



Red Hat Hardware Certification 2024

Red Hat OpenShift Container Platform Hardware Bare Metal Certification Policy Guide

For Use with Red Hat OpenShift Container Platform 4

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Abstract

The Red Hat OpenShift Hardware (Bare Metal) Certification Policy Guide covers the procedural, technical and policy requirements for achieving a Red Hat Hardware Certification. Version 9.3 and 8.83 updated July 31, 2024.

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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 OPENSIFT BARE-METAL HARDWARE CERTIFICATION POLICIES

The Red Hat OpenShift Container Platform (RHOCP) bare metal hardware certification policy guide is for hardware vendors who want to certify their bare metal servers with Red Hat.

The RHOCP bare-metal certification is divided in the following components:

- The IPI component, which ensures that your servers can be automatically orchestrated without manual intervention.
- The Assisted installer component, which ensures that customers can install your servers with the assisted installer for RHOCP.

If the servers meet the requirements, you can certify them for the IPI component by deploying it on the Red Hat OpenShift Container Platform through this program.

1.1. AUDIENCE

This guide is intended for partners who offer their own infrastructure hardware like system servers, or management controllers for use with RHOCP in a supported customer environment.

1.2. OVERVIEW OF THE PROGRAM

The Red Hat OpenShift Container Platform (RHOCP) bare metal hardware certification creates value for customers, because the systems can be managed and automatically deployed and redeployed with RHOCP bare-metal hardware without manual intervention.

The certification process, through a series of tests, validates that a certified solution meets the requirements of an enterprise cloud, and is jointly supported by Red Hat and your organization.

The RHOCP bare-metal hardware certification program policies include multiple tests each with a series of subtests and checks, which are explained in the document.

CHAPTER 2. CERTIFICATION PREREQUISITES



NOTE

A strong working knowledge of Red Hat Enterprise Linux and Red Hat OpenShift Container Platform is required. A [Red Hat Certified Engineer](#) and a [Red Hat Certified Specialist in OpenShift Administration](#) accreditation is preferred and suggested before participating.

2.1. PARTNER ELIGIBILITY CRITERIA

Ensure to meet the following requirements before applying for a Red Hat bare-metal hardware certification:

- You are part of the [Red Hat Hardware Certification program](#).
- You are in a support relationship with Red Hat by means of the [TSANet](#) network or a custom support agreement.

2.2. CERTIFICATION TARGETS

The certification targets provide details and requirements about the components and products relevant to the certification.

Specific information for each of the certification components is provided when applicable.

2.2.1. Server

Assisted installer component certification

- The server must have earned the following certifications:
 - Red Hat Enterprise Linux System
 - Red Hat OpenShift Container Platform
- The server must be bare-metal. VMs are not supported.

Installer provisioned infrastructure (IPI) component certification

- Ensure that the server must have the following certifications:
 - Red Hat Enterprise Linux System
 - Red Hat OpenShift Container PlatformEach certification is keyed to the specific Cloud Platform product version and its associated ironic revision. You can certify your server for RHOCP, if your hardware is compatible with the ironic drivers for that platform.
- The server must have a baseboard management controller (BMC) installed.

2.2.2. Red Hat Cloud Platform Products

Assisted Installer component certification

Through this program you can certify bare metal servers for the following versions of Red Hat OpenShift Container Platform 4.13, 4.14, or 4.15 and RHEL 9.2 or 9.4.

IPI component certification

Through this program you can certify BMC and bare metal servers for the following versions of Red Hat OpenShift Container Platform 4.12, 4.13, 4.14, or 4.15.

2.2.3. Baseboard management controllers (BMC)

IPI component certification

A BMC is a specialized microcontroller on a server's motherboard that manages the interface between systems management software and physical hardware. The bare metal service in Red Hat Platforms provisions systems in a cluster by using the BMC to control power, network booting, and automate node deployment and termination.

BMC can be certified as a component for use in [leveraging](#) components, across multiple server systems. Similar to Red Hat Hardware Certification programs, Red Hat leverages partners' internal quality testing to streamline the certification process without adding risk to customer environments.

Red Hat recommends partners using component leveraging features in bare-metal hardware certifications conduct their testing with the specific server system, BMC, and Red Hat cloud platform product to validate each combination. However, you do not need to submit individual certification results to Red Hat for every combination.

