



Red Hat OpenStack Certification 1.0

Red Hat OpenStack Certification Workflow Guide

For Use with Red Hat OpenStack Certification 10, 12, and 13

Red Hat OpenStack Certification 1.0 Red Hat OpenStack Certification Workflow Guide

For Use with Red Hat OpenStack Certification 10, 12, and 13

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Abstract

This document provides an overview of the certification workflow for Software Certification partners who want to offer their own applications, management applications or plug-in(driver) software for use with Red Hat OpenStack Platform in a jointly supported customer environment.

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CHAPTER 1. INTRODUCTION

This version of the workflow guide validates components that implement the OpenStack APIs for networking, block storage, data processing, and file share services with Red Hat OpenStack Platform.

In addition, the certification workflow guide certifies applications that rely on OpenStack services or APIs and facilitate an OpenStack deployment. It complements the Cloud Infrastructure with additional functionalities such as configuration, scaling and management.

Before starting the certification process, we recommend that you read the [Red Hat OpenStack Certification Policy Guide](#) to understand the requirements and policies for Red Hat OpenStack Certification.



NOTE

The term "OpenStack deployment-under-test" used in this guide refers to the node where the plugin/application-under-test and Undercloud Director node is installed.

CHAPTER 2. GETTING HELP AND GIVING FEEDBACK

If you experience difficulty with a procedure described in this documentation, Open a Support Case in the Customer Portal.

The Customer Portal offers the following services and information:

- Search or browse through technical support articles and solutions pertaining to Red Hat products
- Submit a support case to Red Hat Global Support Services (GSS), and
- Access product documentation



NOTE

Personal emails are not tracked as a support mechanism and do not include a Response Time or Service Level Agreement.

Questions During Certification During the certification process, you may need to ask or reply to a question about topics which affect a specific certification. These questions and responses are recorded in the Additional Comments section of the Dialog Tab of the certification entry.



WARNING

It is not within the scope of the certification workflow to resolve product defect and/or compatibility issues identified during testing. These issues can block a certification and might require resolution before the certification can proceed. Resolving these issues should be accomplished through your Engineering Partner Manager or other engineering engagements.

We Need Feedback!

If you see a way to make this guide better, or if you think of a way to improve the certification workflow, or program, we would love to hear from you! Submit a bug in Bugzilla. Try to be as specific as possible; include the section number and some of the surrounding text.

CHAPTER 3. PREREQUISITES

Red Hat OpenStack Certification prerequisite comprises of the Program Membership, and Product Requirements.

3.1. PROGRAM MEMBERSHIP, ACCOUNTS, AND ENTITLEMENTS

Partners are expected to have a Vendor Single Sign On (SSO) account, a Product profile, and must compulsorily complete the Align, Build and Certify (ABC) Workflow on [Red Hat Connect for Technology Partners](#) before beginning the certification process. The SSO credentials will be used to access Red Hat products, the certification toolset and other Red Hat assets.

If you have questions on Vendor account/profile, Product profile or software entitlements, send an email to connect@redhat.com.

