



Red Hat Certified Cloud and Service Provider Certification 1.0

Red Hat Certified Cloud and Service Provider Certification Workflow Guide

For Use with Red Hat Certified Cloud and Service Provider 1.0

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Abstract

This document describes the certification workflow for CCSP partners who want to offer Infrastructure-as-a-Service (IaaS) based on Red Hat Enterprise Linux.

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CHAPTER 1. INTRODUCTION

1.1. AUDIENCE

This document provides an overview of the certification workflow for Red Hat Certified Cloud and Service Provider partners who want to certify Infrastructure-as-a-Service (IaaS) solutions. The certification tools and methodologies cater to infrastructure cloud images built on Red Hat Enterprise Linux.

Before starting the certification process, we recommend you read the following documents:

- Red Hat Certified Cloud and Service Provider Program Guide (CCSP Program Guide) available in [Red Hat Connect for Business Partners](#) to understand the program requirements fulfilled by the certification of images
- Red Hat Certified Cloud and Service Provider [Cloud Image Certification Policy Guide](#) to understand the requirements and policies for image certification

Additionally, we recommend that you are a Red Hat Certified Engineer or hold equivalent experience before starting the process.

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 to [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 Enterprise Linux**.
- 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 cloud images, an active membership in the Certified Cloud and Service Provider (CCSP) Program is required. If you are not already a member, visit [Red Hat Connect for Business Partners](#) to learn more and become a member.

During the CCSP 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.

After you have an active membership in the CCSP program and an SSO account, the account must be entitled with certification privileges. To do this, open a case and include the following information in the **Problem Statement** field:

Problem Statement:

- Partner Certification: CCSP Certification Access for *{Red Hat SSO Username}* at *{Partner Name}*
Optionally, include all of the following information in the **What do you expect to see** field to have a Red Hat associate service your case and create the first certification request for you:
- Name of the Cloud or the Cloud Service Offering
- Public Catalog URL/Public URL of the Cloud or Cloud Service Offering
- Supported Regions (Global/Australia & New Zealand/ASEAN/EMEA/Japan/LATAM/North America/Public Sector):
- Supported Languages
- Any 3rd Party Certifications Acquired (E.g. FedRAMP, Systrust, SAS 70, PCI, Other Non-NA Certs, etc.):
- RHEL Version (6.x or 7.x) of the first certification desired to be achieved

Attach File:

Attached Partner Brand Logo (PNG 256x256)

3.1.2. Image Requirements

As a Certified Cloud and Service Provider (CCSP), you are required to certify images that you publish in a catalog. The certification process provides your Red Hat customers with the assurance that they will have a consistent experience across cloud providers, that the customer's experience comes with the highest level of support, and that good security practices are available to the customers.

