada instancia establecida a partir de las imágenes almacenadas en Glance.

Bloquea la red 10.0.47.0/24, es decir la primera IP asignable es la 10.0.47.1/24.

HORIZON

Es la aplicación canónica de Dashboard de OpenStack, que proporciona una interfaz de usuario basada en web.

```
root@ubuntu-master: /home/ubuntu-master/openstackgeek/icehouse# ./openstack_horizon.sh
Reading package lists... Done
Building dependency tree
Reading state information... Done
memcached is already the newest version.
The following extra packages will be installed:
  apache2-bin apache2-data libapr1 libaprutil1 libaprutil1-dbd-sqlite3
  libaprutil1-ldap openstack-dashboard-ubuntu-theme python-appconf
  python-ceilometerclient python-cloudfiles python-compressor python-django
  python-django-horizon python-heatclient python-openstack-auth
  python-troveclient
Suggested packages:
  apache2-doc apache2-suexec-pristine apache2-suexec-custom apache2-utils
  python-psycogp2 python-psycogp python-flup python-sqlite
  geopip-database-contrib python-django-doc ipython bpython libgda11
  python-lesscpy
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data libapache2-mod-wsgi libapr1 libaprutil1
  libaprutil1-dbd-sqlite3 libaprutil1-ldap openstack-dashboard
  openstack-dashboard-ubuntu-theme python-appconf python-ceilometerclient
  python-cloudfiles python-compressor python-django python-django-horizon
  python-heatclient python-openstack-auth python-troveclient
0 upgraded, 19 newly installed, 0 to remove and 201 not upgraded.
Need to get 5.769 kB of archives.
After this operation, 53,3 MB of additional disk space will be used.
Get:1 http://co.archive.ubuntu.com/ubuntu/ trusty/main libapr1 amd64 1.5.0-1 [85,1 kB]
Get:2 http://co.archive.ubuntu.com/ubuntu/ trusty/main libaprutil1 amd64 1.5.3-1 [76,4 kB]
Get:3 http://co.archive.ubuntu.com/ubuntu/ trusty-updates/main python-django all 1.6.1-2ubuntu0.8 [2.214 kB]
Get:4 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-appconf all 0.5-2build1 [7.696 B]
Get:5 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-compressor all 1.3-1ubuntu3 [55,0 kB]
Get:6 http://co.archive.ubuntu.com/ubuntu/ trusty/main python-heatclient all 0.2.8-0ubuntu1 [50,2 kB]
Get:7 http://co.archive.ubuntu.com/ubuntu/ trusty/main libaprutil1-dbd-sqlite3 amd64 1.5.3-1 [10,5 kB]
Get:8 http://co.archive.ubuntu.com/ubuntu/ trusty/main libaprutil1-ldap amd64 1.5.3-1 [8.634 B]
Get:9 http://co.archive.ubuntu.com/ubuntu/ trusty-updates/main apache2-bin amd64 2.4.7-1ubuntu4.4 [843 kB]
Get:10 http://co.archive.ubuntu.com/ubuntu/ trusty-updates/main apache2-data all 2.4.7-1ubuntu4.4 [160 kB]
Get:11 http://co.archive.ubuntu.com/ubuntu/ trusty-updates/main apache2 amd64 2.4.7-1ubuntu4.4 [87,4 kB]
Get:12 http://co.archive.ubuntu.com/ubuntu/ trusty-updates/main libapache2-mod-wsgi amd64 3.4-4ubuntu2.1.14.04.2 [67,4 k
B]
```

Al terminar la instalación de horizon, podemos acceder mediante la dirección xxxxxx a la interfaz de OpenStack.