3.2. PRODUCT REQUIREMENTS

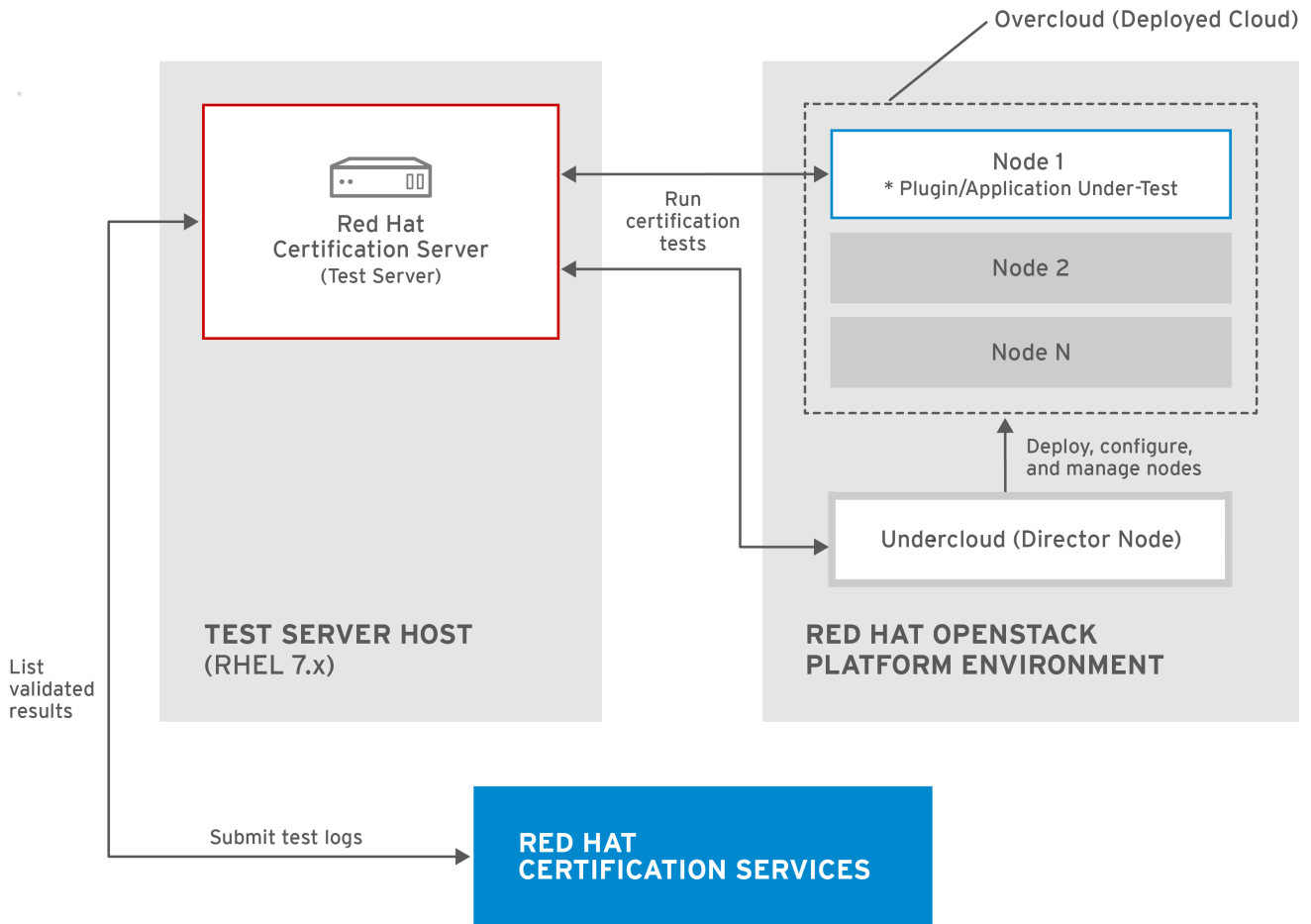
The certification process assures that a certified solution/product meets all the requirements of an enterprise cloud and is jointly supported by Red Hat and your organization. A certified product is listed on [Red Hat OpenStack Certification Ecosystem Page](#).

The certification specific policies and requirements are covered in [Red Hat OpenStack Certification Policy Guide](#).

CHAPTER 4. TEST ENVIRONMENT OVERVIEW

The following diagram depicts the environment setup required for testing of an OpenStack deployment-under-test. The diagram includes the certification packages that need to be installed on each host (color coded).

Figure 4.1. Test Environment Setup



PACKAGES TO BE INSTALLED:

 redhat-certification redhat-certification-openstack

RHCS_430085_1216

The primary application that is implemented in the Red Hat Certification workflow is a client server application. You can launch Red Hat Certification web user interface on a different host (test server) and use the web user Interface (UI) to run certification tests on an OpenStack deployment-under-test (test client). Using the Red Hat Certification web user interface you can:

- Generate requests for new certifications
- Submit logs
- Conduct discussions with the certification team

It is recommended to setup a test server to run OpenStack Certification tests on the system-under-test/test client. This allows testing of multiple test clients from a single test server, enables quick validation and prevents resource constraints.

4.1. PREPARING THE OPENSTACK DEPLOYMENT-UNDER-TEST

Install the relevant version of Red Hat OpenStack Platform (against which the certification is required) using [Red Hat OpenStack Platform Product Documentation](#). After Red Hat OpenStack Platform is installed, read the product documentation to understand its usage and configuration.



NOTE

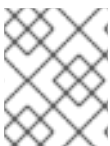
It is mandatory to use the Red Hat OpenStack Platform director for installation as it is the supported toolset for installing and managing a Red Hat OpenStack Platform environment in production.