2.2.4. Bare Metal Drivers

IPI component certification

BMCs must use ironic drivers and meet the [Red Hat OpenShift Platform Node requirements](#) corresponding to the Red Hat Cloud platform product. You cannot certify a BMC that requires an ironic driver that is not included in the Red Hat product.

CHAPTER 3. OVERVIEW OF BARE METAL CERTIFICATION

The bare-metal certification overview provides details about product publication in the catalog, product release, certification duration, and recertification.

3.1. PUBLICATION ON THE CATALOG

When you certify your server for bare metal on Red Hat OpenShift Container Platform, the following features might appear as certified component of your server depending on the certification tests the server passed:

- Installer Provisioned Infrastructure
- Assisted Installer Service

Names may differ corresponding to the language of the products.

3.2. RED HAT PRODUCT RELEASES

You have access to and are encouraged to test with pre-released Red Hat software. You can begin your engagement with the Red Hat Certification team before Red Hat software is generally available (GA) to customers to expedite the certification process for your product. However, conduct official certification testing only on the GA releases of Red Hat OpenShift Container Platform bare-metal hardware.

3.3. CERTIFICATION DURATION

Certifications are valid starting with the specific major and minor releases of Red Hat OpenShift Container Platform software as tested and listed on the Red Hat Ecosystem Catalog. They continue to be valid through the last minor release of the major release. This allows customers to count on certifications from the moment they are listed until the end of the product's lifecycle.

3.4. RECERTIFICATION WORKFLOW

You do not need to recertify after a new major or minor release of RHOCP if you have not made changes to your product. However, it is your responsibility to certify your product again any time you make significant changes to it.

Red Hat recommends that you run the certification tests on your product periodically to ensure its quality, functionality, and performance with the supported versions of RHOCP.

To recertify your product, open a supplemental certification.

CHAPTER 4. CERTIFICATION TESTING

The certification testing briefs about the prerequisites for testing, understanding the certification process, and its requirements.

4.1. PREREQUISITES FOR CERTIFICATION TESTING

Assisted installer component certification

- The corresponding RHEL server certification is successfully completed and posted.
- The corresponding Red Hat OpenShift Container Platform certification is successfully completed and posted.

