Red Hat Certified Cloud and Service Provider Certification 7.31

Red Hat Cloud Instance Type Workflow

For Use with Red Hat Cloud Instance Type Workflow Guide
Abstract

This guide describes the workflow for Partners to certify their Cloud Instance Type with Red Hat. It provides an overview of the entire certification process, explains how to set up the certification environment, create new certification requests, perform certification test, submit the results to Red Hat for verification, and complete the certification. Last updated: June 28, 2021.
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PART I. MAKING OPEN SOURCE MORE INCLUSIVE

Red Hat is committed to replacing problematic language in our code and documentation. We are beginning with these four terms: master, slave, blacklist, and whitelist. Due to the enormity of this endeavor, these changes will be gradually implemented over upcoming releases. For more details on making our language more inclusive, see our CTO Chris Wright’s message.
CHAPTER 1. INTRODUCTION TO RED HAT CERTIFIED CLOUD AND SERVICE PROVIDER CERTIFICATION WORKFLOW

Use this guide to certify Cloud Instance Type compatibility with Red Hat Enterprise Linux (RHEL) and other Red Hat software products.

1.1. UNDERSTAND RED HAT CERTIFICATION

The Red Hat Certification Program ensures compatibility of Red Hat’s partner’s hardware and software products with Red Hat Enterprise Linux, Red Hat OpenStack Platform, Red Hat Gluster Storage, Red Hat Enterprise Linux for Real Time, and other Red Hat software products. The program has three main elements:

- **Test suite**: Tests for hardware or software undergoing certification.
- **Red Hat Certification Ecosystem**: Explore and find certified products including Hardware, Software, Cloud and service providers.
- A joint support relationship between Red Hat and the vendor whose hardware or software is undergoing certification.

1.2. CERTIFICATION WORKFLOW

**Prerequisites**

1. Establish a certification relationship with Red Hat.
2. Create a test environment consisting of the Partner’s product and the Red Hat product combination to be certified.
3. Do preliminary testing to ensure this combination works well.
4. Install the redhat-certification tool.

The prerequisites are further explained in Program and product requirements and Configuring the test environment.

**Procedure**

1. Create a Cloud Instance Type certification request the certification using redhat-certification tool.
2. Create the official test plan.
3. Run the tests specified in the official test plan and submit results using redhat-certification to Red Hat for analysis.
4. Analyze the test results and marking credit as appropriate and communicating any required retesting.
5. Provide details to Red Hat regarding a representative instance sample that covers the Instance Type that is being certified.

The procedure is expanded upon in Certification workflow.
When all tests are declared as PASS, the certification is complete and the entry is made visible to the public on the external Red Hat Certification Catalog.

Know your roles and responsibilities

The following diagram represents the entire Cloud Instance Type certification workflow along with the roles & responsibilities of Red Hat and the Partners.

1.3. GIVE FEEDBACK AND GET HELP

Give Feedback

If you experience any difficulty during the certification process with a Red Hat product, the certification toolset, or with a procedure described in this guide, visit Red Hat Customer Portal. The portal allows you to 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.

**Opening a Support Case**

To open a support case, see How do I open and manage a support case. Complete the support case by providing the following mandatory details:

- 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.

**Example**

{Partner Certification} Error occurred while submitting certification test results using the 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 requires one business day response time.

**NOTE**

Red Hat recommends that you are a Red Hat Certified Engineer or hold equivalent experience before starting the certification process.

**1.4. ADDITIONAL RESOURCES**

- For more information about program requirements, see Cloud Image Certification Policy Guide
CHAPTER 2. PROGRAM AND PRODUCT PREREQUISITES

It is expected that you have a basic knowledge about the software that is being used for certification and familiar with concepts about operating system installation, software installation, and operational knowledge of Cloud Instance Type.

To understand requirements and policy for Cloud Instance Type certification, Red Hat recommends that you read the *Cloud Instance Type Policy Guide*.

2.1. PROGRAM MEMBERSHIP, ACCOUNTS, AND ENTITLEMENTS

To certify instances, 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 tool set, and other Red Hat assets.

The SSO account must be entitled with certification privileges. To do this, open a support case and include the following information in the Problem Statement field:

- Partner Certification: CCSP Certification Access for [Red Hat SSO Username] at [Partner Name]
- Optionally, include all of the following information in the field “What do you expect to see?” to have a Red Hat associate service your case and create the first certification request for you:
  - Name of the Cloud Instance Type or the Cloud Instance Type Service Offering
  - Public Catalog URL/Public URL of the Cloud Instance Type or Cloud Instance Type 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 (7.x or 8.x) of the first certification desired to be achieved
  - Attached Partner Brand Logo (PNG 256x256)

**IMPORTANT**

Instance Type Certification must be performed using drivers provided by Red Hat. Any third-party drivers required for enablement are not eligible for certification.

