Red Hat Enterprise Linux OpenStack Platform 6
Deploying OpenStack: Proof-of-Concept Environments (Packstack)

Using Packstack to Deploy Red Hat Enterprise Linux OpenStack Platform PoC Environments

OpenStack Documentation Team

Red Hat Enterprise Linux OpenStack Platform 6 Deploying OpenStack: Proof-of-Concept Environments (Packstack)

Using Packstack to Deploy Red Hat Enterprise Linux OpenStack Platform PoC Environments

OpenStack Documentation Team
Red Hat Customer Content Services
rhos-docs@redhat.com

Legal Notice

Abstract

This guide covers all Packstack methods for deploying a proof of concept (PoC) Red Hat Enterprise Linux OpenStack Platform 6 cloud. PoC deployments are intended for testing environments, and are not intended for production environments. The guide also includes basic scripts for removing Packstack Deployments. In a PoC deployment, you can use the dashboard to load disk images, create a network, launch instances, or perform other basic OpenStack tasks.

Table of Contents

Chapter 1. Introduction

Red Hat Enterprise Linux OpenStack Platform enables you to build a private or public Infrastructure-as-a-Service (IaaS) cloud on top of Red Hat Enterprise Linux. It offers a massively scalable, fault-tolerant platform for the development of cloud-enabled workloads.

This guide provides flexible Packstack procedures for you to deploy an OpenStack cloud. Packstack is a command-line tool that uses Puppet modules to enable the rapid deployment of OpenStack on host machines. Packstack can be deployed interactively using command-line prompts, or non-interactively using defaults or a configuration file.

Packstack is suitable for deploying proof-of-concepts installations where:

- All controller services and your virtual machines run on a single physical host. This is referred to as an all-in-one install.
- There is a single controller node and multiple compute nodes for virtual machines. This is similar to the all-in-one install above, except you use one or more additional hardware nodes for running virtual machines.

Packstack procedures are provided for an initial cloud deployment; the end result will depend on the method you select and the parameters you define. For example, if you use the quick start mode, the resulting cloud will have one compute node and an installed dashboard.

Basic procedures are also provided for the removal of Packstack deployments.

Note

- This guide provides detailed Packstack options for deployment. For a simple guide to deploying the most basic single-host PoC environment, see Evaluating OpenStack: Single-Node Deployment.
- For upgrade procedures, see Overview of Upgrading to Red Hat Enterprise Linux OpenStack Platform 6 (Juno)

Important

Packstack is designed for proof-of-concept deployments, and is not suitable as a production deployment tool. Packstack makes many assumptions in its configuration to simplify the installation process, and cannot deploy services in a highly available (HA) or load-balanced configuration, nor can it provide the flexibility required for configuring complex networking.

For information about using the Red Hat Enterprise Linux OpenStack Platform installer to deploy production environments, see *Deploying OpenStack: Enterprise Environments (Red Hat Enterprise Linux OpenStack Platform Installer)*. For the complete suite of documentation for Red Hat Enterprise Linux OpenStack Platform, see https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux_OpenStack_Platform/

Chapter 2. Requirements

2.1. Software Requirements

2.1.1. Host Machines and Access

- Each host machine in OpenStack must already be running Red Hat Enterprise Linux 7.1. For detailed information on installing Red Hat Enterprise Linux, see the corresponding installation guide at: https://access.redhat.com/site/documentation/en-US/Red_Hat_Enterprise_Linux/
- Host machines do not have to be dedicated OpenStack servers.
- You must know the root password for all machines deployed by Packstack. Any compute node deployed by Packstack must be configured to allow access using the account of the root user over SSH on port 22.

2.1.2. Software Repositories

Each host machine deployed in OpenStack must be registered to receive updates from Red Hat Network using Subscription Manager. To allow Packstack to install OpenStack on each host, you can do either of the following:

- Before running Packstack, use **ssh** to connect and manually register each host (see Procedure 2.1, “Manually Register and Subscribe your Host”). After subscribing each machine, you can then run Packstack in any mode.
- Run Packstack with an edited Packstack answer file that contains your Red Hat subscription user name and password, using the parameters **CONFIG_RH_USER** and **CONFIG_RH_PW**. Running Packstack with this answer file configures each host to receive updates from Red Hat Network using Subscription Manager. For instructions on creating and using an answer file, see Section 3.3, “Running Packstack Non-Interactively”.

Note

Packstack registers systems to Red Hat Network using Subscription Manager. You might encounter problems if your systems have already been registered and subscribed to the Red Hat OpenStack channels using RHN Classic.

- Your Red Hat Subscription must have Red Hat Enterprise Linux OpenStack Platform entitlements. If you do not already have OpenStack entitlements, you can register for access to the evaluation program at http://www.redhat.com/products/enterprise-linux/openstack-platform/.
- For further information on managing Red Hat subscriptions, see the Red Hat Subscription Management documentation at: https://access.redhat.com/site/documentation/en-US/Red_Hat_Subscription_Management/

Procedure 2.1. Manually Register and Subscribe your Host

1. As a root user, register the host with Customer Portal Subscription Management:

```
# subscription-manager register
```

2. Subscribe to the most likely entitlements for your user:

```
# subscription-manager subscribe --auto
```

Note

If this does not automatically attach the OpenStack entitlement, you can do so manually:

a. List all entitlements:

```
# subscription-manager list --available
```

b. Attach the entitlement using its pool ID:

```
# subscription-manager attach --pool=POOL_ID
```

3. Enable the correct repositories:

```
# subscription-manager repos --enable=rhel-7-server-rpms
# subscription-manager repos --enable=rhel-7-server-rh-common-rpms
# subscription-manager repos --enable=rhel-7-server-openstack-6.0-rpms
```

4. Disable repositories that interfere with the current OpenStack release:

```
# subscription-manager repos --disable="cf-me-*"
# subscription-manager repos --disable="rhel-6-server-cf-*"
# subscription-manager repos --disable="rhel-6-server-rhev*"
# subscription-manager repos --disable="*-eus-rpms"
# subscription-manager repos --disable=rhel-6-server-openstack-4.0-rpms
# subscription-manager repos --disable=rhel-7-server-openstack-5.0-rpms
```

5. Update your local repository information and local environment:

```
# yum repolist
# yum update -y
```

The system can now receive updates from Customer Portal Subscription Management.

2.1.3. Network Manager

OpenStack Networking currently does not work on systems that have the Network Manager service enabled. Follow the procedure below as the **root** user on each system in the environment, including the cloud controller (on which you run Packstack) and all compute nodes.

Procedure 2.2. Disable the Network Manager service

1. Disable NetworkManager, then stop it:

```
# systemctl disable NetworkManager.service
# systemctl stop NetworkManager.service
```

2. Start and enable the standard network service:

```
# systemctl start network.service
# systemctl enable network.service
```

2.2. Hardware Requirements

System requirements for an OpenStack deployment vary based on the scale and workload of the environment being deployed. This section provides the recommended minimum system requirements for proof-of-concept deployment scenarios.

Important

To verify that the processor of a system running Red Hat Enterprise Linux has the required CPU extensions and that they are enabled, check the contents of the **/proc/cpuinfo** file:

```
# grep -E 'svm|vmx' /proc/cpuinfo | grep nx
```

If any output is displayed, the processor is capable of hardware virtualization. Otherwise, it is still possible that your processor supports hardware virtualization because manufacturers sometimes just disable the virtualization extensions in the BIOS. Consult the system's BIOS and the motherboard manual provided by the manufacturer.

2.2.1. Single Node ("All in One") Deployments

In this configuration, all services are installed and run on a single machine (including storage, networking, and compute services). This simplifies the deployment process.

Table 2.1. All-in-one requirements

Item	Requirement
Processor	64-bit x86 processor with support for the Intel 64 or AMD64 CPU extensions, and the AMD-V or Intel VT hardware virtualization extensions enabled.
Memory	A minimum of 2 GB of RAM is recommended. Add additional RAM to this requirement based on the amount of memory that you intend to make available to virtual machine instances.

Item	Requirement
Disk Space	A minimum of 50 GB of available disk space is recommended. Add additional disk space to this requirement based on the amount of space that you intend to make available to virtual machine instances. This figure varies based on both the size of each disk image you intend to create and whether you intend to share one or more disk images between multiple instances. 1 TB of disk space is recommended for a realistic environment capable of hosting multiple instances of varying sizes.
Network Interface Cards	1 x 1 Gbps network interface card.

2.2.2. Cloud Controller Deployments with One or More Compute Nodes

In this configuration, one node acts as the cloud controller node, and other available machines are deployed as compute nodes. The controller node hosts services such as the Compute database, storage, and the API server. The compute nodes run virtual machine instances.

Table 2.2. Controller node requirements

Item	Requirement
Processor	A 64-bit x86 processor with support for the Intel 64 or AMD64 CPU extensions, and the AMD-V or Intel VT hardware virtualization extensions enabled.
Memory	A minimum of 2 GB of RAM is recommended.
Disk Space	A minimum of 50 GB of available disk space is recommended (add more if you plan on storing large images).
Network Interface Cards	1 x 1 Gbps Network Interface Card.

Table 2.3. Compute node requirements

Item	Requirement
Processor	A 64-bit x86 processor with support for the Intel 64 or AMD64 CPU extensions, and the AMD-V or Intel VT hardware virtualization extensions enabled.
Memory	A minimum of 2 GB of RAM is recommended. Add additional RAM to this requirement based on the amount of memory that you intend to make available to virtual machine instances.
Disk Space	A minimum of 50 GB of available disk space is recommended. Add additional disk space to this requirement based on the amount of space that you intend to make available to virtual machine instances. This figure varies based on both the size of each disk image you intend to create and whether you intend to share one or more disk images between multiple instances. 1 TB of disk space is recommended for a realistic environment capable of hosting multiple instances of varying sizes.

Item	Requirement
Network Interface Cards	2 x 1 Gbps Network Interface Card: One card for access to the public network and one for the internal Compute network. Although it is possible to use a single interface for both purposes, this approach can result in virtual machine instances obtaining addresses from the wrong DHCP server.

2.3. Select Components

If you are not using Packstack's default values, you must decide on which components you would like to install. For component descriptions, see the "Component Overview" at https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux_OpenStack_Platform/.

In particular, either OpenStack Networking (neutron) and Compute Networking (nova-network) can be used for your cloud's networking infrastructure. By default, Packstack installs OpenStack Network, however you must decide which option is right for your needs. For a complete description of networking-type differences, see Choosing a Network Back-end for Red Hat Enterprise Linux OpenStack Platform.

2.4. Configure Storage

By default, Packstack creates loopback devices for both block and object storage on the controller node. However, if you want to avoid loopback devices, storage must be manually configured before installing OpenStack.

Block Storage

Block Storage uses volume groups to identify attached volumes. By default, Packstack creates:

- An example storage volume for testing. It is placed in **`/var/lib/cinder`** and installed as a loopback storage device on the host for the Block Storage service.
- The **`cinder-volumes`** volume group (configured in **`volume_group`** in **`/etc/cinder/cinder.conf`**).