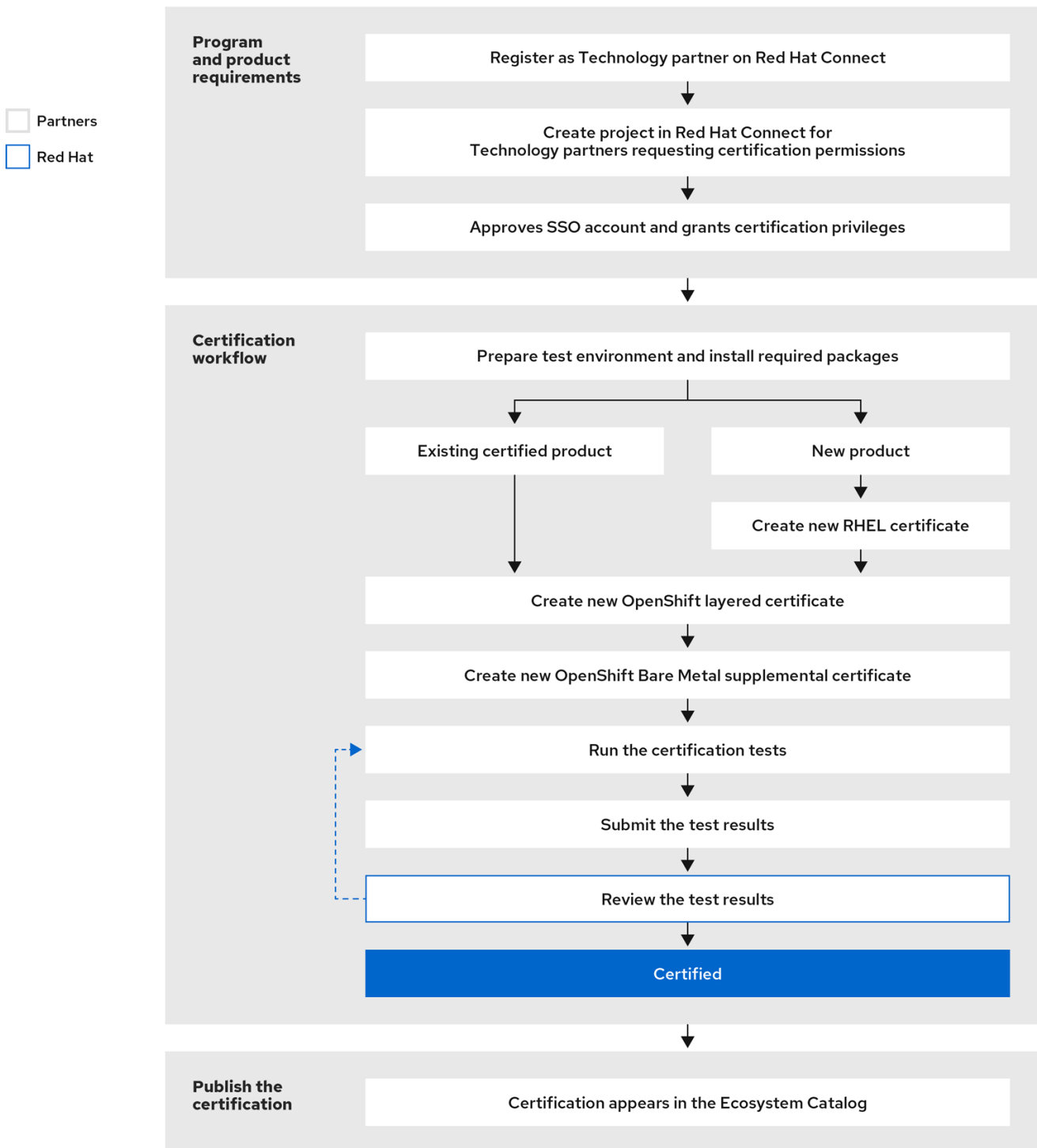
IPI component certification

- The corresponding RHEL server certification is successfully completed and posted.
- The corresponding Red Hat OpenShift Container Platform certification is successfully completed and posted.
- The corresponding bare metal driver is on the Supported Drivers List for the corresponding Red Hat OpenShift Container Platform release.

4.2. CERTIFICATION WORKFLOW

The Red Hat Bare Metal Hardware certification process includes the following requirements and steps:

Figure 4.1. Red Hat OpenShift Container Platform Bare Metal Hardware Certification Process



305_OpenStack_0523

4.3. CERTIFICATION REQUIREMENTS

Ensure you follow the respective [Red Hat OpenShift Container Platform bare metal hardware Workflow Guide](#). Additional details for the certification requirements include:

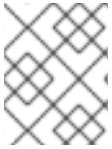
- The Host Under Test (HUT) must already be RHEL certified. Additionally, the tests must run on a previously certified server, and all the tests prescribed in the test plan must be executed in a single run.

- If you have a failed test, take the corrective action and execute **all the tests in a single run**. Open a support case if necessary for guidance.

CHAPTER 5. LEVERAGING CERTIFICATION

Leveraging allows you to request credit for previous successful certification tests when similar or substantially similar BMCs are used across a family of server systems. It is based on your internal qualification testing of the specific BMC on each system, confirming that any variations are not material and the solution matches a previously certified one.

Leveraging can reduce the amount of official testing needed for certification. You can request leveraging when the solution includes a previously certified BMC with the same firmware branch and equal or fewer features.



NOTE

It is your responsibility to verify that any differences in BMC-to-server interaction do not affect the certification.

CHAPTER 6. PASS-THROUGH CERTIFICATION

A Pass-Through Certification refers to the ability of a third-party system or component to be granted certification for hardware previously certified by the original hardware manufacturer. Pass-Through can reduce the overall amount of testing that is required to be performed and submitted to Red Hat to achieve certification for the third-party hardware.

System manufacturers can extend a certification granted to their own systems to another vendor's system where the original vendor:

- Has permission from the third-party,
- Has the mechanics to ensure the third-party does not alter the hardware in such a way that it would no longer be considered a subset of the original model certified by Red Hat, and
- Extends their responsibilities of support and representative hardware to include situations involving third-party hardware.