2.2. CERTIFICATION REQUIREMENTS FOR CLOUD INSTANCE TYPE

To gain a Cloud Instance Type certification, it is expected to certify the Cloud Instances in catalog. The certification process provides your Red Hat customers with the assurance that they will have a consistent experience across cloud instance providers, the customer’s experience comes with the
highest level of support, and good security practices are available to the customers.

The Instance needs to meet the its complete list of requirements and policies that are outlined in the Cloud Instance Type Certification Policy Guide. The test plan is created based on certification policy.
CHAPTER 3. CONFIGURING THE TEST ENVIRONMENT

The test environment for RHEL certification consists of System Under Test (SUT) and Local Test Server (LTS). The appropriate version of Red Hat Enterprise Linux for your environment can be downloaded from the Red Hat Customer Portal.

The certification test suite that runs on both the SUT and LTS is composed of the following packages:

- LTS packages
  - redhat-certification (RHEL 7 only)
  - python-django (RHEL 7 only)
  - python-django-bash-completion (RHEL 7 only)

- SUT packages
  - dt
  - Imbench
  - stress
  - redhat-certification-backend
  - redhat-certification-hardware

3.1. CONFIGURING THE SYSTEM UNDER TEST (SUT)

The SUT machine contains the Cloud Instance Type that will undergo certification. The SUT runs the version of Red Hat Enterprise Linux on which the instance is being certified.

Prerequisites

- two debuginfo files to be installed on the SUT:
  - kernel-debuginfo-$VERSION
    Where $VERSION is the running kernel version number as shown in the output of `uname -a` or via the kernel RPM filename
  - kernel-debuginfo-common-$ARCH-$VERSION
    Where $ARCH is x86_64, i686, etc. and $VERSION is the same as above

Procedure

1. Locate the SUT and all the components that must be tested as part of the certification activities.

2. Download the appropriate architecture and version of RHEL, the certification test suite, and the necessary debuginfo packages from the locations mentioned earlier and install them on the SUT.

3. Configure the OS as explained in the appropriate RHEL kickstart file. Choose the file that matches the version and architecture of RHEL you are certifying.
   - a. If you are not using kickstart to perform your installation, please consult the guide at the top
If you are not using kickstart to perform your installation, please consult the guide at the top of the kickstart file for more information on proper, manual installation.

Additional resources

- For more information about downloading debuginfo packages from the Red Hat Customer Portal, see How can I download or install debuginfo packages for RHEL systems?.

### 3.2. CONFIGURING THE LOCAL TEST SERVER (LTS)

#### Prerequisites

- Locate an appropriate machine to function as the LTS. The LTS is not required to be a certified system; however, to ensure proper functionality, network connectivity should be of equal or greater speed than the interfaces on the SUT in order to properly test the SUT’s network devices. The LTS runs the latest version of RHEL 7.x.

#### Procedure

1. Download the appropriate architecture and version of
   - Red Hat Enterprise Linux
   - Certification Test Suite packages
   - Debuginfo packages

2. Install them on the LTS.

3. Configure the OS as explained in the appropriate RHEL kickstart file. Choose the file for RHEL 7 or RHEL 8 versions.
   - If you are not using kickstart to perform your installation, consult the guide at the top of the kickstart file for more information on proper manual installation.

4. Start Apache, Red Hat Certification back-end server and the server listener process:

   ```
   # rhcertd start
   ```

#### 3.2.1. Hosting prebuilt guest files on the LTS

If the system being tested supports virtualization it must be tested. We have prebuilt guest files that are automatically downloaded by the SUT during the fv_* tests to satisfy this requirement. Those files can be hosted on your LTS if you wish to shorten the download time from the Red Hat FTP site, or if your testing environment is disconnected from the network.

The RHEL fv_images files of different RHEL versions and architectures are available in the directory.