To avoid the creation of loopback devices, you must initialize your volume manually for the Block Storage service before installing and deploying OpenStack using Packstack.

Example 2.1. Create volume group

The following commands can be used to initialize the volume manager as a physical volume, and then use it to create the **`cinder-volumes`** volume group:

```
# pvcreate /dev/sdX
# vgcreate cinder-volumes /dev/sdX
```

Object Storage

Instead of installing a volume for Object Storage, Packstack adds a device to an Object Storage ringfile. On the Object Storage host, the device is represented by a directory in **`/srv/`**. Ideally, the directory for the Object Storage device should be a separate file system.

If you have not created a separate file system, or just want to test Object Storage, then Packstack creates a small loopback storage device in place of a separate partition. Otherwise, you must manually configure your system using Packstack's answer file (see Appendix A, *Answer File Configuration Keys*).

Example 2.2. Configure storage device with `/dev/sdb1`

If the following is specified in the answer file, Packstack installs **`/dev/sdb1`** as a device on the controller host:

```
CONFIG_SWIFT_STORAGES=/dev/sdb1
```

Chapter 3. Installing OpenStack

Packstack supports a variety of deployment modes. In all modes, you must install and run Packstack on the machine you have designated as your controller node.

Table 3.1. Packstack modes

Mode	Description
Quick Start	The quickest way to deploy an OpenStack environment is to let Packstack use default values; you only have to decide whether to install all the services on one host (Single-Node), or install the controller services on one host and the compute service on other nodes (Multiple-Node). Default values are recommended for the initial testing of Red Hat Enterprise Linux OpenStack Platform. For details, see Section 3.1, “Deploy OpenStack Using Quick Start Mode”.
Interactively	When run interactively, Packstack prompts you for each configuration value. Running the utility interactively allows you to have step-by-step control over your deployed environment, allowing you to override or accept each step's default value. For details, see Section 3.2, “Running Packstack Interactively”.
Non-interactively	The experienced user has the option of running Packstack with a configured answer file. This method is faster than running Packstack interactively, but still allows you to override or accept default values. For details, see Section 3.3, “Running Packstack Non-Interactively”.

Warning

If you abort a Packstack procedure without finishing, the target might be left in an unstable state. Consider making a backup or taking a snapshot before starting the procedure.

There is no automated uninstall process for undoing a Packstack install. If you have a previously installed version of OpenStack, you must uninstall it first, before installing with Packstack. For more information, see Chapter 5, *Removing Packstack Deployments*

3.1. Deploy OpenStack Using Quick Start Mode

When using the quick start mode, OpenStack Networking is enabled by default, the demo environment is created, and the OpenStack dashboard is automatically installed. For further defaults, see the answer file table in Appendix A, *Answer File Configuration Keys*.

Note

When using this deployment method, Packstack uses default values unless they are overridden on the command line. For a list of available command-line options, see the "Command-Line Interface Reference" (https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux_OpenStack_Platform/).

Procedure 3.1. Deploy OpenStack using 'Quick Start' Values

1. **Log in**

   Log in to the machine where the OpenStack controller is to be installed.

2. **Install the Packstack utility**

   ```
   # yum install openstack-packstack
   ```

3. **Run Packstack**

   Deploy OpenStack as Single-Node or Multiple-Node:

   A. **Single-node deployment**

   Run Packstack with the **--allinone** parameter to install all services on the local host.

   ```
   # packstack --allinone
   ```

   Example 3.1. Use Compute networking

   In this example, Packstack uses most of the defaults, but deploys Compute networking instead of OpenStack Networking.

   ```
   # packstack --allinone --os-neutron-install=n
   ```

   B. **Multiple-node deployment**

   Run Packstack with the **--install-hosts** parameter.

   ```
   # packstack --install-hosts=CONTROLLER_ADDRESS,NODE_ADDRESSES
   ```

   Where *CONTROLLER_ADDRESS* is the IP address of the system that you intend to use as the controller node, and *NODE_ADDRESSES* is a list of IP addresses of the compute nodes.

   Example 3.2. Use two compute nodes

   In this example, Packstack deploys a controller node on the system with IP address **192.168.43.10**. Additional compute nodes are deployed on the systems with IP addresses **192.168.43.11** and **192.168.43.12**.

```
# packstack --install-
hosts=192.168.43.10,192.168.43.11,192.168.43.12
```

4. `root@192.168.43.10's password:`

   Enter the password of the **root** user for the controller node (and where requested, any additional compute nodes).

5. **Confirm deployment**

   Deployment time can be significant; Packstack provides continuous updates indicating which manifests are being deployed as it progresses. Once the process is completed, a confirmation message similar to the one below is displayed (depending on the options you chose):

```
**** Installation completed successfully ******
Additional information:
 * A new answerfile was created in: /root/packstack-
answers-20131205-155916.txt
 * Time synchronization installation was skipped. Please note that
unsynchronized time on server instances might be problem for some
OpenStack components.
 * File /root/keystonerc_admin has been created on OpenStack client
host 192.168.43.10. To use the command line tools you need to
source the file.
 * To use the console, browse to http://192.168.43.10/dashboard
 * To use Nagios, browse to http://192.168.43.10/nagios username :
nagiosadmin, password : abcdefgh12345678
 * The installation log file is available at:
/var/tmp/packstack/20131205-155915-tZ0BTD/openstack-setup.log
 * The generated manifests are available at:
/var/tmp/packstack/20131205-155915-tZ0BTD/manifests
```

You have successfully deployed an OpenStack environment using Packstack. For next steps, see Chapter 4, *Using OpenStack*.

Warning

The answer file contains a number of required configuration values, including administrative passwords. It is recommended that you store the answer file in a secure location.

Unless specified, passwords are also generated for each service; for a complete password listing and update commands, refer to Appendix B, *Passwords*.

3.2. Running Packstack Interactively

The procedure below lists all the questions that Packstack prompts you to answer when run in interactive mode. Based on your choices, some of the options might be skipped.

Important

- If a step is self-explanatory, only the step is included.
- All IP addresses included in the following procedure are examples; you must replace these addresses with those in your own network.

  You do not have to log in as **root** to run **packstack**. However, you must provide **root** credentials for each machine on which you deploy services.

- If not specified during the procedure, passwords are randomly generated and available in the answer file after installation.

Procedure 3.2. Deploy OpenStack Interactively

1. Install the Packstack utility

```
# yum install openstack-packstack
```

2. Start the installation

```
# packstack
```

   If you want more output from Packstack, append the ***--debug*** parameter.

3.
```
Enter the path to your ssh public key to install on servers:
```

   This value is used for each server in the OpenStack deployment. If you already have a public key, enter its path; otherwise, press **Enter** and the tool will generate one for you and save it to **~/.ssh/id_rsa.pub**.

4.
```
Should Packstack install MariaDB [y|n]  [y] :
```

   Packstack can create a single database node, or you can use a pre-existing database (a MariaDB cluster can also be specified). If you select **n**, Packstack asks you for credentials and uses **CONFIG_MARIADB_HOST** as the database address.

5.
```
Should Packstack install OpenStack Image Service (Glance) [y|n]  [y]
:
Should Packstack install OpenStack Block Storage (Cinder) [y|n]  [y]
:
Should Packstack install OpenStack Compute (Nova) [y|n]  [y] :
Should Packstack install OpenStack Networking (Neutron) [y|n]  [y] :
Should Packstack install OpenStack Dashboard (Horizon) [y|n] [y] :
Should Packstack install OpenStack Object Storage (Swift) [y|n]  [y]
:
Should Packstack install OpenStack Metering (Ceilometer) [y|n]  [y]
:
Should Packstack install OpenStack Orchestration (Heat) [y|n]  [n] :
Should Packstack install OpenStack Clustering (Sahara) [y|n]  [n] :
Should Packstack install OpenStack Database (Trove) [y|n]  [n] :
Should Packstack install OpenStack Bare Metal (Ironic) [y|n]  [n] :
```

Important

If OpenStack Networking is declined, Compute networking is installed.

6. `Should Packstack install OpenStack client tools [y|n] [y] :`

   Red Hat recommends that the client tools be installed for a PoC deployment (default).

7. `Enter list of NTP server(s). Leave plain if Packstack should not install ntpd on instances:`

   Optionally, all servers in the deployment can retrieve date and time information using Network Time Protocol (NTP). The NTP server value is only important for multi-node deployments.

   Example 3.3. Using the default Red Hat Enterprise Linux NTP servers

   ```
   Enter list of NTP server(s). Leave plain if Packstack should not
   install ntpd on instances.: 0.rhel.pool.ntp.org,
   1.rhel.pool.ntp.org
   ```

8. `Should Packstack install Nagios to monitor openstack hosts [y|n] [y] :`

   OpenStack can use Nagios to provide advanced monitoring facilities for the OpenStack environment.

9. `Enter a comma separated list of server(s) to be excluded. Leave plain if you don't need to exclude any server:`

   If you have previously configured servers that you do not want Packstack to overwrite, you can specify their IP addresses to be excluded.

10. `Do you want to run OpenStack services in debug mode [y|n] [n]:`

    The debug setting can later be updated in each service's configuration file.

11. Specify deployment addresses. The default deployment address is that of the host on which Packstack is being run.

    a. `Enter the IP address of the controller host  [192.0.43.10] :`

       In a single-node environment, the controller runs all services. In a Packstack multi-node environment, the controller runs all services, but other nodes can run the compute service.

    b. `Enter list of IP addresses on which to install compute service [192.0.43.10] :`

       If specifying more than one host, use a comma-separated list.

c. `Enter list of IP addresses on which to install network service [192.0.43.10] :`

If specifying more than one host, use a comma-separated list. For a PoC installation, Red Hat recommends that the networking service be placed only on the controller node (default).

12. `Do you want to use VMware vCenter as hypervisor and datastore [y|n] [n]:`

13. `Enable this on your own risk. Do you want to use insupported parameters [y|n]  [n] :`

For a PoC installation, Red Hat recommends that insupported parameters be declined (default).

14. `To subscribe each server to EPEL enter "y" [y|n]  [n] :`

Packstack allows you to subscribe each server to Extra Packages for Enterprise Linux (EPEL). EPEL contains various packages from the Fedora development stream. Red Hat recommends that you decline EPEL subscription (default).

15. `Enter a comma separated list of URLs to any additional yum repositories to install:`

Packstack allows you to optionally configure each server to retrieve updates from additional custom software repositories. For basic installations, you do not need additional repositories; just click 'Enter'.