The third-party cannot then extend their Pass-Through Certification to another vendor.

While both vendors are required to be members of the Red Hat Hardware Certification Program, only the original vendor may request Pass-Through Certifications. Vendors may also utilize the Pass-Through process, where the same vendor has multiple names for the same hardware.

CHAPTER 7. SUPPLEMENTAL CERTIFICATION

Open supplemental certifications in the following scenarios:

First time certification

The bare-metal supplemental certification can be automatically created during a different certification process, for example, when you applied for the Red Hat Enterprise Linux System certification.

If it was not automatically created, or if you need to apply for the certification at a later date, open a new supplemental certification above the Red Hat OpenShift Container Platform certification.

Recertification

Open a supplemental certification to update an existing RHOCP bare-metal certification.

You may want to recertify your product, for example, to certify the same system on different versions of a Red Hat platform or because your product has received a significant update.

You are responsible for initiating these certifications and notifying Red Hat of any material changes to your product.

CHAPTER 8. ASSISTED INSTALLER CERTIFICATION TESTS

The assisted installer tests ensure that the HUT can be installed successfully by using the assisted installer for Red Hat OpenShift Container Platform.

The tests verify single-node clusters only. If you want to certify multiple bare-metal servers, you must install each of them as a single-node cluster.

The following RHEL and RHOCP combinations are supported:

- RHEL 9.2 or 9.4 with RHOCP 4.13, 4.14, or 4.15

The test plan consists on the following tests:

8.1. SELF CHECK TEST

The **self-check** test confirms that all required software packages for certification are installed and unaltered, ensuring the test environment is ready for certification. Certification packages must not be modified for testing or any other purpose.

Success Criteria

The test environment includes all necessary certification packages and the packages have not been modified.

8.2. ASSISTED INSTALLER TEST

The **assisted installer** test queries the assisted installer APIs to collect basic information about the assisted installer and the HUT cluster.

Before you run the test, generate an OpenShift Manager API token and export it as the value of the **OFFLINE_TOKEN** variable. For example:

```
# export OFFLINE_TOKEN=<value_of_your_token>
```

The test will prompt for the cluster ID if unable to determine it.

Success Criteria

The test connects to the assisted installer APIs and collects the information successfully.

8.3. SOSREPORT TEST

The **Sosreport test** connects to the HUT cluster and collects information about the cluster's hardware and configuration.

The **sos_reports/manifest.json** file contains details about node hostnames and the commands run by this test.

Success Criteria

The test correctly collects the information from the Single node OpenShift (SNO) cluster's master node.

8.4. CLUSTER INSPECTION TEST

The cluster inspection test invokes the Cloud-native Network Function (CNF) test. It is a backlog test and is available only in the preview mode.

Additional resources

- For more information about assisted installer tests, see [Running the assisted installer tests](#).

CHAPTER 9. IPI CERTIFICATION TESTS

The IPI test validates whether the Host Under Test (HUT) can be controlled, accessed, deployed, and rebooted remotely by using the Red Hat OpenShift Container Platform ironic service and the HUT's bare metal management controller (BMC).

The test runs in a container accessible by the node that is running the ironic service.

The following RHEL and RHOCP combinations are supported:

- RHEL 9.2 or 9.4 with RHOCP 4.13, 4.14, or 4.15
- RHEL 8 with RHOCP 4.12

The test plan consists of the following tests:

9.1. SELF CHECK TEST

The **self-check** test confirms that all required software packages for certification are installed and unaltered, ensuring the test environment is ready for certification. Certification packages must not be modified for testing or any other purpose.

Success Criteria

The test environment includes all necessary certification packages and the packages have not been modified.

9.2. IPI TEST

The **IPI** test automates power management of the server from the OpenShift console through the ironic service to the BMC.

The test runs the following subtest:

9.2.1. Check and update power state subtest

The **check_update_power_state** subtest first checks if the HUT is powered on, and then restarts the HUT.

The subtest monitors the status of the HUT node every 15 seconds, for a maximum of 15 minutes.

Success Criteria

- The HUT restarts successfully in less than 15 minutes.