Red Hat OpenStack Certification Test Suite 11 Red Hat OpenStack Certification Workflow Guide

For Use with Red Hat OpenStack Certification 9, 10, and 11

Red Hat Customer Content Services

Red Hat OpenStack Certification Test Suite11 Red Hat OpenStack Certification Workflow Guide

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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

1.1. OVERVIEW

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.

This version of the certification test suite 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 test suite certifies applications that rely on OpenStack services or APIs and generally facilitate an OpenStack deployment or complement the Cloud Infrastructure with additional functionalities such as configuration, scaling and management.

Before starting the certification process, we recommend 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 document refers to the node where the plugin/application-under-test is installed and also the Undercloud Director node.

CHAPTER 2. GIVING FEEDBACK AND GETTING HELP

2.1. GIVING FEEDBACK

If you experience difficulty during the certification process with a Red Hat product, the Red Hat certification toolset or with a procedure described in this documentation visit Red Hat Customer Portal where you can gain access to Red Hat product documentation as well as solutions and technical articles about Red Hat products.

You may also open a case under the following instances:

- To report issues and get help with the certification process
- To submit feedback and request enhancements in the certification toolset & documentation
- To receive assistance on the Red Hat product on which your product/application is being certified

Note

To receive Red Hat product assistance, it is necessary to have the required product entitlements or subscriptions which may be separate from the partner program and certification program memberships.

2.2. OPENING A SUPPORT CASE

To open a support case, refer How do I open and manage a support case.

Complete the Support Case Form with special attention to the following fields:

- From the **Product** field, select **Red Hat OpenStack Platform**.
- From the **Product Version** field, select the version of the Red Hat product on which your product/application is being certified.
- In the **Problem Statement** field, type a problem statement/issue or feedback using the following format:

  ```
  {Partner Certification} (The Issue/Problem or Feedback)
  ```

  Replace **(The Issue/Problem or Feedback)** with either the issue/problem faced in the certification process/Red Hat product or feedback on the certification toolset/documentation. For example: *{Partner Certification} Error occurred while submitting certification test results using Red Hat Certification application*.

Important

It is mandatory to write the problem statement with the **{Partner Certification}** tag to ensure assignment of the case to the appropriate group(s).

All cases related to Certification use a Severity 3 SLA which provides for a one business day response time.

CHAPTER 3. PREREQUISITES

3.1. PROGRAM AND PRODUCT REQUIREMENTS

3.1.1. Program Membership, Accounts, and Entitlements

To certify OpenStack plugins or applications, it is mandatory to have a Vendor Single Sign On (SSO) account and profile and a Product profile on Red Hat Connect for Technology Partners. Partners must compulsorily complete the Align, Build and Certify (ABC) Workflow on Red Hat Connect for Technology Partners before beginning the certification process.

During Red Hat OpenStack program sign-up process a Red Hat Single Sign-On (SSO) account will be created for you. This SSO account and its credentials will be used throughout the certification process 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** .

3.1.2. Product Requirements

The certification process provides your Red Hat Customers the assurance 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.