16. ```
To subscribe each server to Red Hat enter a username here:
To subscribe each server with RHN Satellite enter RHN Satellite server URL:
To subscribe each server to Red Hat enter your password here:
```

Providing Red Hat subscription information ensures each server involved in the deployment is subscribed to receive updates from Red Hat Network.

Packstack allows you to optionally configure each server to retrieve updates from a Red Hat Network Satellite server instead of Subscription Manager. If you do not wish to use a Red Hat Satellite server, click 'Enter'.

**Important**

Packstack registers systems to Red Hat Network using Subscription Manager or Red Hat Network Satellite. You may encounter problems if your systems have already been registered and subscribed to the Red Hat OpenStack channels using RHN Classic.

If you provide a RHN Satellite URL, a number of follow up prompts will be displayed.
```

a.
```
Enter RHN Satellite username or leave plain if you will use
activation key instead:
Enter RHN Satellite password or leave plain if you will use
activation key instead:
```

Red Hat Network Satellite supports authentication using a user name and password or an activation key. If your Satellite administrator provided you with a user name and password, enter them when prompted. If your Satellite administrator provided you with an access key, leave blank.

b.
```
Enter RHN Satellite activation key or leave plain if you used
username/password instead :
```

If your Satellite administrator provided you with an access key, specify it; otherwise, leave blank.

c.
```
Specify a path or URL to a SSL CA certificate to use:
```

Specify the path to the certificate of the certificate authority that is used to verify that the connection with the Satellite server is secure.

d.
```
If required specify the profile name that should be used as an
identifier for the system in RHN Satellite :
```

Specify the optional profile name that must be used to identify the system in Red Hat Network.

e.
```
Specify a HTTP proxy to use with RHN Satellite:
```

Specify the HTTP proxy for connecting to the Satellite server. If no proxy is required, leave blank.

f.
```
Specify a username to use with an authenticated HTTP proxy:
```

Specify the user name for authenticating with the HTTP proxy to be used when connecting to the Satellite server. If no proxy is required or the chosen proxy does not require authentication, leave blank.

g.
```
Specify a password to use with an authenticated HTTP proxy.:
```

Specify the password for authenticating with the HTTP proxy server that must be used when connecting to the Satellite server. If no proxy is required or the chosen proxy does not require authentication, leave blank.

h.
```
Enter comma separated list of flags passed to rhnreg_ks:
```

Specify any additional Satellite flags that you need to be passed to the **rhnreg_ks** command when it is run on each system. This configuration key accepts a comma-separated list of flags. Valid flags are **novirtinfo**, **norhnsd**, and **nopackages**.

See the *Red Hat Satellite* documentation for more information. If unsure, do not enter a value.

17. ```
    To enable RHEL optional repos use value "y" [y|n]  [y]:
    ```

    A number of software packages required by OpenStack are kept in optional repositories; ensure that you enable these repositories (default).

18. ```
    Specify a HTTP proxy to use with Red Hat subscription manager:
    ```

    If no proxy is required, leave blank.

19. ```
    Set the AMQP service backend [qpid|rabbitmq]  [rabbitmq] :
    Enter the IP address of the AMQP service  [192.0.43.10] :
    Enable SSL for the AMQP service? [y|n]  [n] :
    Enable Authentication for the AMQP service? [y|n]  [n] :
    ```

    The AMQP broker is the messaging technology used by OpenStack for communication between components. RabbitMQ is the recommended messaging system for PoC environments; by default, authentication and SSL are not enabled.

20. ```
    Enter the IP address of the MariaDB server [192.0.43.10] :
    Enter the password for the MariaDB admin user :
    ```

    OpenStack services require a MariaDB database for data storage. If you do not specify an existing database, a database is generated. After installation is complete, the generated password is available in Packstack's answer file.

21. ```
    Enter the password for the Keystone DB access:
    Enter the password for the Keystone admin user :
    Enter the password for the Keystone demo user :
    ```

    When Packstack installs the Identity service, it automatically creates the Identity service database, and the:

    - **admin** user, for management tasks, whose authentication information is stored in the **/root/keystonerc_admin** file. For multi-host installations, this file is located only on the **CONFIG_OSCLIENT_HOST** host. The **admin** password is also stored in Packstack's answer file.
    - **demo** user (and tenant), for demonstration purposes, whose authentication information is stored in the **/root/keystonerc_demo** file.

22. ```
    Enter the password for the Glance DB access :
    Enter the password for the Glance Keystone access :
    ```

    When Packstack installs the Image service, it creates the Image service database and a 'glance' user. The Image service accesses the Identity service (keystone) as the **glance** user.

23. ```
    Glance storage backend [file|swift]  [file] :
    ```

    Either the file system (default) or the Object Storage service (swift) can be used as a back end for the Image service.

24. When Packstack installs the Block Storage service, it creates the Block Storage database and a **cinder** user. The Block Storage service accesses the Identity service (keystone) as the **cinder** user.
    ```

a.
```
Enter the password for the Cinder DB access :
Enter the password for the Cinder Keystone access :
```

b.
```
Enter the Cinder backend to be configured
[lvm|gluster|nfs|vmdk|netapp]  [lvm] :
```

OpenStack Block Storage service uses a back end for storage; the default implementation uses Logical Volume Management (LVM) to create a Logical Volume Group called **cinder-volumes**. Alternatives are Red Hat Storage (gluster), Network File System (nfs), VMware (vmdk), or NetApp.

- If you specify LVM, Packstack expects storage to be available on a volume group named **cinder-volumes**.
  - ```
    Should Cinder's volumes group be created (for proof-
    of-concept installation)? [y|n] [y]:
    ```

    If the volume group does not already exist, you are asked if you want it to be created automatically. If you answer 'yes', Packstack creates a raw disk image in the **/var/lib/cinder** and mounts it using a loopback device.
  - ```
    Enter Cinder's volumes group size  [20G] :
    ```

    If you elected to have the **cinder-volumes** volume group created for you, you are also prompted to enter its size in gigabytes (GB).

    Important

    - The specified amount of space must be available on the device used for **/var/lib/cinder**.
    - Remember that the size of the volume group will restrict the amount of disk space that you can expose to Compute instances.
- If you specify Red Hat Storage (gluster), you must specify the gluster volume to mount instead of a local volume. For example: *ip-address:/vol-name*

  ```
  Enter a single or comma separated list of gluster volume
  shares to use with Cinder [^'([\d]{1,3}\.){3}[\d]
  {1,3}:/.*']:
  ```
- If you specify NFS, you must specify a list of NFS exports to mount. For example: *ip-address:/export-name*

  ```
  Enter a single or comma seprated list of NFS exports to use
  with Cinder [^([\d]{1,3}\.){3}[\d]{1,3}:/.*]:
  ```
- If you specify NetApp, you must specify a user login, password, and host to access the NetApp server.

```
Enter a NetApp login []:
Enter a NetApp password :
Enter a NetApp hostname:
```

25. When Packstack installs the Compute service, it creates a Compute database and a **nova** user. The Compute service accesses the Identity service (keystone) as the 'nova' user.

    a.
    ```
    Enter the password for the Nova DB access :
    Enter the password for the Nova Keystone access :
    ```

    b.
    ```
    Enter the CPU overcommitment ratio. Set to 1.0 to disable CPU
    overcommitment[16.0]:
    Enter the RAM overcommitment ratio. Set to 1.0 to disable RAM
    overcommitment[1.5]:
    ```

    In the default configuration, Compute allows for overcommitment of physical CPU and memory resources. This means that more of these resources are made available for running instances than actually physically exist on the compute node.

    The default level of CPU overcommitment allows 16 virtual CPUs to be allocated for each physical CPU socket or core that exists on the physical compute node. The default level of memory overcommitment allows up to 50% more virtual memory to be allocated than exists on the physical compute node.

    c.
    ```
    Enter protocol which will be used for instance migration
    [tcp|ssh]  [tcp]:
    ```

    By default, tcp is used for instance migration (recommended for security reasons):

    d.
    ```
    Enter the compute manager for nova migration
    [nova.compute.manager.ComputeManager]
    ```

    Use the default value for the migration manager:

    e.
    ```
    Enter the Private interface for Flat DHCP on the Nova compute
    servers  [eth1]:
    ```

    Specify the private interface to provide DHCP services on the compute nodes.

    f.
    ```
    Enter the Nova network manager
    [nova.network.manager.FlatDHCPManager]:
    ```

    Replace the final term *Manager* In the expression **nova.network.manager.*Manager***, with *VlanManager*, *FlatManager*, or *FlatDHCPManager*. Flat DHCP is the default.

    g.
    ```
    Enter the Public interface on the Nova network server
    [eth0]:
    ```

    Specify a public interface to use for connections from other nodes and clients. Examples: eth0 or plp1

h.
```
Enter the Private interface for Flat DHCP on the Nova network
server  [eth1]:
```

Specify the private interface to provide DHCP services on the compute network server.

i.
```
Enter the IP Range for network manager [192.168.32.0/22]:
```

All compute instances are automatically assigned a private IP address. Specify the range from which these private IP addresses must be assigned.

j.
```
Enter the IP Range for Floating IP's [10.3.4.0/22]:
```

Compute instances can optionally be assigned publicly accessible *floating* IP addresses. Specify the range from which floating IP addresses will be assigned.

k.
```
What should the default floating pool be called?  [nova]:
```

l.
```
Should new instances automatically have a floating IP
assigned? [y|n]  [n] :
```

All compute instances are assigned an internal IP address. Enter **y** to automatically assign floating point IP addresses (external addresses).

26.
```
Would you like to set up Horizon communication over https [y|n]
[n] :
```

By default, the dashboard (horizon) is only set up with HTTP access; however, you can also set up secure HTTPS communication.

27. When Packstack installs OpenStack Networking, it creates the OpenStack Networking service database and a **neutron** user. OpenStack Networking accesses the Identity service (keystone) as the **neutron** user.

a.
```
Enter the password for the Neutron Keystone access :
Enter the password for Neutron DB access :
```

b.
```
Enter the ovs bridge the Neutron L3 agent will use for
external traffic, or 'provider' if using provider networks.
[br-ex] :
```

The Neutron L3 agent uses this OpenStack Networking bridge for external traffic, giving the node it is running on access to external address (for example, the Internet). There is no specific naming convention but it is recommended to give the bridge a meaningful name. By default, the external bridge is named **br-ex**. If you intend to use a provider network to handle external traffic, enter the special value **provider**.

c.
```
Enter Neutron metadata agent password :
```

Specify the password for OpenStack Networking's metadata agent (proxies metadata requests from instances).

d.
```
Should Packstack install Neutron LBaaS [y|n]  [n] :
```

Specify whether to use Load Balancing as a Service; only use this for multi-node installations.

e.
```
Should Packstack install Neutron L3 Metering agent [y|n]  [n]
:
```

Specify whether L3 agents should be metered.

f.
```
Would you like to configure neutron FWaaS? [y|n]  [n] :
```

Specify whether to use OpenStack Networking's Firewall-as-a-Service.

g.
```
Enter a comma separated list of network type driver
entrypoints [local|flat|vlan|gre|vxlan]  [vxlan] :
```

Specify the network types from which OpenStack Networking can accept incoming traffic (port connections that support multi-segmented network environments).

h.
```
Enter the type of network to allocate for tenant networks
[local|vlan|gre|vxlan]  [vxlan] :
```

OpenStack Networking allocates tenant networks. Enter the type of network to allocate to the tenant networks.