After installing Red Hat OpenStack Platform, install the plugin/driver or application that needs to be certified on an Overcloud node. Complete the following steps after the installation:

1. Ensure you have a private (tenant) network and private subnet in the OpenStack deployment that is under test.
2. Create an admin tenant owned router and add the private (tenant) subnet as one of that router's interfaces in your OpenStack deployment.
3. Create an external (provider) network and a public subnet. Configure the external network as the above router's gateway in your OpenStack deployment.
4. Run the command using the Keystone command-line client.

```
$ openstack role create Member
```

The software packages required on the OpenStack deployment-under-test/test client must be installed by subscribing to Red Hat Certification channel via CDN. This ensures that the required dependencies are automatically installed.



NOTE

The OpenStack deployment-under-test/test client refers to the node where the plugin/application-under-test is installed.

For more information, refer [Test Environment Overview](#). To install the required software packages on the OpenStack deployment-under-test/test client, complete the following steps:



IMPORTANT

Complete the following steps on the node where the OpenStack plugin-under-test/application-under-test is installed.

1. Run the following command to register your host using Red Hat Subscription Management:

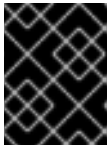
```
# subscription-manager register
```

Use your RHN credentials for the registration.

2. Run the following command to display the list of available subscriptions for your system:

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

From the list of available subscriptions, search for the subscription which provides the **Red Hat Certification (for RHEL Server)** repository. Make a note of the subscription and its Pool ID.



IMPORTANT

The **Red Hat Certification (for RHEL Server)** repository provides the certification packages.

3. Run the following command to attach the subscription which provides the **Red Hat Certification (for RHEL Server)** repository to your system:

```
# subscription-manager attach --pool=[pool_ID]
```

Replace **[pool_ID]** with the Pool ID of the subscription which provides the **Red Hat Certification (for RHEL Server)** repository.

It is mandatory to use the correct Pool ID with the **# subscription-manager attach --pool** command to attach the required subscription to the system.

To verify the list of subscriptions your system has currently attached, at any time, run the **# subscription-manager list --consumed** command. Ensure that the subscription which provides the Red Hat Certification (for RHEL Server) repository is attached to your system.

4. Run the following command to subscribe to Red Hat Certification channel:

```
# subscription-manager repos --enable=rhel-7-server-cert-rpms
```

5. Run the following command to install the **redhat-certification-openstack** package. This automatically installs the required dependencies:

```
# yum install redhat-certification-openstack
```

6. Run the following command to start the Red Hat Certification back-end server listener process:

```
# rhcertd start
```

Result

The OpenStack deployment-under-test (which refers to the node where the plugin/application-under-test is installed) is now prepared for certification testing.

4.2. PREPARING THE TEST SERVER

The software packages required on the test server must be installed by subscribing to Red Hat Certification channel via CDN. This ensures that the required dependencies are automatically installed.

To install the required software packages on the test server, complete the following steps:

1. Select a persistent RHEL 7 host which can act as the test server host. The chosen RHEL 7 host should be able to access Red Hat services including the certification channels and use the same network as the OpenStack deployment-under-test (test client).

2. Run the following command to register your host using Red Hat Subscription Management:

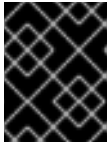
```
# subscription-manager register
```

Use your RHN credentials for the registration.

3. Run the following command to display the list of available subscriptions for your system:

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

From the list of available subscriptions, search for the subscription which provides the **Red Hat Certification (for RHEL Server)** repository. Make a note of the subscription and its Pool ID.



IMPORTANT

The **Red Hat Certification (for RHEL Server)** repository provides the certification packages.

4. Run the following command to attach the subscription which provides the **Red Hat Certification (for RHEL Server)** repository to your system:

```
# subscription-manager attach --pool=[pool_ID]
```

Replace **[pool_ID]** with the Pool ID of the subscription which provides the **Red Hat Certification (for RHEL Server)** repository.

It is mandatory to use the correct Pool ID with the **# subscription-manager attach --pool** command to attach the required subscription to the system.

To verify the list of subscriptions your system has currently attached, at any time, run the **# subscription-manager list --consumed** command. Ensure that the subscription which provides the Red Hat Certification (for RHEL Server) repository is attached to your system.