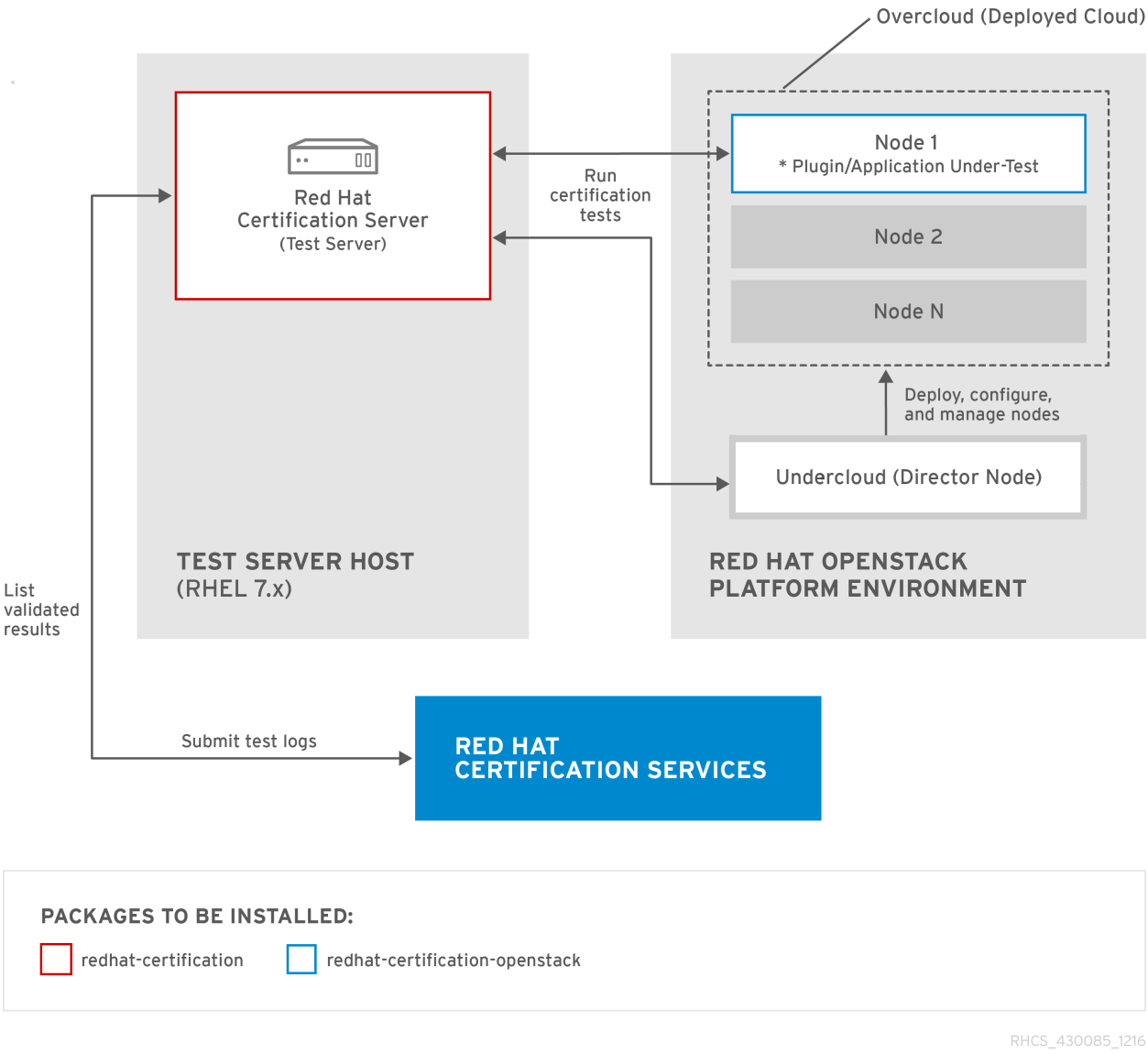
3.2. PREPARE THE TEST ENVIRONMENT

3.2.1. Test Environment Overview

The primary application required in the certification workflow "Red Hat Certification" is a client server application. You may launch Red Hat Certification web UI on a different host (test server) and use the web UI to run certification tests on an OpenStack deployment-under-test (test client).

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.

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).



3.2.2. Prepare 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 **`$ openstack role create Member`** command using the Keystone command-line client to create a new Keystone role named "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.

Tip

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=[reponame]
```

Replace **[reponame]** with **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
```

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.