The use of **`local`** tenant networks is recommended for all-in-one deployments. The use of **`vlan`** tenant networks is recommended for multi-node deployments. The Open vSwitch Neutron plugin supports GRE tunneling, and you can select **`gre`** as long as the installed kernel (version 2.6.32-431.el6.x86_64 or later) and Open vSwitch userspace support GRE tunneling too.

i.
```
Enter a comma separated ordered list of networking mechanism
driver entrypoints
[logger|test|linuxbridge|openvswitch|hyperv|ncs|arista|cisco_
nexus|l2population]  [openvswitch] :
```

Specify the L2 mechanism driver entry points.

j.
```
Enter a comma separated  list of physical_network names with
which flat networks can be created  [*] :
```

Specify a list of names for flat networks; use * to allow flat networks with arbitrary physical network names (default).

k.
```
Enter a comma separated list of physical_network names usable
for VLAN:
```

Specify a list of names for VLAN provider and tenant networks. The syntax is for a name is: *physical_network:vlan_min:vlan_max* or *physical_network*

l.
```
Enter a comma separated list of <tun_min>:<tun_max> tuples
enumerating ranges of GRE tunnel IDs that are available for
tenant network allocation:
```

Specify a list of *tun_min:tun_max* tuples enumerating ranges of GRE tunnel IDs that are available for tenant network allocation. A tuple must be an array with: tun_max +1 - tun_min > 1,000,000

m. `Enter a multicast group for VXLAN:`

The group value must be a multicast IP (v4 or v6) address. If not set, disables VXLAN from sending allocated broadcast traffic to this multicast group (disables multicast VXLAN mode).

n. `Enter a comma separated list of <vni_min>:<vni_max> tuples enumerating ranges of VXLAN VNI IDs that are available for tenant network allocation  [10:100] :`

Specify available VXLAN IDs; minimum value is 0; maximum value is 16777215.

o. `Enter the name of the L2 agent to be used with Neutron [linuxbridge|openvswitch]  [openvswitch] :`

p. `Enter a comma separated list of bridge mappings for the Neutron openvswitch plugin:`

Specify a list of bridge mappings for the OpenStack Networking Open vSwitch plugin. Each tuple in the list is expected to be in the format *PHYSICAL*:*BRIDGE*. Replace *PHYSICAL* with the name of a network, and replace *BRIDGE* with the name of the Open vSwitch bridge that will be used to connect to the network.

Continuing the example above, with physnet1 using the interface called "br-eth1", you could use the default option so physnet1 consists of VLANs 1 to 1000 on bridge br-eth1 (physnet1:br-eth1).

q. `Enter a comma separated list of OVS bridge:interface pairs for the Neutron openvswitch plugin:`

Specify a list of bridge interface pairs; the interface is added to the associated bridge.

r. `Enter interface with IP to override the default tunnel local_ip:`

Specify the interface for the OVS tunnel; Packstack uses this value to override the IP address used for tunnels on the hypervisor to the IP found on the specified interface (for example, **`eth1`**).

s. `Enter VXLAN UDP port number  [4789] :`

28. `Enter the IP address of the client server  [192.0.43.10] :`

Specify the IP address of the server on which to install the client tools. An "rc" file containing administrative credentials will also be created on this host.

29. `Would you like to set up Horizon communication over https [y|n] [n] :`

OpenStack uses the dashboard service (horizon) to provide a web-based user interface for accessing OpenStack services. Specifying **y** ensures that your access to the dashboard is encrypted.

30. When Packstack installs the Object Storage service, it creates the **swift** user (with which the Object Storage service accesses the Identity service).

    a. `Enter the password for the Swift Keystone access :`

    b. `Enter the Swift Storage devices e.g. /path/to/dev:`

    Specify a comma-separated list of devices for Object Storage to use for storage. Each entry must take the format */path/to/dev* (for example, **/dev/vdb**). Packstack does not create the filesystem, you must create it first. If the value is omitted, Packstack creates a loopback device for a test setup.

    c.
    ```
    Enter the number of swift storage zones, MUST be no bigger
    than the number of storage devices configured  [1] :
    ```

    Object Storage uses zones to ensure that each replica of a given object is stored separately. A zone might represent an individual disk drive or array, a server, all the servers in a rack, or even an entire data center. The number provided must not be bigger than the number of individual devices specified in the previous step.

    d.
    ```
    Enter the number of swift storage replicas, MUST be no bigger
    than the number of storage zones configured  [1] :
    ```

    Specify the number of replicas to keep of each object. Object Storage relies on replication to maintain the state of objects even in the event of a storage outage in one or more of the configured storage zones.

    A minimum of three (3) replicas is recommended to ensure a reasonable degree of fault tolerance in the object store. However, the number of replicas specified must not be greater than the number of storage zones because this would result in one or more of the zones containing multiple replicas of the same object.

    e. `Enter FileSystem type for storage nodes [xfs|ext4]  [ext4] :`

    Specify the file system type to be used by Object Storage. Packstack supports the use of either Ext4 or XFS file systems for object storage. The default and recommended choice is Ext4.

    f.
    ```
    Enter the size of the storage device (eg. 2G, 2000M,
    2000000K)  [2G] :
    ```

    Specify the size of the loopback file-storage device.

31. When Packstack installs the Orchestration service, it creates the Orchestration service database and a **heat** user. OpenStack Orchestration accesses the Identity service (keystone) as the **heat** user.

    a.
    ```
    Enter the password for the Heat MySQL user :
    Enter the password for the Heat Keystone access :
    ```

b.
```
Should Packstack install Heat CloudWatch API [y|n]  [n] :
Should Packstack install Heat CloudFormation API [y|n]  [n] :
```

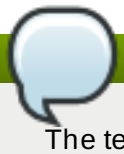
Specify whether the CloudWatch (metrics collection) and CloudFormation APIs should be installed . Orchestration provides compatibility with the AWS CloudFormation template format, so that many existing CloudFormation templates can be launched on OpenStack. Orchestration provides both an OpenStack-native REST API and a CloudFormation-compatible Query API.

c.
```
Enter name of Keystone domain for Heat  [heat] :
```

Specify where to place Orchestration stacks.

d.
```
Enter name of Keystone domain admin user for Heat
[heat_admin] :
Enter password for Keystone domain admin user for Heat :
```

32. Packstack can install the OpenStack Integration test suite, Tempest, for testing. Tempest runs tests using a simple configuration file that describes the test environment. The tests are run against all OpenStack service endpoints by exercising API calls and validating the responses.



Note

The testing environment can only be installed if OpenStack Networking is installed, together with namespaces.

a.
```
Would you like to provision for demo usage and testing? [y|n]
[y] :
```

Specify whether you would like install the testing suite.

b.
```
Would you like to configure Tempest (OpenStack test suite).
Note that provisioning is only supported for all-in-one
installations. [y|n]  [n] : n
```

c.
```
Enter the name of the Tempest Provisioning user (if blank,
Tempest will be configured in a standalone mode) :
Enter the password for the Tempest Provisioning user :
```

d.
```
Enter the network address for the floating IP subnet:
[192.168.32.0/22] :
```

Specify a network address for the demo floating IP subnet.

e.
```
Enter the URL or local file location for the Cirros image
[http://download.cirros-cloud.net/0.3.3/cirros-0.3.3-x86_64-
disk.img] :
```

Specify the URL of an image to be automatically uploaded into the Image service for use by instances.

f.
```
What is the uri of the Tempest git repository?
[https://github.com/openstack/tempest.git] :
```

g.
```
What revision, branch, or tag of the Tempest git repository
should be used  [master] :
```

h.
```
Would you like to configure the external ovs bridge? [y|n]
[n] :
```

For the demo user and testing, would you like to configure the external OVS bridge.

33.
```
Enter the password for the Ceilometer Keystone access :
```

When Packstack installs the Telemetry service, it creates the **ceilometer** user, with which it accesses the Identity service (keystone). Specify the access password for the **ceilometer** user:

34.
```
Enter the IP address of the MongoDB server  [192.0.43.10] :
Enter the IP address of the redis server  [192.0.43.10] :
Enter the port of the redis server  [6379] :
```

The MongoDB and Redis servers are used for clustering and replication support for OpenStack Database-as-a-Service (trove).

35.
```
Enter the password for the nagiosadmin user :
```

36. At this point, you are asked to confirm the deployment details that you provided. Type **yes** and press **Enter** to continue with the deployment. For example:

Important

To change parameter values, you can:

- Specify **no**; the installation starts again from **Step 1**, but this time the displayed defaults are the ones you had previously entered. You can now change the values of the parameters and continue with the installation.
- Specify **yes**, and hit Ctrl-C after the installation begins. You can then modify the parameters in the answer file (**packstack-answers-xxxx.txt**) and re-run Packstack using the following command:

```
# packstack --answer-file=packstack-answers-xxxx.txt
```

Deployment time can be significant; Packstack provides continuous updates indicating which manifests are being deployed as it progresses. Once the process is completed, a confirmation message similar to the one below is displayed (depending on the options you chose):

```
**** Installation completed successfully ******
Additional information:
* A new answerfile was created in: /root/packstack-answers-
20130613-133303.txt
* Time synchronization installation was skipped. Please note that
unsynchronized time on server instances might be problem for some
OpenStack components.
* To use the command line tools you need to source the file
/root/keystonerc_admin created on 192.0.43.10
* To use the console, browse to http://192.0.43.10/dashboard
* To use Nagios, browse to http://192.0.43.10/nagios username :
nagiosadmin, password: abcdefgh12345678
* Kernel package with netns support has been installed on host
192.0.43.10. Because of the kernel update host mentioned above
requires reboot.
* The installation log file is available at:
/var/tmp/packstack/20130613-133302-5UY8KB/openstack-setup.log
```

You have successfully deployed an OpenStack environment using Packstack. For next steps, see Chapter 4, *Using OpenStack*.

Warning

The answer file contains a number of required configuration values, including administrative passwords. It is recommended that you store the answer file in a secure location.

Unless specified, passwords are also generated for each service; for a complete password listing and update commands, refer to Appendix B, *Passwords*.

3.3. Running Packstack Non-Interactively

You can run Packstack non-interactively by providing your configuration options in a text file (referred to as an answer file), instead of using standard input.

Important

Red Hat Enterprise Linux OpenStack Platform requires that each system in the OpenStack environment run Red Hat Enterprise Linux Server; all systems must be signed up to receive updates from Red Hat Network using Subscription Manager.