#### Procedure

**Certifying for RHEL 7 and 8 versions**

1. Create a directory on the LTS called `/var/www/rhcert/store/transfer/fv-images/RHEL7` or `/var/www/rhcert/store/transfer/fv-images/RHEL8`

2. Copy the following files of Red Hat Enterprise Linux FTP site to the local directory
• x86_64 architecture files:
  ○ hwcertData.img.tar.bz2 Results transfer package from guest to host
  ○ hwcert-x86_64.xml.tar.bz2 Full-virt guest configuration file for x86_64
  ○ hwcert-x86_64.img.tar.bz2 Full-virt KVM guest image for x86_64

• aarch64 fv testing files:
  ○ hwcertData.img.tar.bz2 Results transfer package from guest to host
  ○ hwcert-aarch64.xml.tar.bz2 Full-virt guest configuration file
  ○ hwcert-aarch64.img.tar.bz2 Full-virt KVM guest image
  ○ hwcert-aarch64_VARS.fd.tar.bz2 Full-virt nvram file

• ppc64le fv testing files:
  ○ hwcertData.img.tar.bz2 Results transfer package from guest to host
  ○ hwcert-ppc64le.xml.tar.bz2 Full-virt guest configuration file
  ○ hwcert-ppc64le.img.tar.bz2 Full-virt KVM guest image

• s390x files:
  ○ hwcertData.img.tar.bz2 Results transfer package from guest to host
  ○ hwcert-s390x.xml.tar.bz2 Full-virt guest configuration file
  ○ hwcert-s390x.img.tar.bz2 Full-virt KVM guest image

3.3. MANUALLY CONFIGURE PROXY SETTINGS FOR TEST SERVER AND TEST CLIENT

Procedure

To open port 80 and port 8009 on test server and test client, run the rhcert-cli register command. If your network utilizes a proxy, you need to manually configure the test server by updating the /etc/rhcert.xml file as per the following settings:

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

Syntax

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

Example

Replace PROXY_SERVER with the IP or dns-name of your proxy server, and PROXY_PORT with your proxy port number.
1. Use FTP proxy to download FV images through FTP.

Example

```xml
<urls>
  <proxy-url protocol="ftp">http://proxy.example.com:3287</proxy-url>
</urls>
```

### 3.4. ADDITIONAL RESOURCES

- For more information about all test suite packages, see [Red Hat Customer Portal](http://rhcert-example.redhat.com:3148).
CHAPTER 4. CREATING CERTIFICATION REQUEST AND RUNNING CERTIFICATION TESTS

4.1. OPENING A NEW CLOUD INSTANCE TYPE CERTIFICATION REQUEST

To create a new certification request, perform the following steps.

Procedure

1. In your test server, launch the Red Hat Certification web user interface (WUI) 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 Log In.

3. Click the Create Certification button. The New Certification webpage displays.

4. Choose the Partner, Make, and Name items from the drop-down list. The Make and Name value gets populated on selecting a Partner. Click Next.

5. Select the Certification, Platform, and Red Hat Product from the drop-down list, and click Next.

It displays a message with details of the requested Cloud Instance Type certification. After the request is created, monitor the request for questions from the review team.

4.2. RUNNING CERTIFICATION TESTS

Run certification tests using Red Hat Certification web UI (by launching Red Hat Certification application on the local test server).

4.2.1. Running certification tests using Red Hat certification Web UI

Procedure

1. Launch Red Hat Certification WUI in a browser using the http://machine-IP link. Replace machine-IP with the IP address/hostname of your machine.

2. Specify Red Hat account credentials previously enabled for certification in the Username 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 instance-type-under-test and then click Add. On the Red Hat Certification home page, click on your existing certification entry. The Progress tab displays the certification tests available in the certification test suite and the progress of the previous runs (if any).

5. Click the Testing link to open the Testing Page and click Add System.

6. In the Select host page, select the host/hostname of the instance-type-under-test and click Test.
A certification test plan is ready for the instance-type-under-test. The status column displays a Finished test run status.

7. Click Continue Testing.

8. From the table, select all the tests which are displayed and then click Run Selected.

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.

RESULT
Certification tests are run on the instance-type-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. RECERTIFYING CLOUD INSTANCE TYPE

Procedure
1. Log in to Red Hat Certification and click the New Certification button.
2. Select the Red Hat product, version, and platform for certification and click Next.
3. State the Vendor, Make, Model (Name and Size), and Architecture of the product to be certified. Provide URL of Cloud Instance Type to be certified and click Next.

After the request is created, monitor the request for questions from the review team. Testing can begin as described in section Selecting and Running Tests when the test plan is complete.

4.4. CERTIFYING CLOUD INSTANCE TYPE PASS-THROUGH

An Instance Type Pass-Through certification essentially creates a copy of a certified Cloud Instance Type, and lists it in a different vendor name, a different make, or a different model.