3.2.3. Prepare 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.

Tip

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=[reponame]
```

Replace **[reponame]** with **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 commands to start Apache, Red Hat Certification back-end server and the server listener process:

```
# systemctl start httpd
# rhcertd start
```

Result

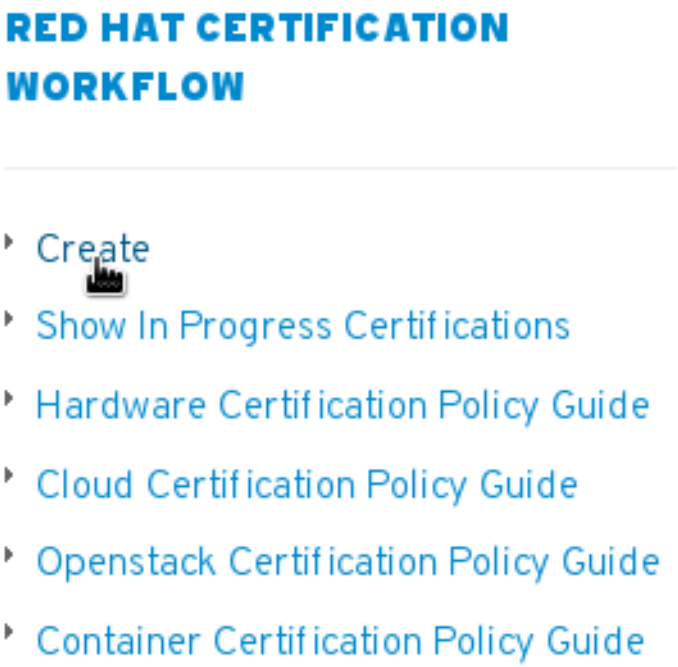
The test server (RHEL 7.x host) is now prepared. The **`redhat-certification`** package provides Red Hat Certification web UI which can be used to run certification tests on the OpenStack deployment-under-test/test client.

CHAPTER 4. CERTIFICATION WORKFLOW

4.1. CREATE A CERTIFICATION REQUEST

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

1. Open https://access.redhat.com/ecosystem/partner-resources in a browser. On https://access.redhat.com/ecosystem/partner-resources Page, click **Vendor Login** and log in with the credentials of your SSO account on Red Hat Connect for Technology Partners also used to access software subscriptions.
2. Click **Create**.



3. On the Choose Product Page, select **Red Hat Enterprise Linux OpenStack Platform**.
4. Fill the product and the certification details on the Create New OpenStack Entry form.

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.

4.2. RUN CERTIFICATION TESTS

4.2.1. Overview

Certification tests must be run on the OpenStack deployment-under-test based on the type of OpenStack application undergoing certification. For more information on certification targets, refer Red Hat OpenStack Certification Policy Guide.

4.2.2. Run Certification Tests using Red Hat Certification CLI

To run the certification tests using Red Hat Certification CLI, execute the following commands on the system under test:

```
#rhcert-cli clean
#rhcert-cli plan
#rhcert-cli run --test cinder_volumes
```

Note

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