To allow Packstack to install OpenStack on each node, you can use either of the following:

- You can **ssh** into each node, register it with Red Hat Network, attach an OpenStack subscription, and enable the required repositories (for information on registering, see Section 2.1.2, “Software Repositories”).
- You can put your Red Hat subscription username and password into the answers file, using the parameters **CONFIG_RH_USER** and **CONFIG_RH_PW**. Running Packstack with this answer file configures each node to receive updates from Red Hat Network using Subscription Manager.

Procedure 3.3. Deploy OpenStack using an Answer File

1. **Install the Packstack utility**

```
# yum install openstack-packstack
```

2. **Generate the default file**

Generate the default answer file. For example:

```
$ packstack --gen-answer-file=ANSWER_FILE.txt
```

3. **Edit the file**

Edit the answer file with your desired configuration values. For file parameters, see Appendix A, *Answer File Configuration Keys*.

4. **Run Packstack using the file**

Use the answer file to install OpenStack:

```
$ packstack --answer-file=ANSWER_FILE.txt
```

Deployment time can be significant; Packstack provides continuous updates indicating which manifests are being deployed as it progresses. Once the process is completed, a confirmation message similar to the one below is displayed (depending on the options you chose):

```
**** Installation completed successfully ******
Additional information:
* To use the command line tools you need to source the file
/root/keystonerc_admin created on 192.0.43.10
* To use the console, browse to http://192.0.43.10/dashboard
* To use Nagios, browse to http://192.0.43.10/nagios username :
nagiosadmin, password: abcdefgh12345678
* Kernel package with netns support has been installed on host
192.0.43.10. Because of the kernel update host mentioned above requires
reboot.
* The installation log file is available at:
/var/tmp/packstack/20150613-133302-5UY8KB/openstack-setup.log
```

You have successfully deployed an OpenStack environment using Packstack. For next steps, see Chapter 4, *Using OpenStack*.

Warning

The answer file contains a number of required configuration values, including administrative passwords. It is recommended that you store the answer file in a secure location.

Unless specified, passwords are also generated for each service; for a complete password listing and update commands, refer to Appendix B, *Passwords*.

Chapter 4. Using OpenStack

Congratulations! You have now deployed your Red Hat Enterprise Linux OpenStack Platform environment.

You can now access your OpenStack environment using the following logins:

- **admin** user, who has administrative permissions for the cloud (**admin** role). The **admin** user's password is stored in the **/root/keystonerc_admin** file, as well as in Packstack's answer file (**CONFIG_KEYSTONE_ADMIN_PW**).
- **demo** user, who has basic end-user permissions (**_member_** role). The demo user's password is stored in its associated **/root/keystonerc_demo** file and in Packstack's answer file (**CONFIG_KEYSTONE_DEMO_PW**). The demo environment is created by default unless you specified otherwise.

Note

If automatically generated, Packstack's answer file has a file name similar to **/root/packstack-answers-*20150306-051043*.txt**.

4.1. View the Dashboard

The OpenStack dashboard is a web-based graphical user interface for managing OpenStack services. To access the browser dashboard, use:

```
http://HOSTNAME/dashboard/
```

Replace *HOSTNAME* with the host name or IP address of the server on which you installed the dashboard service (cloud controller).

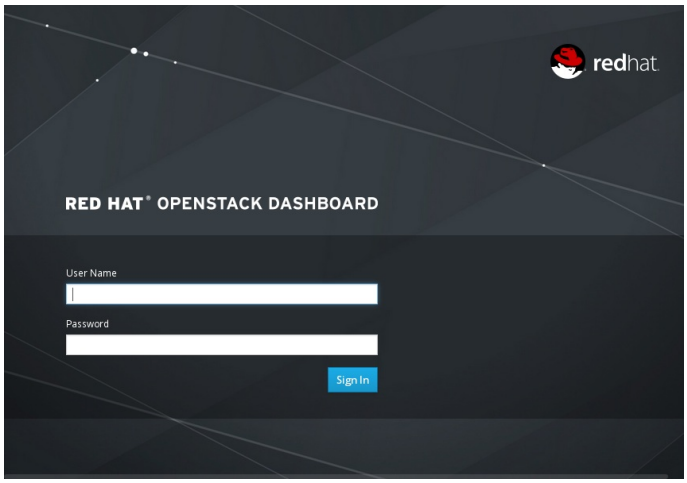


Figure 4.1. Dashboard login screen

4.2. Next Steps

Here are a couple steps you can take next:

- Launch an instance - See https://access.redhat.com/articles/1249993
- Set up an external network - See https://access.redhat.com/articles/1146173

For a full list of all documentation, see https://access.redhat.com/site/documentation/en-US/Red_Hat_Enterprise_Linux_OpenStack_Platform/.

Chapter 5. Removing Packstack Deployments

There is no automated uninstall process for undoing a Packstack install. If you have a previously installed version of OpenStack, you must uninstall it before re-installing with Packstack.

Important

- These procedures must be carried out on all OpenStack hosts as a root user.
- Some procedural commands can give errors if the information which the script is attempting to delete was not created in the first place.

5.1. Completely remove OpenStack, application data, and all packages

To completely uninstall a deployment made using Packstack, including all application data and all packages which are installed on a base system, copy the following script into a file and run it.

Warning

This script removes packages including Puppet, httpd, Nagios and others which you may require for other packages. The script also deletes all MySQL databases and Nagios application data.

```
#!/usr/bin/bash
# Warning! Dangerous step! Destroys VMs
for x in $(virsh list --all | grep instance- | awk '{print $2}') ; do
    virsh destroy $x ;
    virsh undefine $x ;
done ;

# Warning! Dangerous step! Removes lots of packages, including many
# which may be unrelated to RDO.
yum remove -y nrpe "*nagios*" puppet ntp ntp-perl ntpdate "*openstack*"
\
"*nova*" "*keystone*" "*glance*" "*cinder*" "*swift*" \
mysql mysql-server httpd "*memcache*" scsi-target-utils \
iscsi-initiator-utils perl-DBI perl-DBD-MySQL ;

ps -ef | grep -i repli | grep swift | awk '{print $2}' | xargs kill ;

# Warning! Dangerous step! Deletes local application data
rm -rf /etc/nagios /etc/yum.repos.d/packstack_* /root/.my.cnf \
/var/lib/mysql/ /var/lib/glance /var/lib/nova /etc/nova /etc/swift \
/srv/node/device*/* /var/lib/cinder/ /etc/rsync.d/frag* \
/var/cache/swift /var/log/keystone ;

umount /srv/node/device* ;
killall -9 dnsmasq tgtd httpd ;
setenforce 1 ;
```

```
vgremove -f cinder-volumes ;
losetup -a | sed -e 's/:.*//g' | xargs losetup -d ;
find /etc/pki/tls -name "ssl_ps*" | xargs rm -rf ;
for x in $(df | grep "/lib/" | sed -e 's/.* //g') ; do
    umount $x ;
done
```

5.2. Remove only OpenStack-specific application data and packages

To uninstall only OpenStack-specific application data and packages, copy the following script into a file and run it.

Important

After running this script, there will still be some OpenStack-related data left behind.

```
#!/usr/bin/bash
# Warning! Dangerous step! Destroys VMs
for x in $(virsh list --all | grep instance- | awk '{print $2}') ; do
    virsh destroy $x ;
    virsh undefine $x ;
done ;

yum remove -y "*openstack*" "*nova*" "*keystone*" "*glance*" "*cinder*"
"*swift*" "*rdo-release*";

# Optional - makes database cleanup cleaner.
# If you do this bit, the database cleanup stuff below is superfluous.
# yum remove -y "*mysql*"

ps -ef | grep -i repli | grep swift | awk '{print $2}' | xargs kill ;

rm -rf  /etc/yum.repos.d/packstack_* /var/lib/glance /var/lib/nova
/etc/nova /etc/swift \
/srv/node/device*/* /var/lib/cinder/ /etc/rsync.d/frag* \
/var/cache/swift /var/log/keystone /tmp/keystone-signing-nova ;

# Ensure there is a root user and that we know the password
service mysql stop
cat > /tmp/set_mysql_root_pwd << EOF
UPDATE mysql.user SET Password=PASSWORD('MyNewPass') WHERE User='root';
FLUSH PRIVILEGES;
EOF

# mysql cleanup
/usr/bin/mysqld_safe --init-file=/tmp/set_mysql_root_pwd &
rm /tmp/set_mysql_root_pwd
mysql -uroot -pMyNewPass -e "drop database nova; drop database cinder;
drop database keystone; drop database glance;"

umount /srv/node/device* ;
vgremove -f cinder-volumes ;
```

```
losetup -a | sed -e 's/:.*//g' | xargs losetup -d ;
find /etc/pki/tls -name "ssl_ps*" | xargs rm -rf ;
for x in $(df | grep "/lib/" | sed -e 's/.* //g') ; do
    umount $x ;
done
```

Answer File Configuration Keys

You can edit Packstack answer files in any text editor; lines preceded with a # character are ignored.

Note

For command-line equivalents, see the "Command-Line Interface Reference"- https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux_OpenStack_Platform/.

The following table provides available configuration keys; specify configuration values using the syntax: **KEY=VALUE**. Keys are listed in the order they appear in the default answer file.

Table A.1. Answer file configuration keys

Key	Default Value	Description
CONFIG_SSH_KEY	*/root/.ssh/id_rsa.pub*	Path to a public key to install on servers. If a usable key has not been installed on the remote servers, you will be prompted for a password and this key will be installed so the password will not be required again.
CONFIG_DEFAULT_PASSWORD		Default password to be used everywhere (overridden by passwords set for individual services or users).
CONFIG_MARIADB_INSTALL	*y*	Specify **y** to have Packstack install MariaDB. If you specify **n**, Packstack asks you for credentials and uses **CONFIG_MARIADB_HOST** as the database. Packstack is only capable of installing a single MariaDB database node. Although Packstack does not handle MariaDB cluster installation, it does allow you to work with a MariaDB cluster that you have set up separately.
CONFIG_GLANCE_INSTALL	*y*	Specify **y** if you would like Packstack to install the Image service.
CONFIG_CINDER_INSTALL	*y*	Specify **y** if you would like Packstack to install the Volume service.
CONFIG_NOVA_INSTALL	*y*	Specify **y** if you would like Packstack to install the Compute service.
CONFIG_NEUTRON_INSTALL	*y*	Specify **y** if you would like Packstack to install the OpenStack Networking service.
CONFIG_HORIZON_INSTALL	*y*	Specify **y** if you would like Packstack to install the dashboard service.
CONFIG_SWIFT_INSTALL	*y*	Specify **y** if you would like Packstack to install the Object Storage service.
CONFIG_CEILOMETER_INSTALL	*y*	Specify **y** if you would like Packstack to install the Telemetry service.