5. Run the following command to subscribe to Red Hat Certification channel:

```
# subscription-manager repos --enable=rhel-7-server-cert-rpms
```

6. Run the following command to install the **redhat-certification** package on the host:

```
# yum install redhat-certification
```

7. Run the following command to start Apache, Red Hat Certification back-end server and the server listener process:

```
# rhcertd start
```

Result

The test server (RHEL 7.x host) is now prepared. The **redhat-certification** package provides Red Hat Certification web UI which can be used to run certification tests on the OpenStack deployment-under-test/test client.

4.3. PROXY SETTINGS FOR TEST SERVER AND TEST CLIENT

If your network utilizes a proxy, you may need to manually configure the test server and/or test client for the proxy as outlined below:

In the test server, update the `/etc/rhcert.xml` file as per the following settings:

```
<urls>
<proxy-url protocol="http">PROXY_SERVER:PROXY_PORT</proxy-url>
<proxy-url protocol="https">PROXY_SERVER:PROXY_PORT</proxy-url>
</urls>
```

Replace **PROXY_SERVER** with the IP or dns-name of your proxy server, and **PROXY_PORT** with your proxy port number.

For example:

```
<proxy-url protocol="http">http://rhcert-example.redhat.com:3148<proxy-
url>
<proxy-url protocol="https">https://rhcert-example.redhat.com:3148<proxy-
url>
```

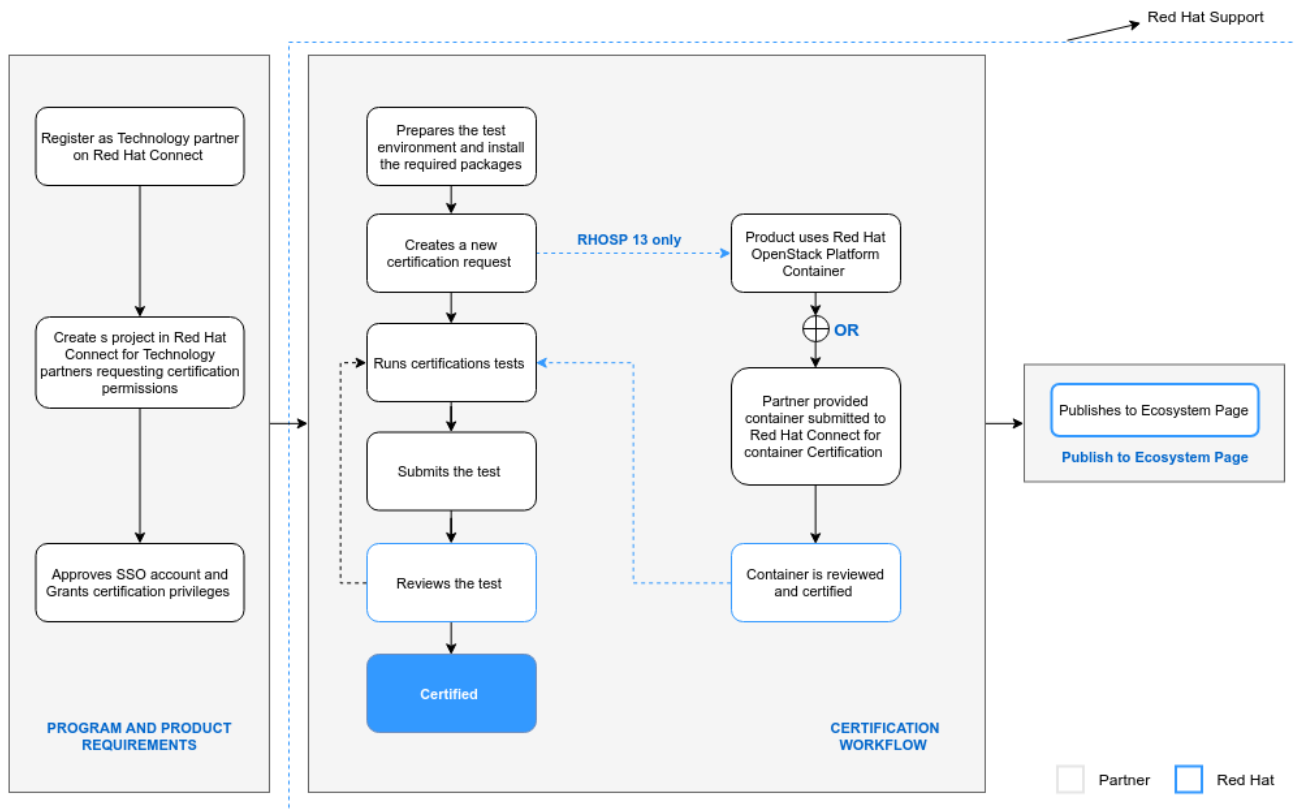
To open port 80 and port 8009 on test server and test client, run the **rhcert-cli register** command.