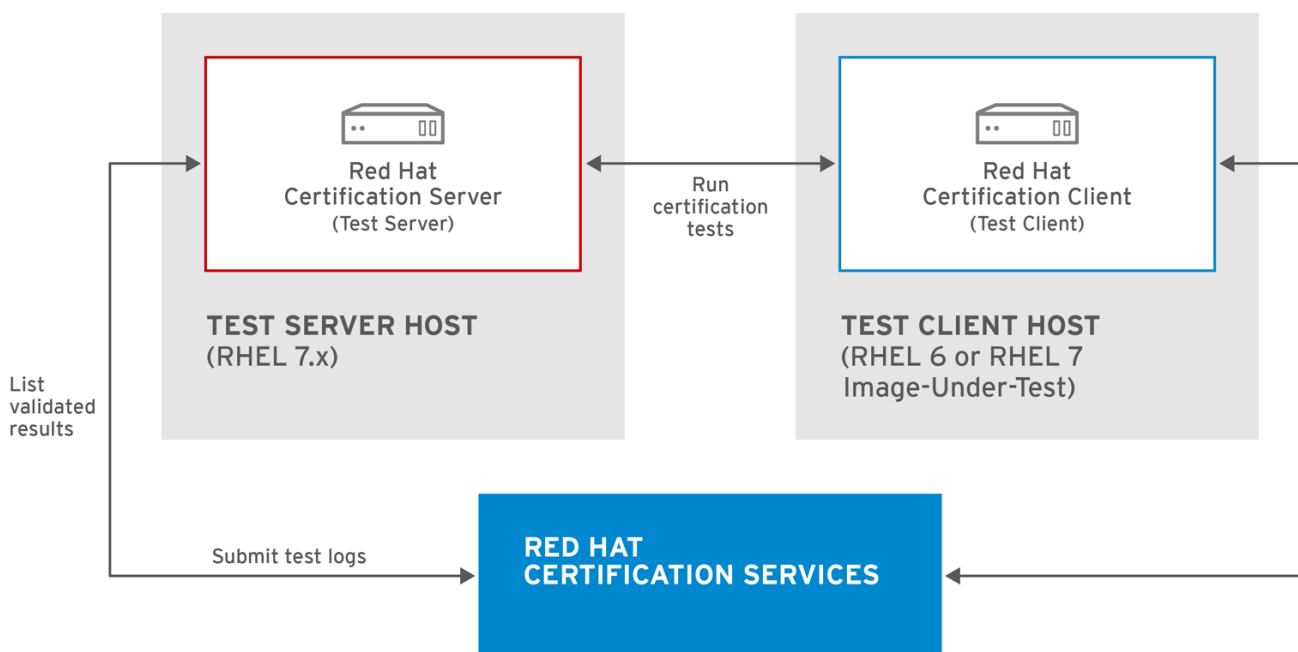
Your image needs to meet the complete list of image requirement policies outlined in the CCSP Program Guide and the Technical and Operations requirements Guide available in [Red Hat Connect for Business Partners](#). The certification specific policies and requirements are covered in the [CCSP Policy Guide](#).

3.2. PREPARE THE TEST ENVIRONMENT

3.2.1. Test Environment Overview

The following diagram depicts the environment setup required for all Cloud Image certification testing. The image-under-test should be RHEL 6, RHEL7, or RHEL 8 Beta (whichever is applicable) and the local-test-server should be RHEL 7.x.

The diagram includes the certification packages that need to be installed on each host (color coded).



*Image-Under-Test / Test Client refers to the image undergoing certification.

PACKAGES TO BE INSTALLED:

redhat-certification redhat-certification redhat-certification-cloud redhat-certification-backend

RHCS_426033_1116

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 UI to run certification tests on a cloud image-under-test (test client). The test server communicates with the the image-under-test or the test client and triggers certification tests on the image-under-test/test client host. Using the Red Hat Certification web user interface you can:

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

Although it is not mandatory, Red Hat recommends that you set up an independent test server to run certification tests on the image-under-test/test client. This allows testing of multiple images/test clients from a single host/test server, provides detailed validation reports on the test server and prevents resource constraints. The validated test results/reports are also saved on Red Hat Certification server

and can be viewed on Red Hat Certification web user interface. After the data is submitted, partners can maintain the Red Hat Certification web user interface for further communication with certification team if required.



NOTE

You may use the Red Hat Certification Command-Line Interface if Red Hat Certification web UI is inaccessible or if the image-under-test does not have access to the internet. Red Hat supports the usage of Red Hat Certification CLI as documented for this release of CCSP certification.

3.2.2. Prepare the Image-under-Test

The software packages required on the image-under-test have to be installed manually from Red Hat Customer Portal. This ensures minimum modifications to the default content of the image-under-test.



NOTE

If the image-under-test does not have internet access, we recommend that you download the required software packages on any other connected RHEL 6/7 host (whichever is applicable) and then transfer the RPM files to the image-under-test. After installation of the required packages on the image-under-test, Red Hat recommends using Red Hat Certification CLI to run certification tests and complete the rest of the process.

To download and install the required software packages manually from Red Hat Customer Portal, complete the following steps:

1. Log in to Red Hat Customer Portal and open the [Red Hat Certification Downloads Page](#).
2. Select the relevant version of RHEL from the **Version** list. Select an appropriate architecture from the **Architecture** list.