Key	Default Value	Description
CONFIG_HEAT_INSTALL	*n*	Specify **y** if you would like Packstack to install the Orchestration service.
CONFIG_CLIENT_INSTALL	*y*	Specify **y** if you would like Packstack to install the OpenStack client packages (command-line tools). An admin "rc" file will also be installed.
CONFIG_NTP_SERVERS		Comma-separated list of NTP servers. Leave empty if Packstack should not install NTPD on instances.
CONFIG_NAGIOS_INSTALL	*y*	Specify **y** if you would like to install Nagios. Nagios provides additional tools for monitoring the OpenStack environment.
EXCLUDE_SERVERS		Comma-separated list of servers to be excluded from configuration. This is helpful if you have existing servers that have been configured previously (for example, you have already run packstack), and you do not want Packstack to overwrite their configurations. Leave empty if you do not need to exclude any servers.
CONFIG_DEBUG_MODE	*n*	Specify **y** if you want to run OpenStack services in debug mode; otherwise, leave the **n** default.
CONFIG_CONTROLLER_HOST	*HOST IP*	IP address of the server on which to install OpenStack services specific to the controller role (for example, API servers, Object Storage, or the dashboard).
CONFIG_COMPUTE_HOSTS	*HOST IP*	List of IP addresses of the servers on which to install the Compute service.
CONFIG_NETWORK_HOSTS	*HOST IP*	List of IP addresses of the servers on which to install the networking service (OpenStack Networking (neutron) or Compute networking (nova-networking)). Networking API and LBAAS services will still be installed on the controller host.
CONFIG_VMWARE_BACKEND	*n*	Set to **y** if you want to use the VMware vCenter as hypervisor and storage; otherwise, leave the **n** default.
CONFIG_UNSUPPORTED	*n*	Enables the use of unsupported parameters. Currently only for development; only use if you know what you are doing.
CONFIG_VCENTER_HOST		IP address of the VMware vCenter server.
CONFIG_VCENTER_USER		User name for VMware vCenter server authentication.
CONFIG_VCENTER_PASSWORD		Password for VMware vCenter server authentication.
CONFIG_VCENTER_CLUSTER_NAME		The name of the VMware vCenter cluster.
CONFIG_USE_EPEL	*n*	To subscribe each server to the EPEL upstream repository (Extra Packages for Enterprise Linux), specify *y*.
CONFIG_REPO		A comma-separated list of URLs to any additional yum repositories, to use for installation.

Key	Default Value	Description
CONFIG_RH_USER		To subscribe each server with Red Hat Subscription Manager, include this with **CONFIG_RH_PW**.
CONFIG_RH_PW		To subscribe each server with Red Hat Subscription Manager, include this with **CONFIG_RH_USER**.
CONFIG_RH_OPTIONAL	*y*	To enable Red Hat Enterprise Linux optional repositories, specify **y**.
CONFIG_RH_PROXY		HTTP proxy to use with Red Hat subscription manager.
CONFIG_RH_PROXY_PORT		Port to use for Red Hat subscription manager's HTTP proxy.
CONFIG_RH_PROXY_USER		User to use for Red Hat subscription manager's HTTP proxy.
CONFIG_RH_PROXY_PW		Password to use for Red Hat subscription manager's HTTP proxy.
CONFIG_SATELLITE_URL		To subscribe each server to receive updates from a Satellite server, provide the URL of the Satellite server. You must also provide a user name (**CONFIG_SATELLITE_USERNAME**) and password (**CONFIG_SATELLITE_PASSWORD**) or an access key (**CONFIG_SATELLITE_AKEY**) for authentication.
CONFIG_SATELLITE_USER		User name for the Satellite server; if you intend to use an access key for Satellite authentication, leave this configuration key blank.
CONFIG_SATELLITE_PW		Password for the Satellite server; if you intend to use an access key for Satellite authentication, leave this configuration key blank.
CONFIG_SATELLITE_AKEY		Access key for the Satellite server; if you intend to use a user name and password for Satellite authentication, leave this configuration key blank.
CONFIG_SATELLITE_CACERT		Certificate path of the certificate authority to verify that the connection with the Satellite server is secure. Leave blank if you are not using Satellite in your deployment.
CONFIG_SATELLITE_PROFILE		Profile name to use as an identifier in the Satellite system, if required.
CONFIG_SATELLITE_FLAGS		Additional Satellite flags to be passed to the **rhnreg_ks** command. This configuration key accepts a comma-separated list of flags. Valid flags are **novirtinfo**, **norhnsd**, and **nopackages**. See the *Red Hat Satellite* documentation for more information.
CONFIG_SATELLITE_PROXY		HTTP proxy to use when connecting to the Satellite server, if required.
CONFIG_SATELLITE_PROXY_USER		User name to authenticate with the HTTP proxy that must be used when connecting to the Satellite server, if required.

Key	Default Value	Description
CONFIG_SATELLITE_PROXY_PW		Password to authenticate with the HTTP proxy server that must be used when connecting to the Satellite server, if required.
CONFIG_AMQP_BACKEND	*rabbitmq*	AMQP service (broker) to use as the backend. Supported values are: **qpid** or **rabbitmq**.
CONFIG_AMQP_HOST	*HOST IP*	IP address of the server on which to install the AMQP service.
CONFIG_AMQP_ENABLE_SSL	*n*	Specify **y** to enable SSL for the AMQP service.
CONFIG_AMQP_ENABLE_AUTH	*n*	Specify **y** to enable authentication for the AMQP service.
CONFIG_AMQP_NSS_CERTDB_PW		Password for the NSS certificate database of the AMQP service.
CONFIG_AMQP_SSL_PORT	*5671*	Port on which the AMQP service listens for SSL connections.
CONFIG_AMQP_SSL_CERT_FILE	*/etc/pki/tls/certs/amqp_selfcert.pem*	File name of the certificate that the AMQP service is going to use.
CONFIG_AMQP_SSL_KEY_FILE	*/etc/pki/tls/private/amqp_selfkey.pem*	File name of the private key that the AMQP service is going to use.
CONFIG_AMQP_SSL_SELF_SIGNED	*y*	Specify **y** to automatically generate an SSL certificate and key.
CONFIG_AMQP_AUTH_USER	*amqp_user*	User for AMQP authentication.
CONFIG_AMQP_AUTH_PASSWORD		Password for AMQP authentication.
CONFIG_MARIADB_HOST	*HOST IP*	IP address of the server on which to install MariaDB or, alternatively, the IP address of the DB server to use if MariaDB installation was not selected.
CONFIG_MARIADB_USER	*root*	User name for the MariaDB administrative user.
CONFIG_MARIADB_PW	Randomly generated	Password for the MariaDB administrative user.
CONFIG_KEYSTONE_DB_PW	Randomly generated	Password to use for Identity to access the database.
CONFIG_KEYSTONE_REGION	*RegionOne*	Default region to use when creating tenants in the Identity service.
CONFIG_KEYSTONE_ADMIN_TOKEN	Randomly generated	Token to use for the Identity service API.
CONFIG_KEYSTONE_ADMIN_PW	Randomly generated	Password to use for the Identity administrative user.
CONFIG_KEYSTONE_DEMO_PW	Randomly generated	Password to use for the demo tenant. Only used if CONFIG_PROVISION_DEMO=**y**
CONFIG_KEYSTONE_TOKEN_FORMAT	*UUID*	Packstack allows a choice of the token format to be used by the Identity service. Supported values are: **PKI** or **UUID**. The recommended format for new deployments is UUID.
CONFIG_KEYSTONE_SERVICE_NAME	*keystone*	Name of service to use to run the Identity service. Supported values are: **keystone** or **httpd**.
CONFIG_GLANCE_DB_PW	Randomly generated	Password to use for the Image service to access its database.

Key	Default Value	Description
CONFIG_GLANCE_KS_PW	Randomly generated	Password to use for the Image service to authenticate with the Identity service.
CONFIG_GLANCE_BACKEND	*file*	Controls how the Image service stores disk images. Supported values are: **file** or **swift**. The Object Storage service (swift) must be enabled to use it as a working backend; otherwise, Packstack falls back to 'file'.
CONFIG_CINDER_DB_PW	Randomly generated	Password to use for the Block Storage service to access its database.
CONFIG_CINDER_KS_PW	Randomly generated	The password to use for the Block Storage service to authenticate with the Identity service.
CONFIG_CINDER_BACKEND	*lvm*	Backend to use for the Block Storage service. Supported values are: **lvm, gluster, nfs**.
CONFIG_CINDER_VOLUMES_CREATE	*y*	Packstack expects storage for use with the Block Storage service to be available on a volume group named **cinder-volumes**. If **y** is specified and this volume group does not already exist, Packstack creates it. That is, Packstack creates a raw disk image in the **/var/lib/cinder** and mounts it for use by the Block Storage service using a loopback device. This should only be used for testing on a proof-of-concept installation of the Block Storage service (a file-backed volume group is not suitable for production usage).
CONFIG_CINDER_VOLUMES_SIZE	*20G*	If you elected to have Packstack create the **cinder-volumes** volume group (CONFIG_CINDER_VOLUMES_CREATE=y), you must to provide its desired size in gigabytes (GB). Actual volume size will be extended with 3% more space for VG metadata. **Important** - Remember that the size of the volume group will restrict the amount of disk space that you can expose to Compute instances. - The amount of space selected for **CONFIG_CINDER_VOLUMES_SIZE** must be available on the device used for **/var/lib/cinder**.
CONFIG_CINDER_GLUSTER_MOUNTS		A single or comma-separated list of gluster volume shares to mount. Example: ip-address:/vol-name, domain:/vol-name

Key	Default Value	Description
CONFIG_CINDER_NFS_MOUNTS		A single or comma-separated list of NFS exports to mount. Example: ip-address:/export-name
CONFIG_CINDER_NETAPP_LOGIN		Administrative user account name used to access the storage system or proxy server. Required.
CONFIG_CINDER_NETAPP_PASSWORD		Password for the administrative user account specified in the CONFIG_CINDER_NETAPP_LOGIN parameter. Required.
CONFIG_CINDER_NETAPP_HOSTNAME		Hostname (or IP address) for the storage system or proxy server. Required.
CONFIG_CINDER_NETAPP_SERVER_PORT	*80*	TCP port to use for communication with ONTAPI on the storage system. Traditionally, port 80 is used for HTTP and port 443 is used for HTTPS. However, this value should be changed if an alternate port has been configured on the storage system or proxy server. Optional.
CONFIG_CINDER_NETAPP_STORAGE_FAMILY	*ontap_cluster*	The storage family type used on the storage system (optional); supported values are: - **ontap_7mode** - Using Data ONTAP operating in 7-Mode. - **ontap_cluster** - Using clustered Data ONTAP. - **eseries** - Using NetApp E-Series.
CONFIG_CINDER_NETAPP_TRANSPORT_TYPE	*http*	Transport protocol used when communicating with ONTAPI on the storage system or proxy server. Valid values are http or https. Optional.
CONFIG_CINDER_NETAPP_STORAGE_PROTOCOL	*nfs*	Storage protocol to be used on the data path with the storage system; supported values are: **iscsi** or **nfs**. Optional.
CONFIG_CINDER_NETAPP_SIZE_MULTIPLIER	*1.0*	Quantity to be multiplied by the requested volume size to ensure enough space is available on the virtual storage server (Vserver) to fulfill the volume-creation request. Optional.
CONFIG_CINDER_NETAPP_EXPIRY_THRES_MINUTES	*720*	Time period (in minutes) that is allowed to elapse after the image is last accessed, before it is deleted from the NFS image cache. When a cache-cleaning cycle begins, images in the cache that have not been accessed in the last M minutes, where M is the value of this parameter, are deleted from the cache to create free space on the NFS share. Optional.
CONFIG_CINDER_NETAPP_THRES_AVL_SIZE_PERC_START	*20*	If the percentage of available space for an NFS share has dropped below the value specified by this parameter, the NFS image cache is cleaned. Optional.

