



Online Offline Diagnostics

Online Offline Diagnostics (OOD) Field Diagnostics feature allows the customer to test and verify hardware-related issues on a line card deployed in the field. The test results can be used to verify whether a line card is fault and troubleshoot network issues.

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Overview of Online Offline Diagnostics

The Online Offline Diagnostics is a field diagnostic mechanism that allows the customers to test and verify the line card hardware problems.

To perform a hardware diagnostic test on a line card in the Cisco cBR universal broadband router, download an OOD Field Diagnostic image for free from Cisco.com and use it to verify if the line card problems are due to hardware failure. The customer can run field diagnostic tests on the standby line card at any time without interrupting service. Testing the standby line card improves high availability of the system by ensuring the standby line card is ready for a switchover.

Field Diagnostic Image Information

Field Diagnostic image is used to run diagnostic tests on a line card and is available from Cisco.com.

First, download it from Cisco.com to one of the flash file systems on the router. Then move it to the line card, and the line card is automatically taken offline. Once field diagnostic tests are complete and the test results are gathered, the Field Diagnostic image must be unloaded from the line card. Normal line card operation will automatically resume after the Field Diagnostic image is unloaded from the line card.

Benefits of Online Offline Diagnostics

- **Improved Troubleshooting.** Field diagnostics verifies whether a line card problem is hardware-related or not. If the problem is software-related, the Field Diagnostic image allows customer to quickly rule out hardware related cause and focus on fixing the software issue causing the problem.
- **Pre-installation Line Card Hardware Verification.** Field diagnostics verifies whether a line card has hardware problems before installing the line card in a Cisco cBR Series router.

- **Onsite Fault Detection.** Field diagnostics helps to confirm if the problem is hardware-related and if it is necessary to replace the line card.
- **Additional Uptime.** Field diagnostics ensures that line cards are not mistakenly taken offline if the problem is not hardware-related, thereby increasing network uptime.

Prerequisites for Online Offline Diagnostics

- Before running the OOD Field Diagnostic tests on the working (active) line card in an N + 1 redundancy setup, it is advisable to switch over to the protect (standby) line card before loading the Field Diagnostic image to the line card to avoid service interruption.
- After an OOD Field Diagnostic image is loaded to the line card, the line card goes offline. Therefore, schedule a downtime for the line card to be tested before performing field diagnostic tests.
- Before performing any field diagnostic test, unplug all cables on the device that connect to other interfaces. If the cables that connect interfaces are not unplugged, some field diagnostic tests may send packets to connected devices, which increments packet counters on the receiving interfaces.

Restrictions for Online Offline Diagnostics

- When accessing a router through Telnet while running an OOD Field Diagnostic test, testing progress messages do not appear on the screen.
- If supervisor switchover occurs during a field diagnostic test, the test stops immediately and the line card run-time image automatically replaces the Field Diagnostic image on the line card.
- This feature is supported on CBR-CCAP-LC-40G line card in Cisco IOS-XE release 3.18.0S and later releases.
- It is suggested to run OOD on one line card at a time to avoid service impact.
- To run OOD on multiple line cards, leave 5 to 10 minutes gap before loading the OOD image to the next line card.

How to Configure Online Offline Diagnostics

Configuring Field Diagnostic Test

To load the field diagnostic image and start field diagnostic test, complete the following procedure:

```
copy tftp:image-file {harddisk: | bootflash: | flash:}
request platform hardware diagnostic load slot slot-id image-file autostart
```

Verifying the Testing Process

To verify whether the field diagnostic tests are running, use the **show platform hardware diagnostic status slot slot-id** command as shown in the example below:

```
Router# show platform hardware diagnostic status slot 0
Online Offline Diagnostic Status (P=Passed, F=Failed, U=Untested)
State                Overall Test Num      Test Done Num      Test Result
-----
Running Auto Test    75                      70                 P:69 F:1 U:5
```



Note If the test result shows that the failed test number is not 0, please copy the full log and contact Cisco TAC team for support. You can use **dir harddisk:ood/** command to list the log files.

Removing the Field Diagnostic Image from a Line Card

To unload the Field Diagnostic image, use the **request platform hardware diagnostic unload slot *slot-id*** command as below:

```
request platform hardware diagnostic unload slot slot-id
```

Then the line card will be reloaded to run-time image.



Note To retain the results of a diagnostic test, copy and paste the **show platform hardware diagnostic status slot** command output into a separate file before unloading the Field Diagnostic image. The output of the **show platform hardware diagnostic status slot** command cannot be gathered after unloading the Field Diagnostic image from the line card.

Configuration Example for Online Offline Diagnostics

The following example shows running output for Online Offline Diagnostics:

```
copy tftp:field_diag harddisk:
request platform hardware diagnostic load slot 0 harddisk:field_diag autostart

Mar 2 16:00:51.933 CST: %IOSXE_OIR-6-REMCARD: Card (cc) removed from slot x
Mar 2 16:00:51.934 CST: %CABLE_CLC-5-LOGGER_LC_REMOVED: Carrier Card x removed
```

Feature Information for Online Offline Diagnostics

Use Cisco Feature Navigator to find information about the platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to the <https://cfmng.cisco.com/> link. An account on the Cisco.com page is not required.



Note The following table lists the software release in which a given feature is introduced. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 1: Feature Information for Online Offline Diagnostics

Feature Name	Releases	Feature Information
Online Offline Diagnostics	Cisco IOS XE Everest 16.6.1	This feature was integrated into Cisco IOS XE Everest 16.6.1 on theCisco cBR Series Converged Broadband Routers.