Product Variant:	Version:	Architecture:
Red Hat Certification (for RHEL Server) ▼	7 ▼	x86_64 ▼

3. Click the **Download Latest** button next to the **redhat-certification-backend** and **redhat-certification-cloud** packages.

redhat-certification-backend	Red Hat Hardware Test Suite Backend	Download Latest ↗
redhat-certification-cloud	Client-side tests for Certified Cloud Provider Programme	Download Latest ↗

4. Install the RPM files/packages downloaded in the previous step on the image-under-test.
5. Run the following command to start Red Hat Certification back-end server and the server listener process on the image-under-test:

```
# rhcertd start
```

Result

The image-under-test 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 Red Hat web user interface or Satellite. 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 RHEL 6 or RHEL 7 image-under-test.
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=rhel-7-server-cert-rpms
```

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

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

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

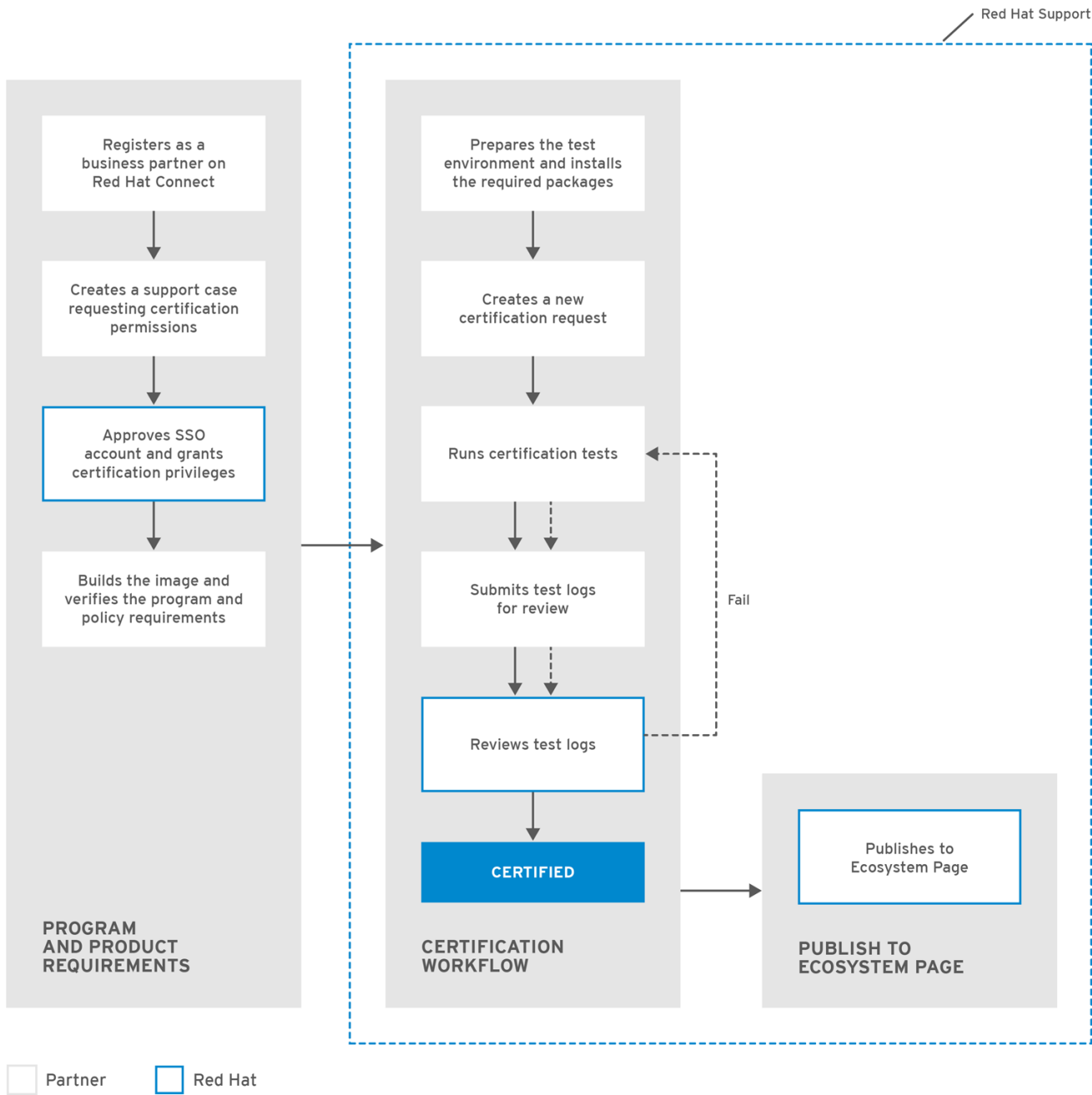
Result

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 image-under-test/test client.

CHAPTER 4. CERTIFICATION WORKFLOW

4.1. CERTIFICATION WORKFLOW OVERVIEW

The following diagram represents the entire Certified Cloud and Service Provider (CCSP) certification workflow along with the roles & responsibilities of Red Hat and the Partners.



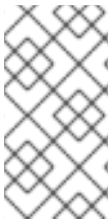
RHCS_435803_017

4.2. CREATE A CERTIFICATION REQUEST

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

In your test server, launch **Red Hat Certification web user interface** in a browser using the `http://<machine-IP>`.

1. Type your **Red Hat account credentials** previously enabled for certification in the **Username** and **Password** fields. Click **Login**.
2. Click the **New Certification** button. This will take you to **Choose the Red Hat Certification** web page.
3. From the **Product** drop-down list, select **Red Hat Enterprise Linux**. The **Version** and **Platform** value gets generated automatically. However, partners can select the version, platform and RHEL version according to their requirement. Click **Next**, this will take you to the **Choose the product to be certified** web page.
4. Select the **Vendor**, **Make** and **Name** items from the drop-down list. Click **Next**.
5. A notification of the requested Cloud certification gets displayed.



NOTE

If you do not see **Red Hat Certified Cloud Provider** option on Red Hat Certification web user interface, ensure that you are logged in with the account previously enabled for certification and have completed all the certification prerequisites. For further assistance, try [opening-a-support-case](#).