Key	Default Value	Description
CONFIG_CINDER_NETAPP_THRES_AVL_SIZE_PERC_STOP	*60*	When the percentage of available space on an NFS share has reached the percentage specified by this parameter, the driver stops clearing files from the NFS image cache that have not been accessed in the last M minutes, where M is the value of the **CONFIG_CINDER_NETAPP_EXPIRY_THRES_MINUTES** parameter. Optional.
CONFIG_CINDER_NETAPP_NFS_SHARES_CONFIG		File with the list of available NFS shares. Optional.
CONFIG_CINDER_NETAPP_VOLUME_LIST		Restricts provisioning to the specified controller volumes; the value must be a comma-separated list of NetApp controller volume names. This parameter is only utilized when the storage protocol is configured to use iSCSI. Optional.
CONFIG_CINDER_NETAPP_VFILER		vFiler unit on which block storage volumes will be provisioned. This parameter is only used by the driver when connecting to an instance with a storage family of Data ONTAP operating in 7-Mode and the storage protocol is iSCSI. Only use this parameter when utilizing the MultiStore feature on the NetApp storage system. Optional.
CONFIG_CINDER_NETAPP_VSERVER		Specifies the virtual storage server (Vserver) name on the storage cluster on which provisioning of Block Storage volumes should occur; the exports belonging to the Vserver are only used for provisioning in the future. Block Storage volumes on exports not belonging to the Vserver specified by this parameter will continue to function normally. If using the NFS storage protocol, this parameter is mandatory for storage service catalog support (utilized by Block Storage volume type extra_specs support); otherwise, the parameter is optional.
CONFIG_CINDER_NETAPP_CONTROLLER_IPS		Restricts provisioning to the specified controllers. Value must be a comma-separated list of controller hostnames or IP addresses to be used for provisioning. This option is only utilized when the storage family is configured to E-Series. Optional.
CONFIG_CINDER_NETAPP_SA_PASSWORD		Password for the NetApp E-Series storage array. Optional.
CONFIG_CINDER_NETAPP_WEBSERVICE_PATH	*/devmgr/v2*	Path to the E-Series proxy application on a proxy server. The value is combined with the value of the **CONFIG_CINDER_NETAPP_TRANSPORT_TYPE**, **CONFIG_CINDER_NETAPP_HOSTNAME**, and **CONFIG_CINDER_NETAPP_HOSTNAME** options to create the URL used by the driver to connect to the proxy application. Optional.

Key	Default Value	Description
CONFIG_CINDER_NETAPP_STORAGE_POOLS		Restricts provisioning to the specified storage pools. Only dynamic disk pools are currently supported. Value is comma-separated list of disk pool names to be used for provisioning. Optional.
CONFIG_NOVA_DB_PW	Randomly generated	Password to use for Compute to access the database.
CONFIG_NOVA_KS_PW	Randomly generated	Password to use for Compute to authenticate with Identity.
CONFIG_NOVA_SCHED_CPU_ALLOC_RATIO	*16.0*	Overcommitment ratio for virtual to physical CPUs. Specify 1.0 to disable CPU overcommitment.
CONFIG_NOVA_SCHED_RAM_ALLOC_RATIO	*1.5*	Overcommitment ratio for virtual to physical RAM. Specify 1.0 to disable RAM overcommitment.
CONFIG_NOVA_COMPUTE_MIGRATE_PROTOCOL	*tcp*	Protocol used for instance migration. Supported values: **tcp** or **ssh**. Note that by default, the nova user is created with /sbin/nologin shell so that the ssh protocol will not work. To make the ssh protocol work, you must fix the nova user on compute hosts manually.
CONFIG_NOVA_COMPUTE_PRIVIF	*eth1*	Private interface for Flat DHCP on the Compute servers.
CONFIG_NOVA_NETWORK_MANAGER	*nova.network.manager.FlatDHCPManager*	Compute Network Manager.
CONFIG_NOVA_NETWORK_PUBIF	*eth0*	Public interface on the Compute network server.
CONFIG_NOVA_NETWORK_PRIVIF	*eth1*	Private interface for Flat DHCP on the Compute network server.
CONFIG_NOVA_NETWORK_FIXEDRANGE	*HOST IP/22*	IP Range for Flat DHCP.
CONFIG_NOVA_NETWORK_FLOATRANGE	*10.3.4.0/22*	IP Range for Floating IP addresses.
CONFIG_NOVA_NETWORK_DEFAULTFLOATINGPOOL	*nova*	Name of the default floating pool to which the specified floating ranges are added.
CONFIG_NOVA_NETWORK_AUTOASSIGNFLOATINGIP	*n*	Automatically assign a floating IP to new instances.
CONFIG_NOVA_NETWORK_VLAN_START	*100*	First VLAN for private networks.
CONFIG_NOVA_NETWORK_NUMBER	*1*	Number of networks to support.
CONFIG_NOVA_NETWORK_SIZE	*255*	Number of addresses in each private subnet.
CONFIG_NEUTRON_USE_NAMESPACES	*y*	Enable network namespaces for OpenStack Networking.
CONFIG_NEUTRON_KS_PW	Randomly generated	The password to use for OpenStack Networking to authenticate with Identity.
CONFIG_NEUTRON_DB_PW	Randomly generated	The password to use for OpenStack Networking to access its database.

Key	Default Value	Description
CONFIG_NEUTRON_L3_EXT_BRIDGE	*br-ex*	The name of the bridge that the OpenStack Networking L3 agent will use for external traffic. Use **provider** if you intend to use a provider network to handle external traffic.
CONFIG_NEUTRON_L2_PLUGIN	*ml2*	The name of the L2 plugin to be used with OpenStack Networking (for example, linuxbridge, openvswitch, or ml2).
CONFIG_NEUTRON_METADATA_PW	Randomly generated	Password for the OpenStack Networking metadata agent.
CONFIG_LBAAS_INSTALL	*n*	Specify **y** if you would like Packstack to install OpenStack Networking LBaaS.
CONFIG_NEUTRON_METERING_AGENT_INSTALL	*n*	Specify **y** if you would like Packstack to install OpenStack Networking Metering agent.
CONFIG_NEUTRON_FWAAS	*n*	Specify **y** if you would like to configure OpenStack Networking's firewall as a service.
CONFIG_NEUTRON_ML2_TYPE_DRIVERS	*vxlan*	A comma-separated list of network-type driver entry points to be loaded from the **neutron.ml2.type_drivers** namespace.
CONFIG_NEUTRON_ML2_TENANT_NETWORK_TYPES	*vxlan*	A comma-separated ordered list of network types to allocate as tenant networks. The value **local** is only useful for single-box testing but provides no connectivity between hosts.
CONFIG_NEUTRON_ML2_MECHANISM_DRIVERS	*openvswitch*	A comma-separated ordered list of networking mechanism driver entry points to be loaded from the **neutron.ml2.mechanism_drivers** namespace.
CONFIG_NEUTRON_ML2_FLAT_NETWORKS	*	A comma-separated list of physical_network names with which flat networks can be created. Use ***** to allow flat networks with arbitrary physical network names.
CONFIG_NEUTRON_ML2_VLAN_RANGES		A comma-separated list of **physical_network:vlan_min:vlan_max** or **physical_network** specifying physical_network names usable for VLAN provider and tenant networks, as well as ranges of VLAN tags on each available for allocation to tenant networks.
CONFIG_NEUTRON_ML2_TUNNEL_ID_RANGES		A comma-separated list of **tun_min:tun_max** tuples enumerating ranges of GRE tunnel IDs that are available for tenant network allocation. It must be an array with tun_max +1 - tun_min > 1,000,000
CONFIG_NEUTRON_ML2_VXLAN_GROUP		Multicast group for VXLAN. If not set, disables VXLAN from sending allocated broadcast traffic to this multicast group. If left blank, disables multicast VXLAN mode. Must be a Multicast IP (v4 or v6) address.
CONFIG_NEUTRON_ML2_VNI_RANGES	*10:100*	A comma-separated list of **vni_min:vni_max** tuples enumerating ranges of VXLAN VNI IDs that are available for tenant network allocation. Minimum value is 0; maximum value is 16777215.
CONFIG_NEUTRON_L2_AGENT	*openvswitch*	The name of the L2 agent to be used with OpenStack Networking.

Key	Default Value	Description
CONFIG_NEUTRON_LB_TENANT_NETWORK_TYPE	*local*	Type of network to allocate for tenant networks. Supported values are: **local** or **vlan**. For multi-node deployments, **vlan** is recommended.
CONFIG_NEUTRON_LB_VLAN_RANGES		A comma-separated list of VLAN ranges for the OpenStack Networking linuxbridge plugin. Each tuple in the list is expected to be in the format *PHYSICAL*:*START*:*END*. Replace *PHYSICAL* with the name of a physical network, replace *START* with the start of the VLAN range to identify with it, and replace *END* with the end of the VLAN range to associate with it. Example: **physnet1:1:4094,physnet2,physnet3:3000:3999**
CONFIG_NEUTRON_LB_INTERFACE_MAPPINGS		A comma-separated list of interface mappings for the OpenStack Networking linuxbridge plugin. Each tuple in the list is expected to be in the format *PHYSICAL*:*INTERFACE*. Replace *PHYSICAL* with the name of a physical network, and replace *INTERFACE* with the name of the network interface that will be used to connect to the physical network.
CONFIG_NEUTRON_OVS_TENANT_NETWORK_TYPE	*vxlan*	Type of network to allocate for tenant networks. Supported values are: **vlan, local, gre, vxlan**.
CONFIG_NEUTRON_OVS_VLAN_RANGES		A comma-separated list of VLAN ranges for the OpenStack Networking openvswitch plugin. Each tuple in the list is expected to be in the format *PHYSICAL*:*START*:*END*. Replace *PHYSICAL* with the name of a physical network, replace *START* with the start of the VLAN range to identify with it, and replace *END* with the end of the VLAN range to associate with it Example: **physnet1:1:4094,physnet2,physnet3:3000:3999**
CONFIG_NEUTRON_OVS_BRIDGE_MAPPINGS		A comma-separated list of bridge mappings for the OpenStack Networking openvswitch plugin. Each tuple in the list is expected to be in the format *PHYSICAL*:*BRIDGE*. Replace *PHYSICAL* with the name of a physical network, and replace *BRIDGE* with the name of the Open vSwitch bridge that will be used to connect to the physical network. Example: **physnet1:br-eth1,physnet2:br-eth2,physnet3:br-eth3**
CONFIG_NEUTRON_OVS_BRIDGE_IFACES		A comma-separated list of colon-separated Open vSwitch bridge:interface pairs. The interface will be added to the associated bridge.
CONFIG_NEUTRON_OVS_TUNNEL_RANGES		A comma-separated list of tunnel ranges for the OpenStack Networking openvswitch plugin.
CONFIG_NEUTRON_OVS_TUNNEL_IF		Interface for the OVS tunnel; Packstack overrides the IP address used for tunnels on this hypervisor to the IP found on the specified interface (for example, **eth1**).