For more information, we recommend you to refer [How can we access to the Hardware Certification \(rhcertd web interface\) via proxy?](#)

CHAPTER 5. CERTIFICATION WORKFLOW OVERVIEW

The following diagram represents the entire OpenStack Certification workflow along with the roles & responsibilities of Red Hat and the Partners.

Figure 5.1. Certification Workflow Overview



5.1. CREATING A CERTIFICATION REQUEST

To create a new certification request, complete the following steps:

1. In your test server, launch **Red Hat Certification** web user interface in a browser using the `http://<machine-IP>` link.
2. Type your **Red Hat account credentials** previously enabled for certification in the **Username** and **Password** fields. Click **Login**.
3. Click the **New Certification** button. This will take you to **Choose the Red Hat Certification** web page.
4. From the **Product** drop-down list, select **Red Hat OpenStack Platform Plugin**. The **Version** and **Platform** value gets generated automatically. However, partners can select the version, platform and RHEL version fields according to their requirement. Click **Next**. This will take you to **Choose the product to be certified** web page.
5. Select the **Vendor** and **Make** items from the drop-down list. Click **Next**. This will take you to **Common Questions** web page.
6. Provide the required information and click **Create**. This will take you to **Create Red Hat OpenStack Platform Certification** web page.
7. Select the protocols and features compatible with your plugin. Click **Create**.

8. A notification of the requested OpenStack certification gets displayed.



NOTE

The information which you provide in the **Product Name** and the **Public Catalog URL** fields is used by customers in locating the certified product entry (after a successful certification) on [Red Hat OpenStack Certification Ecosystem Page](#).

The Progress Page opens and displays the certification tests available in the certification test suite and the progress of the previous runs (if any).

6. Click the **Testing** link to open the Testing Page.
7. In the Testing Page, click **Add System**.
8. In the Select Host Page, select the host/hostname of the Overcloud node where the plugin-under-test/driver-under-test is installed and then click **Test**.
The Testing Page opens and a certification test plan is created for the plugin-under-test/driver-under-test.

After the certification test plan run is complete and the test plan is ready, the status column displays a “Finished test run” status and a **Continue Testing** button.

Figure 6.3. Continue Testing

localhost.localdomain

Finished test run 0

Continue Testing



9. Click **Continue Testing**.
10. In the Testing page, select the openstack/supportable, openstack/director, and openstack/tempest_config checkboxes and then select the relevant Feature test checkbox from the openstack/cinder_*, openstack/manila_*, openstack/neutron_* and openstack/sahara options based on the type of OpenStack plugin/driver undergoing certification. Click **Run Selected**.

Figure 6.4. Run Tempest API and Supportable Tests

Run:		Run Selected	<input type="checkbox"/> debug
rhcert/self_check		<input checked="" type="checkbox"/> pre-run	
openstack/tempest_config		<input type="checkbox"/> interactive	
openstack/director		<input type="checkbox"/> interactive	
openstack/sahara		<input type="checkbox"/> interactive	
openstack/supportable		<input checked="" type="checkbox"/> interactive	
openstack/cinder_backups		<input type="checkbox"/>	
openstack/cinder_consistency_groups		<input type="checkbox"/>	
openstack/cinder_volumes		<input type="checkbox"/>	
openstack/manila_share_extend		<input type="checkbox"/>	
openstack/manila_share_managed		<input type="checkbox"/>	
openstack/manila_share_shrink		<input type="checkbox"/>	
openstack/manila_shares		<input type="checkbox"/>	
openstack/manila_snapshot_managed		<input type="checkbox"/>	
openstack/manila_snapshot_mountable		<input type="checkbox"/>	
openstack/manila_snapshot_revert_to_snapshot		<input type="checkbox"/>	
openstack/manila_snapshot_share_from_snapshot		<input type="checkbox"/>	
openstack/manila_snapshots		<input type="checkbox"/>	
openstack/neutron_address_scope		<input type="checkbox"/>	
openstack/neutron_agents		<input type="checkbox"/>	
openstack/neutron_attribute_extensions		<input type="checkbox"/>	
openstack/neutron_availability_zone		<input type="checkbox"/>	
openstack/neutron_dhcp_extra		<input type="checkbox"/>	

Certification tests are run on the Overcloud node where the plugin-under-test/driver-under-test is configured. The **supportable** test run is followed by the relevant API/Tempest test run.