4.3. RUN CERTIFICATION TESTS

4.3.1. Overview

Certification tests can be run on the image-under-test using Red Hat Certification web UI (by launching Red Hat Certification application on the local test server) or by using Red Hat Certification CLI.

4.3.2. Run Certification Tests using Red Hat Certification WUI

To run certification tests on the image-under-test using Red Hat Certification web user interface, complete the following steps on the test server:

1. Launch Red Hat Certification web user interface 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 Red Hat Certification Home Page, click the **Server settings** tab.



4. In the **Register a System** field, enter the hostname or IP address of the image-under-test and then click **Add**.
5. On Red Hat Certification Home Page, click on your existing certification entry.

Program	Certification
Cloud	Red Hat Enterprise Linux 7.2 - x86_64

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 image-under-test and click **Test**.

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

localhost.localdomain

Finished test run 0

Continue Testing

1. Click **Continue Testing**.
2. From the Run Table, select all the tests which are displayed and then click **Run Selected**.

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



NOTE

It is mandatory to run all the tests which are displayed after the creation of a test plan for certification. It is recommended to select and run specific tests only for debugging purposes if advised by Red Hat Review team.

Result

Certification tests are run on the image-under-test. The status of the certification test run is displayed on the Testing Page. Tests with the **interactive** label will require feedback from the user during runtime. The **status** column on the Testing page displays a question and a textbox for inputs during testing. The test pauses until you provide a response and click **Submit**.

After the test run completes, the test logs from various tests are stored in a single log file in **.xml.gz** format.

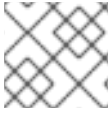
4.3.3. Run Certification Tests using Red Hat Certification CLI

Red Hat certification CLI (rhcert-cli) command allows partners to run tests in interactive mode. To run the certification tests using Red Hat Certification CLI, execute the following commands on the image-under-test:

```
# rhcert-cli
```


Certain tests require feedback from the user during runtime (on the CLI). The test pauses until you provide a response and click **Enter**. The following screenshot shows an example.