Key	Default Value	Description
CONFIG_NEUTRON_OVS_VXLAN_UDP_PORT	*4789*	The vxlan UDP port.
CONFIG_HORIZON_SSL	*n*	To set up dashboard communication over HTTPS, specify **y**.
CONFIG_SSL_CERT		PEM encoded certificate to be used for SSL connections to the HTTPS server; leave blank if a certificate should be generated. This certificate must not require a passphrase.
CONFIG_SSL_KEY		Keyfile corresponding to the certificate if one was provided.
CONFIG_SSL_CACHAIN		PEM encoded CA certificates from which the certificate chain of the server certificate can be assembled.
CONFIG_SWIFT_KS_PW	Randomly generated	Password to use for Object Storage to authenticate with Identity.
CONFIG_SWIFT_STORAGES	Loopback device is created	A comma-separated list of devices which to use as Object Storage device. Each entry must take the format **/path/to/dev**, for example **/dev/vdb** will install **/dev/vdb** as Object Storage device (Packstack does not create the filesystem, you must do this first).
CONFIG_SWIFT_STORAGE_ZONES	*1*	Number of Object Storage zones, this number **must** be no bigger than the number of storage devices configured.
CONFIG_SWIFT_STORAGE_REPLICAS	*1*	Number of Object Storage replicas, this number **must** be no bigger than the number of storage zones configured.
CONFIG_SWIFT_STORAGE_FSTYPE	*ext4*	FileSystem type for storage nodes. Supported values are: **ext4** and **xfs**
CONFIG_SWIFT_HASH		Custom seed number to use for **swift_hash_path_suffix** in **/etc/swift/swift.conf**. If you do not provide a value, a seed number is automatically generated.
CONFIG_SWIFT_STORAGE_SIZE	*2G*	Size of the Object Storage loopback file storage device.
CONFIG_HEAT_DB_PW		Password used by Orchestration (heat) user to authenticate against MariaDB.
CONFIG_HEAT_AUTH_ENC_KEY		Encryption key to use for authentication info in the Orchestration database.
CONFIG_HEAT_KS_PW		Password to use for the Orchestration service to authenticate with Identity.
CONFIG_HEAT_CLOUDWATCH_INSTALL	*n*	Specify *y* if you would like Packstack to install the Orchestration CloudWatch API.
CONFIG_HEAT_CFN_INSTALL	*n*	Specify *y* if you would like Packstack to install the Orchestration CloudFormation API.
CONFIG_HEAT_DOMAIN	*heat*	Name of the Identity domain for Orchestration.
CONFIG_HEAT_DOMAIN_ADMIN	*heat-admin*	Name of the Identity domain admin user for Orchestration.
CONFIG_HEAT_DOMAIN_PASSWORD	Randomly generated	Password for the Identity domain admin user for Orchestration.

Key	Default Value	Description
CONFIG_PROVISION_DEMO	*y*	Packstack can provision for demo usage and testing. This key selects whether to provision demo OpenStack Networking networks, subnets and routers. Specify **y** if you want to provision for demo usage and testing. It requires **CONFIG_NEUTRON_INSTALL=y** and **CONFIG_NEUTRON_USE_NAMESPACES=y**.
CONFIG_PROVISION_TEMPEST	*n*	Packstack can configure Tempest (OpenStack test suite) for running tests against the OpenStack install. Specify **y** if you want to configure Tempest for testing. It requires **CONFIG_NEUTRON_INSTALL=y** and **CONFIG_NEUTRON_USE_NAMESPACES=y**.
CONFIG_PROVISION_TEMPEST_USER		The name of the Tempest provisioning user. If you do not provide a user name, Tempest is configured in a standalone mode.
CONFIG_PROVISION_TEMPEST_USER_PW	Randomly generated	The password to use for the Tempest provisioning user.
CONFIG_PROVISION_DEMO_FLOATRANGE	*172.24.4.224/28*	CIDR network address for the floating IP subnet.
CONFIG_PROVISION_CIRROS_URL	*http://download.cirros-cloud.net/0.3.3/cirros-0.3.3-x86_64-disk.img*	URL or local file location for the Cirros demo image to be provided as an initial image in the Image service.
CONFIG_PROVISION_TEMPEST_REPO_URI	*https://github.com/openstack/tempest.git*	URI of the Tempest git repository.
CONFIG_PROVISION_TEMPEST_REPO_REVISION	*master*	Revision (branch) of the Tempest git repository.
CONFIG_PROVISION_ALL_IN_ONE_OVS_BRIDGE	*n*	Packstack allows you to configure the external OVS bridge in an all-in-one deployment. Specify **y** to set up the L3 external bridge with the appropriate IP address to act as the gateway for Virtual Machines.
CONFIG_CEILOMETER_SECRET	Randomly generated	Secret key for signing Telemetry messages.
CONFIG_CEILOMETER_KS_PW	Randomly generated	Password to use for the Telemetry service to authenticate with Identity.
CONFIG_MONGODB_HOST	*192.0.43.10*	IP address of the server on which to install MongoDB.
CONFIG_NAGIOS_PW	Randomly generated	Password of the **nagiosadmin** user on the Nagios server.

Passwords

When Packstack deploys OpenStack, it stores passwords in various configuration files. This section describes storage locations and password-update commands.

B.1. Password Locations

This section describes the password location for each user and service deployed by Packstack. All files except **nova.conf** are located on the controller node; **nova.conf** is located on each compute node.

Table B.1. User passwords

Service	File Location	Parameter
Admin user	**~/keystonerc_admin**	**OS_PASSWORD**
	/etc/keystone/keystone.conf	**[database] connection**
	/etc/sahara/sahara.conf	**[keystone_authtoken] admin_password**
	/etc/trove/trove.conf	**[DEFAULT] nova_proxy_admin_pass**
Demo user	**~/keystonerc_demo**	**OS_PASSWORD**

Table B.2. Service name and passwords

Service	File Location	Parameter
Bare Metal Provisioning (ironic)	**/etc/ironic/ironic.conf**	**[database] connection**
	/etc/nova/nova.conf	**[ironic] admin_password**
Block Storage (cinder)	**/etc/cinder/cinder.conf**	**[database] connection**
Compute (nova)	**/etc/neutron/neutron.conf**	**[DEFAULT] nova_admin_password**
	/etc/nova/nova.conf	**[DEFAULT] sql_connection**
Data Processing (sahara)	**/etc/sahara/sahara.conf**	**[database] connection**
Database-as-a-Service (trove)	**/etc/trove/trove.conf**	**[DEFAULT] sql_connection**
Image (glance)	**/etc/glance/glance-api.conf**	**[database] connection**
MariaDB Database	**~/.my.cnf**	**password**
Object Storage (swift)	**/etc/swift/proxy-server.conf**	**[filter:authtoken] admin_password**
OpenStack Networking (neutron)	**/etc/neutron/neutron.conf**	**[keystone_authtoken] admin_password**
	/etc/nova/nova.conf	**[neutron] admin_password**
Orchestration (heat)	**/etc/heat/heat.conf**	**[database] connection**
	/etc/heat/heat.conf	**[keystone_authtoken] admin_password**
Nagios	**/etc/nagios/passwd**	***user*:*passwd***

Service	File Location	Parameter
RabbitMQ	**/etc/ceilometer/ceilometer.conf** **/etc/cinder/cinder.conf** **/etc/glance/glance-api.conf** **/etc/heat/heat.conf** **/etc/ironic/ironic.conf** **/etc/keystone/keystone.conf** **/etc/neutron/neutron.conf** **/etc/nova/nova.conf** **/etc/sahara/sahara.conf** **/etc/trove/trove.conf**	**[DEFAULT] rabbit_password**
Telemetry (ceilometer)	**/etc/ceilometer/ceilometer.conf**	**[keystone_authtoken] admin_password** **[service_credentials] os_password**

Note

For files containing a **connection** or **sql_connection** parameter, use the following syntax:

```
PARAMETER = mysql://SERVICE_USER:USER_PASSWORD@DB_IP/SERVICE_DB
```

Where:

- *SERVICE_USER* is the service user's name
- *USER_PASSWORD* is the MySQL password for the Image service
- *DB_IP* is the database host's IP address
- *SERVICE_DB* is the database name

An example entry for the Image service user might be:

```
connection = mysql://glance:12345678abcdefgh@192.0.43.10/glance
```

B.2. Update Passwords

This section describes the commands that you can use to update user passwords (services are also seen as 'users').

Important

These commands only change the initial password. Ensure that you afterwards also manually update the service configuration files to match the changed password (see Section B.1, “Password Locations”).

- Identity service user

```
$ keystone user-password-update USERNAME
```

Where *USERNAME* is the name of the service user whose password you want to change. Enter the new password when prompted. For example:

```
$ keystone user-password-update demo
```

- MySQL

```
$ mysqladmin -u root -pOLDPASS password NEWPASS
```

Replace *OLDPASS* with the existing password, leaving no space between **-p** and the password, and *NEWPASS* with the new password.

- Nagios

```
$ htpasswd /etc/nagios/passwd NagiosUser
```

Replace *NagiosUser* with the non-admin user name to change the password for a user.

Revision History

Revision 6.0.1-6 **Wed Mar 18 2015** **Summer Long**

BZ#1202171 - Updated introduction and requirements (clear install path).
BZ#1202605 - Updated CONFIG_CINDER_NETAPP_EXPIRY_THRES_MINUTES.
BZ#1195111 - Updated password section to include all relevant configuration files.

Revision 6.0.1-2 **Wed Mar 11 2015** **Summer Long**

BZ#1190527/1201129 - Additional edits. Interactive section restructured.

Revision 6.0.1-1 **Thu Mar 5 2015** **Summer Long**

Finalized for maintenance release 6.0.1.
BZ#1198198 - Removed Installer channels and simplified section.
BZ#1190527 - Edited and simplified requirements and NetworkManager sections.

Revision 6.0.0-4 **Wed Feb 4 2015** **Summer Long**

Final version for Red Hat Enterprise Linux OpenStack Platform 6.0.