Result

Certification tests are run on the plugin-under-test/driver-under-test. The status of the certification test run is displayed on the Testing Page under the relevant hostname.

Figure 6.5. Test Run Status

dhcp207-207.lab.eng.pnq.redhat.com

Running supportable

After the test run completes, the test logs from the **openstack/supportable**, **openstack/director**, and the API/ Tempest tests are stored in **.xml.gz** format. . Refer to [Section 7.1, “Viewing and Submitting the Test Logs using web UI”](#) to submit the test logs.

6.3. TEMPEST_CONFIG TEST

This test is to check the generation of `tempest_config` based on the lab environment details. Being an interactive test it asks for the following details:



IMPORTANT

If the system under test is subscribed to OpenStack product repositories the tempest will be installed. If the product repositories are not installed you will get a failure notification that the tempest cannot be installed.

- In the **keystone auth url** field, type the Keystone authentication URL that allows access to service endpoints.

Figure 6.6. Keystone Authentication URL

Testing:

Please Input your keystone auth url (eg: `http://your_openstack:5000/v2.0`):

- In the **OpenStack admin username** field, type the OpenStack username of a user with the admin role.
- In the **OpenStack admin password** field, type the corresponding OpenStack password of the user with the admin role.
- Modify the **Edit tempest.conf** field if required and then click **Submit**.

Figure 6.7. Edit Tempest.conf

Testing:

Edit tempest.conf

```
[DEFAULT]
debug = true
use_stderr = false
log_file = tempest.log

[auth]
tempest_roles = _member_

[compute]
image_ssh_user = cirros
flavor_ref = 25820baa-1f5b-4a35-a9f0-cb5e02e92fb5
flavor_ref_alt = 6165da6a-88a1-4cf2-92a8-8a6fc817ad9c
image_ref = f10dd792-db60-4bf6-b07e-2af3e304f681
image_ref_alt = 7335f807-8764-4cc8-af1b-21485f36476a
```

The `tempest_config` test automatically generates a `tempest.conf` file during run-time. If you need to alter this configuration, place a full `tempest.conf` into the `/etc/redhat-certification-openstack` directory that will override the automatic configuration. The configuration override can assist in addressing tempest issues but it does not change the certification testing requirements to be satisfied by tempest.



NOTE

While it is not explicitly required that tempest automatically corrects configuration of the testing environment for your product it is suggested that you open a bug with the [upstream tempest project](#), against the [RHOSP Tempest component](#), or the [Red Hat Certification Component](#). The RHOSP Tempest component link can be used to file the downstream bugs on bugzilla. In case of the tempest issue, in the **Component** field select **openstack-tempest** from the drop-down list. If there is a bug in the component you can select the related component like, `openstack-neutron`, `openstack-cinder` or `openstack-manila`. This process will help you to avoid the repeated correction of configuration.

6.4. RUNNING CERTIFICATION TESTS FOR PRODUCTS CONSUMING OPENSTACK APIS

If the OpenStack application undergoing certification falls under this category (refer <Red Hat OpenStack Certification Policy Guide-Certification Targets> for more details), complete the following steps on the test server to run certification tests on the OpenStack deployment-under-test.



NOTE

This category includes products which generally facilitate an OpenStack deployment or complement the Cloud Infrastructure with additional functionalities such as configuration, scaling and management. OpenStack management applications, monitoring applications and OpenStack-enabled applications such as virtual network functions fall in this category.

6.5. TRUSTED CONTAINER TEST

The trusted container test is part of RHOSP 13 certification only and will not be part of RHOSP 10 and 12 versions.

Running Trusted Container Test

Partners need to perform following steps on Red Hat certification web UI to run the trusted container test:

Figure 6.8. Select the trusted container test.