```
Needs Review: Non-Red Hat packages are installed. Please describe the need for these packages: █
```



NOTE

It is recommended that you run all the tests.

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.



NOTE

To run tests in a non-interactive mode, Partners can execute the **rhcert-ci** command. To run tests on a remote client that has redhat-certification-backend installed and is running rhcertd, you must execute the **rhcert-ci** command on the Red Hat Certification image-under-test.

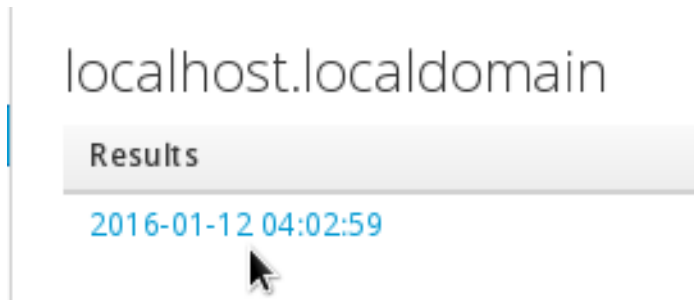
Refer the [KB article](#) for rhcert-cli or rhcert-ci optional argument subcommands.

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

4.4.1. View the Test Logs and Submit the Test Logs for Review using Red Hat Certification WUI

To view and submit the test logs using Red Hat Certification web user interface (launched on the test server), complete the following steps. The following procedure also provides steps to submit, save, download and delete the test results/log file. However, it is mandatory to submit the test log file to Red Hat Certification services for validation.

1. Launch Red Hat Certification web user interface on the test server.
2. From the Certification Page, click the relevant certification entry.
3. Click the **Testing** link to open the Testing Page.
4. In the **Testing** page, click the timestamp under the relevant hostname that corresponds to the results you wish to view.



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



NOTE

You may view the results of each test from the **Results** column in the table.

- To submit the test log file for validation, select **Submit**. To close the test log file, select **Close**
- 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**

The **Submit** option submits the consolidated test log or test results file to Red Hat certification services for review.

4.4.2. 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, use the # **rhcert-cli submit** command on the image-under-test.

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.



NOTE

You can view your product Certification ID in the **Details** tab with the row named as **certification_id**.

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, complete the following steps to submit the test log file:

1. Save the results to a file using the **rhcert-cli --save** command. Copy the file to a USB.

2. Connect the USB to your LTS.
3. To upload the copied file, click **Upload Results File** button on the **Testing** tab of your certification page.
4. To submit the test results click on the timestamp link. On the **Progress** tab click the Submit button.

After the result is successfully submitted, the certificate state in **Testing** tab changes to **Submitted**.

The uploaded file will appear in the **Testing** tab of the Certification page and will be associated with the **Certification ID** and the **Program**.



NOTE

The uploaded file will replace the original file if both the filenames are same.

4.5. 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 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 Certified Cloud Providers Page](#).

CHAPTER 5. RECERTIFICATION WORKFLOW

5.1. RECERTIFICATION

Partners must recertify their cloud application image on every major release of the Red Hat Enterprise Linux included in the image and are recommended to also recertify their image on each minor release.

To recertify an image, complete the following steps:

1. [Section 4.2, “Create a 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.

CHAPTER 6. FINDING MORE INFORMATION

6.1. REFERENCES

For more information on Red Hat Certified Cloud and Service Provider Program or Red Hat Certified Cloud and Service Provider Certification, refer the following documents/pages.

- [Red Hat Connect for Business Partners](#)
- [Red Hat Certified Cloud and Service Provider Certification Policy Guide](#)
- [Red Hat Certified Cloud and Service Provider Certification Workflow Guide](#)