```
#rhcert-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:

```
#rhcert-cli run --tag cinder
#rhcert-cli run --tag manila
#rhcert-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.

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

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

4.2.3. Run Certification Tests for Products Implementing OpenStack APIs

4.2.3.1. Overview

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

Note

This category includes OpenStack plugins/drivers which implement OpenStack APIs for Networking, Block Storage, Data Processing and File Share services.

4.2.3.2. Run OpenStack API/Tempest Tests and Supportability Tests

Note

The OpenStack API/Tempest tests (namely cinder_*, manila_*, neutron_*, and openstack/sahara (whichever is applicable)), openstack/director, and the Supportability Tests (namely openstack/supportable) must be run from the test server and on the Overcloud node where the OpenStack plugin-under-test/driver-under-test is installed (using Overcloud endpoints).

The openstack/sahara test workflow is slightly different than neutron_, cinder_, and manila_* because openstack/sahara is an interactive test that asks the apis implemented by your plugin.

1. Launch Red Hat Certification web UI in a browser using the **http://machine-IP** link. Replace **machine-IP** with the IP address/hostname of your machine.
2. Type Red Hat account credentials previously enabled for certification in the **User Name** and **Password** fields. Click **Log In** .
3. On the Red Hat Certification Home Page, click the **Server settings** tab.

4. In the **Register a System** field, type the hostname or IP address of the Overcloud node where the plugin-under-test/driver-under-test is installed and then click **Add**.

   Tip

   For more information on registering a system, refer to Registering a System using Redhat-Certification.

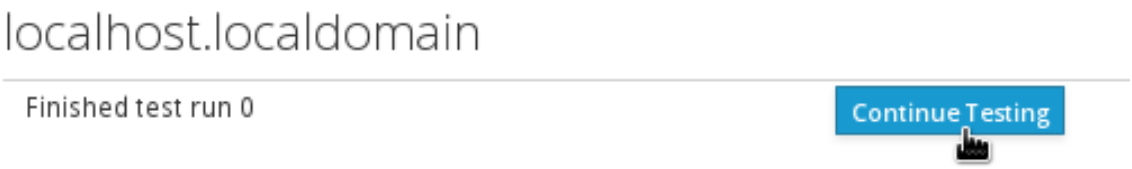
5. Click the existing product entry from Red Hat Certification Home Page and then the relevant certification entry from the Certifications Page.

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

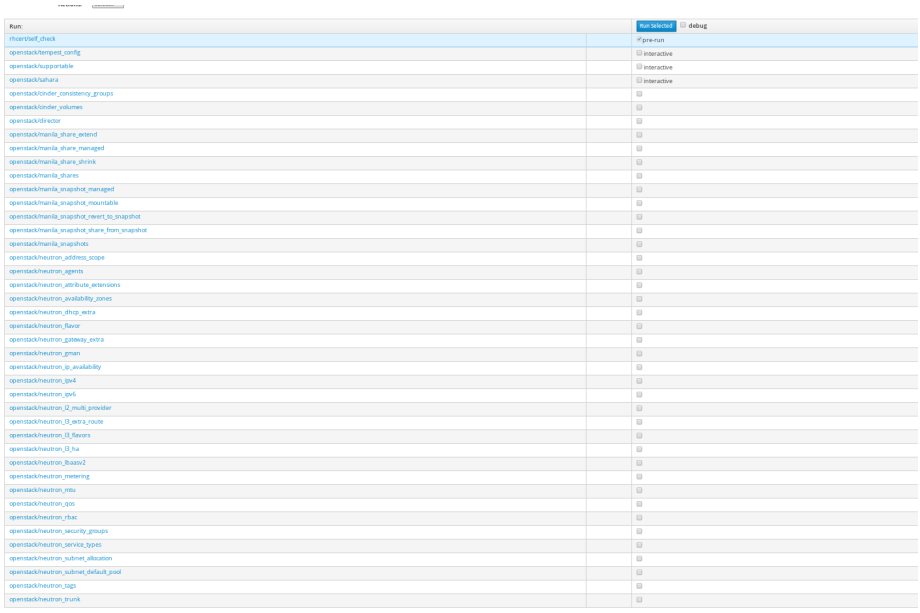
6. Click the **Testing** link to open the Testing Page.
7. In the Testing Page, click **Add System**.
8. In the Select Host Page, select the host/hostname of the Overcloud node where the plugin-under-test/driver-under-test is installed and then click **Test**.

   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.



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**.

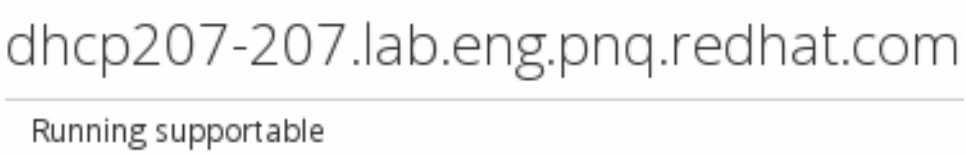


   Certification tests are run on the Overcloud node where the plugin-under-test/driver-under-test is configured. The **supportable** test run is followed by the relevant API/Tempest test run.

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.



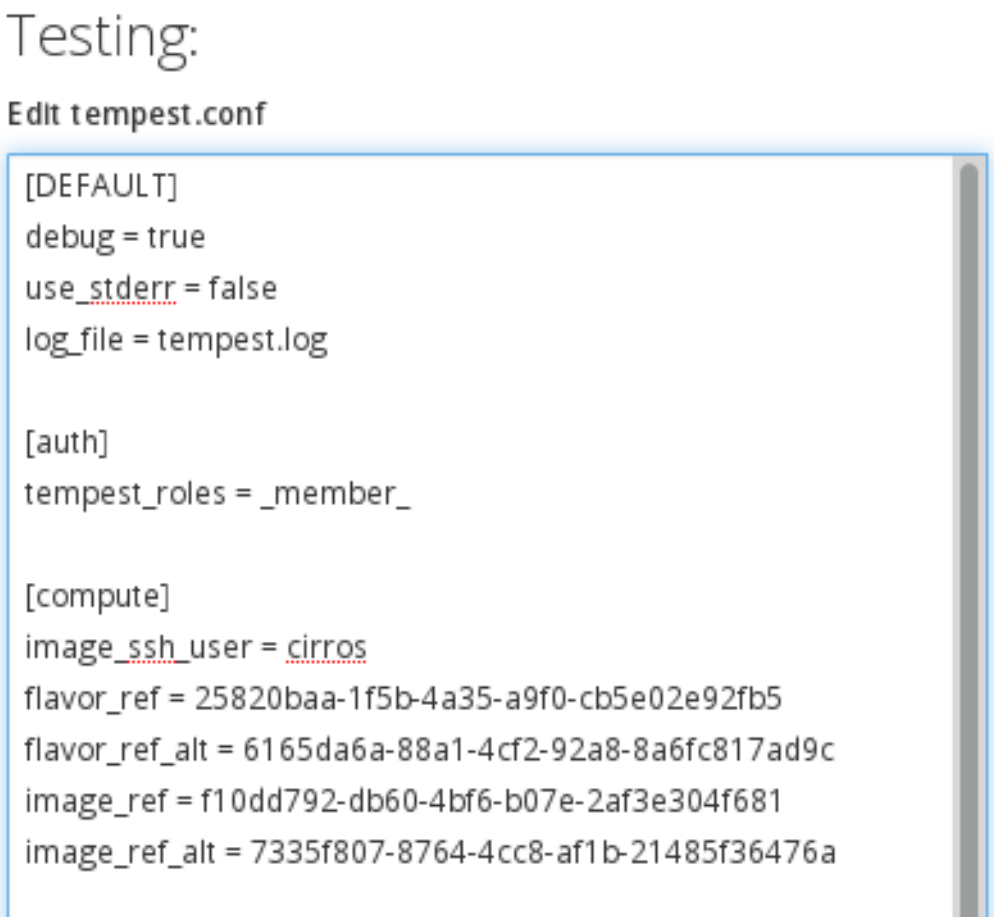