Run:	<input checked="" type="button" value="Run Selected"/> <input type="checkbox"/> debug
rhcert/self_check	<input checked="" type="checkbox"/> pre-run
openstack/tempest_config	<input type="checkbox"/> interactive
openstack/trusted_container	<input type="checkbox"/> interactive
openstack/director	<input type="checkbox"/> interactive
openstack/sahara	<input type="checkbox"/> interactive
openstack/supportable	<input checked="" type="checkbox"/> interactive
openstack/cinder_backups	<input type="checkbox"/>
openstack/cinder_consistency_groups	<input type="checkbox"/>
openstack/cinder_volumes	<input type="checkbox"/>
openstack/manila_share_extend	<input type="checkbox"/>
openstack/manila_share_managed	<input type="checkbox"/>
openstack/manila_share_shrink	<input type="checkbox"/>
openstack/manila_share_types	<input type="checkbox"/>

1. Click on the Run Selected button.
2. As this session is interactive, during execution it will prompt to provide the following information:
 - a. Reason for non Red Hat containers found on System-under-test
 - b. Select checkbox for the containers from available list for which test needs to be performed.

6.6. RUNNING OPENSTACK DIRECTOR TEST AND SUPPORTABILITY TESTS

1. On Red Hat Certification Home Page, click the **Server settings** tab.

Figure 6.9. Server Settings



2. In the **Register a System** field, type the hostname or IP address of the Overcloud node where the application-under-test is installed and then click **Add**.
3. Click the existing product entry from Red Hat Certification Home Page and then click the relevant certification entry from the Certifications Page.

Figure 6.10. Available Certification Test

2838903	Abbee cloud-19-oct-web2
+ Product	

The Progress Page opens and displays the certification tests available in the certification test suite and the progress of the previous runs (if any).

- Click the **Testing** link to open the Testing Page.
- In the Testing Page, click **System**.
- In the Select Host Page, select the host/hostname of the Overcloud node where the application-under-test is configured and then click **Test**.

The Testing Page opens and a certification test plan is created for the application-under-test.

After the certification test plan run is complete and the test plan is ready, the status column displays a "Finished test run" status and a **Continue Testing** button.

Figure 6.11. Continue Testing

localhost.localdomain

Finished test run 0

Continue Testing

- Click **Continue Testing**.
- Select **interactive** next to the **openstack/supportable** checkbox and then click **Run Selected**.

Figure 6.12. Run Supportable Tests

Run:		Run Selected <input type="checkbox"/> debug
rhcert/self_check		<input checked="" type="checkbox"/> pre-run
openstack/supportable		<input checked="" type="checkbox"/> interactive

Result

Certification tests are run on the application-under-test. The status of the certification test run is displayed on the Testing Page under the relevant hostname.

Figure 6.13. Test Run Status

dhcp207-207.lab.eng.pnq.redhat.com

Running supportable

After the test run completes, the test logs from the **openstack/supportable** tests are stored in the same log file as for the **openstack/director** test on the test server. See section [Section 7.1, “Viewing and Submitting the Test Logs using web UI”](#) in the guide to submit the test logs.

6.7. RUNNING CERTIFICATION TESTS USING RED HAT CERTIFICATION CLI (RHCERT-CLI)

To run the certification tests using Red Hat Certification CLI, execute the following commands on the **System Under Test (SUT)**:

```
#rhc const-cli clean
#rhc const-cli plan
#rhc const-cli run --test cinder_volumes
```

NOTE

Tests to be run depends on the type of driver/plugin, and features implemented by the driver/plugin.

```
#rhc const-cli run --test supportable --test tempest_config --test
cinder_volumes --test cinder_consistency_groups
```

The above tests are the mandatory tests for a plugin/driver for cinder that has volumes and consistency_group features implemented.

All component-based tests in openstack are tagged, which means the following commands will run all the tests for cinder, manila or neutron, respectively:

```
#rhc const-cli run --tag cinder
#rhc const-cli run --tag manila
#rhc const-cli run --tag neutron
```

After the tests run, the test logs/results are automatically collected in a single **.xml.gz** file. To save the test results/logs, run the following command on the image-under-test.

```
# rhc const-cli save --server [hostname/IP address of LTS]
```

NOTE

In the above command **LTS** stands for **Linux Test Server**.

It is also possible to directly submit the test results/logs for validation without saving them on the image-under-test.

CHAPTER 7. VIEWING AND SUBMITTING THE TEST LOGS FOR REVIEW

Partners can view and submit the test logs for review using the Red Hat certification web user interface(UI) or using the command line interface (CLI).

7.1. VIEWING AND SUBMITTING THE TEST LOGS USING WEB UI

The test runs generate two log files based on the type of product undergoing certification. The log files generated are as follows:

- For Products Implementing OpenStack APIs: A consolidated log file for OpenStack API/Tempest and the OpenStack Supportability tests
- For Products Consuming OpenStack APIs: A single log file for OpenStack Supportability tests

It is mandatory to submit the log files generated based on your product type to Red Hat Certification services for review.