Pass-through is used when a vendor sells their Instance Type to a partner who then rebrands it, or if a vendor sells two or more Instance Type Product where one Instance Type Product is a super set of the others. In such situations, the vendor should have tested in the existing Cloud Instance Type Product certification as that covers all the Instances Sizes in the new Pass-Through certification.

After the Cloud Instance Type Product is certified, the Cloud Instance Type Size Pass-Through certification is performed. Each Cloud Instance Type Size individually undergoes Pass-Through certification and is published to catalog.

Procedure
1. In your test server, launch the Red Hat Certification web user interface (WUI) 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 Log In.

3. Click the Create Certification button. The New Certification webpage displays.

4. Choose the Partner, Make, and Name items from the drop-down list. The Make and Name value gets populated on selecting a Partner. Click Next.

5. Select the Certification, Platform, and Red Hat Product from the drop-down list, and click Next.

This creates the Cloud Instance Type Certification. The Red Hat certification team certifies and publishes the newly created Cloud Instance Type Certification. After the certificate is certified and published, it becomes public for other partners to refer it as a pass-through Cloud Instance Type.
CHAPTER 5. RUNNING TESTS AND SUBMITTING LOGS FOR REVIEW

5.1. SELECTING AND RUNNING TESTS

There are two types of tests:

- **Automated** tests run when selected without user intervention.
- **Interactive** tests are labeled as such and require additional user input for completion.

Procedure

**For certifications that are associated with an entry on the catalog**

1. Click the **Certifications** tab, then click the name of the Red Hat product on the line that corresponds with your system or component.
2. The **Certification** section of the certification entry should be highlighted when the entry loads.
3. If it is not,
   - a. Click **Certification** on the left of the page.
   - b. Click the **Testing** tab.
   - c. Click the **Continue Testing** button and skip ahead to Step 3, below, to select tests.

**For sandbox certifications**

1. Click the **Sandboxes** tab, then the name of the Red Hat product on the line that corresponds with your system or component.
2. Click the **Continue Testing** button on the **Testing** tab.
3. Choose the tests you wish to run by selecting the checkbox next to the tests and begin the run by clicking the **Run Selected** button.

**NOTE**

- You can run tests in any order and in any combination.
- If the test is interactive, you will be prompted for additional information (insert or remove a device, for example) during the test.
- The tests will run and display their progress on screen.
- After the run finishes, it will appear in the list of runs and the **Continue Testing** button will reappear.
- You can then run additional tests or view the logs from the previous runs and submit results.

5.2. VIEWING AND SUBMITTING TEST LOGS FOR REVIEW
Procedure

You can see the test runs on the Testing tab of the certification on your LTS. Click on the entries under Run, such as ‘2017-06-30 12:59:04’ to see what tests were performed and whether they passed or failed. Clicking a result will give more detailed information about that run of the test.

To submit results from a run where the certification is associated with the catalog:

1. Click on the run you wish to submit.

TIP

You can use the drop-down boxes under the Save Assignment column to choose which test plan item that test result will satisfy.

Procedure

1. Click the Submit Results button at the bottom of the page to send the results from the displayed run to the Red Hat Certification Catalog.

To submit results from a sandbox run:

1. Click on the run you wish to submit.
2. In the Action drop-down box, select Download and download the results file.
3. Go to Red Hat Certification and open the certification.
4. Go to the Testing tab and select Upload Results File.

To submit results using CLI:

To submit the test logs using Red Hat Certification CLI, run the `# rhcert-cli submit` command on the SUT. Specify 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 certification services for review. The test log file is reviewed by the Red Hat certification operations team. The certification results are displayed on Red Hat Certification web user interface.

If SUT does not have internet access, save the test logs on the SUT using the `# rhcert-cli save --server [hostname/IP address of LTS]` command. The rhcert-cli save command can also be implemented on the LTS.

5.3. RED HAT REVIEW OF TEST RESULTS

After you submit your results, the review team will analyze their contents and award credit for each passing test that is part of the test plan.

As they verify each passing test, the team sets each test plan item to Confirmed on the certification site’s test plan, which you can see under the Results tab on the catalog. This allows you to see at a glance which tests are outstanding and which have been verified as passing.
If any problems are found, the review team will update the certification request with a question, which will automatically be emailed to the person who submitted the cert.

You can see all the discussion, and respond to or ask any questions, on the Dialog tab of the certification.

5.4. COMPLETING CERTIFICATION

A certification is complete once all the items on the official test plan have been reviewed and found to have passing results. At this point the certification can be closed and published.

After a successful certification, the certified product is listed on Red Hat Certified Cloud Instance Type Page.