After the test run completes, the test logs from the **openstack/supportable**, **openstack/director**, and the API/ Tempest tests are stored in **`.xml.gz`** format. . Refer to Section 4.3.1, “View the Test Logs and Submit the Logs for Review” to submit the test logs.

4.2.3.3. 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:

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

- 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**.



4.2.4. Run Certification Tests for Products Consuming OpenStack APIs

4.2.4.1. Overview

If the OpenStack application undergoing certification falls under this category (refer Red Hat OpenStack Certification Policy Guide 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.

4.2.4.2. Run OpenStack Director Test and Supportability Tests

Note

Products consuming OpenStack APIs require only two tests namely **openstack/director** and **openstack/supportable**. The **openstack/supportable** and **openstack/director** tests must be run from the test server and on the Overcloud node where the OpenStack application-under-test is installed (using Overcloud endpoints).

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

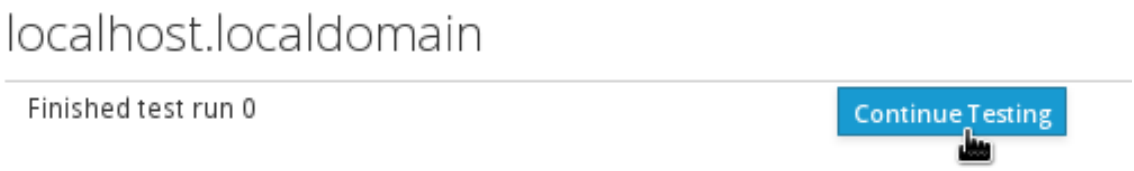
2. In the **Register a System** field, type the hostname or IP address of the Overcloud node where the application-under-test is installed and then click **Add**.
3. Click the existing product entry from Red Hat Certification Home Page and then click the relevant certification entry from the Certifications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

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

4. Click the **Testing** link to open the Testing Page.
5. In the Testing Page, click **System**.
6. 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.



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

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.

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. Refer Section 4.3.1, “View the Test Logs and Submit the Logs for Review” to submit the test logs.

4.3. VIEW THE TEST LOGS AND SUBMIT THE LOGS FOR REVIEW

4.3.1. View the Test Logs and Submit the Logs for Review

The test runs generate two log files (in **.xml.gz** format) based on the type of product undergoing certification. The log files generated are as follows:

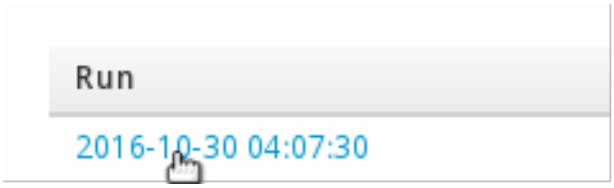
- For Products Implementing OpenStack APIs: A consolidated log file for OpenStack API/Tempest and the OpenStack Supportability tests
- For Products Consuming OpenStack APIs: A single log file for OpenStack Supportability tests

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

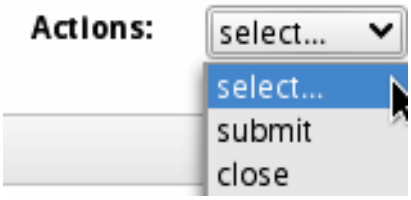
Note

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. From the **Actions** list, select an appropriate action based on the following details:



   - 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**.

7. 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.

8. 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.

4.3.2. View the Test Logs and Submit the Test Logs for Review 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
```