NOTE

Test logs are also generated for every test type and may be viewed on Red Hat Certification application. However, it is mandatory to submit the consolidated log file for review using the procedure covered below.

1. Launch Red Hat Certification web UI on the test server.
2. On Red Hat Certification Home Page, from the Products Table, click the name of the product/image-under-test.
3. From the Certification Page, click the relevant certification entry.
4. Click the **Testing** link to open the Testing Page.
5. In the Testing Page, click the results timestamp under the hostname of the Undercloud node on which you run the OpenStack Director test (**openstack/director**).
6. Results Timestamp Director image::rhwsw-resultstimestampdirector.png[Results Timestamp Director]
7. From the **Actions** list, select an appropriate action based on the following details:
8. Result Actions image::rhwsw-resultactionsrevised.png[Result Actions]
 - To submit the test log file for review, select **submit** . To close the test log file, select **close**. The submit action is mandatory to submit the test log file for review.
 - To save the test log file on a different Red Hat Certification server, select **save** . The save action transfers the test log file (in **.xml.gz** format) to a remote server which has Red Hat Certification application installed. If you save the test log file on a different Red Hat Certification server, you must submit the log file from the same server
 - To download the test log file (in **.xml.gz** format), select **download**
 - To delete the test log file from the server, select **delete**.

9. In the Testing Page, click the results timestamp under the hostname of the Overcloud node on which you run OpenStack API/Tempest tests (if applicable) and OpenStack Supportability tests.
10. Results Timestamp Others image::rhw-sw-resultstimestampothertests.png[Results Timestamp Others]
11. Repeat step 6 and submit the test logs generated from the OpenStack API/Tempest tests (if applicable) and OpenStack Supportability and Director tests for review.

7.2. VIEWING AND SUBMITTING THE TEST LOGS USING RED HAT CERTIFICATION CLI

To submit the test logs using Red Hat Certification CLI, run the following command on the image-under-test.

```
# rhcert-cli submit
```

Type your Red Hat account credentials previously enabled for certification in the **Red Hat Catalog Username** and **Password**. The **Certification ID** is generated when you successfully create a certification request. Type the ID of the certification request in the **Certification ID** dialog box.

The **# rhcert-cli submit** command works only if the image has a network that can connect to the Red Hat services. The command submits the latest timestamped test logs on your host/image to Red Hat certification services for review. The test log file is reviewed by Red Hat certification services and Red Hat Review team. The certification results are displayed on Red Hat Certification web user interface.

If the image-under-test does not have internet access, save the test logs on the image-under-test using the **# rhcert-cli save --server [hostname/IP address of LTS]** command.

CHAPTER 8. CLEANING UP OF TEST RESULTS

Cleaning up of test result reduces the size and number of runs that are available on SUT before the cleanup. Red Hat certification consolidates report of all the runs on the system, and if the run logs are too large it will take time for the new run to start.

Cleaning up of results can be implemented using either of the following two ways:

1. **Using rhcert UI:** If SUT is registered with LTS you can use # **rhcert-cli clean all** command on the SUT. This has minimal effect as run results of each test gets saved on LTS.
2. **Using CLI:** Using CLI for cleanup can be disruptive as it cleans everything. If cleaning up of results are done using CLI it is advisable to submit the previous results before a cleanup.

CHAPTER 9. REVIEWING AND POSTING OF CERTIFICATION

The test log file submitted after a certification test run is validated by Red Hat certification services and the Review Team. The review team may get in touch with the partner using the Dialog tab on Red Hat Certification web user interface to confirm specific results and obtain more information.

In some instances, there may be a need to rerun some tests. However, the logs from the rerun can be submitted using the existing certification request. The final certification results are displayed on Red Hat Certification web user interface. To view certification results, check the Show In Progress Certifications button on Red Hat Certification web user interface.

After a successful certification, the certified product is listed on [Red Hat OpenStack Certification Ecosystem Page](#).

CHAPTER 10. RECERTIFICATION WORKFLOW

For recertification requirements and policies, see [Red Hat OpenStack Certification Policy Guide](#).

To recertify an OpenStack product, complete the following steps:

1. See section [Section 5.1, “Creating a Certification Request”](#) in this guide and create a new certification request . It is mandatory to create a new certification request for recertification.
2. Run the certification tests and proceed with the rest of the workflow as documented.

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