For the **Red Hat Catalog User Name** and the **password** prompts, type Red Hat account credentials previously enabled for certification. If there is a **Node ID** prompt, type the ID of the certification request.

The **`# rhcert-cli submit`** 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 CWE.

If the image-under-test does not have internet access, complete the following steps to submit the test log file:

1. Save the test logs on the image-under-test using the **`# rhcert-cli save --server [hostname/IP address of LTS]`** command.

2. Transfer the file to any connected host and open https://access.redhat.com/ecosystem/partner-resources in a browser.
3. Click **Vendor Login** and log in using Red Hat account credentials enabled for certification as part of Certification Prerequisites. Open the relevant certification request.
4. In the Results Page, click the **Review** tab.
5. In the Upload Results Package form, upload the test log file (in **.xml.gz** format) and add a description of the file.

4.3.3. Review 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 CWE or on Red Hat Certification web UI 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 CWE. To view certification results, check the **Show In Progress Certifications** button on Red Hat CWE.

After a successful certification, the certified product is listed on Red Hat OpenStack Certification Ecosystem Page.

CHAPTER 5. RECERTIFICATION WORKFLOW

5.1. RECERTIFICATION

For recertification requirements and policies, refer Red Hat OpenStack Certification Policy Guide.

To recertify an OpenStack product, complete the following steps:

1. Refer Section 4.1, “Create a Certification Request” 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.