Online Diagnostics

This chapter details the Online Diagnostics feature supported on Cisco NCS 6000 Series Routers. This feature enables you to test and verify the hardware functionality when connected to a live network.

Table 1: Feature History for Online Diagnostics

Release	Modification
Release 6.3.1	This feature was introduced.

Online Diagnostics

Cisco NCS 6000 Series Routers support Online Diagnostics feature that enables you to run tests to verify the hardware functionality when connected to a live network. Scheduled diagnostics and health-monitoring ensures high availability of a system. When a problem is detected, diagnostic test results help in isolating the location of the problem, enabling you to take appropriate measures to resolve the issues in less time.

The diagnostic tests check different hardware components in a system and verify the data paths and control signals. These tests detect problems (if any) in the following areas: Hardware components, connectors, solder joints, and memory.

The diagnostic tests can either be run online or offline but, Cisco NCS 6000 Series Routers support only online (run-time) diagnostics tests. These online tests can either be disruptive or non-disruptive. Non-disruptive tests run in the background and do not affect the data or control plane of a system. However, disruptive tests affect live packet flows and have to be scheduled only during preset maintenance windows.

Note Cisco NCS 6000 Routers do not support offline diagnostic tests.

Online diagnostic tests can be categorized based on the way they are executed. They are:

- On-demand diagnostics: Tests that are run as needed from the command-line interface (CLI) using a **diagnostic start** command. These tests are useful when a hardware fault is suspected. You can check the diagnostics results to know the status and troubleshoot the hardware functionality.

- Scheduled diagnostics: Tests that can either be run periodically or at a specific time. These tests can be used as disruptive tests and run during maintenance windows. When a failure is detected in the system, the diagnostic results are saved and syslog messages are displayed.

Note Both on-demand and scheduled diagnostic tests do not cause bad hardware to reset or power down.

- Heath monitoring diagnostics: Tests that run in the background as a non-disruptive test when the system is in operation and connected to a live network. These tests pro-actively detect hardware failures in a live network. You can schedule the number and interval granularity of these tests.

Different types of online diagnostic tests supported by Cisco NCS 6000 Routers are:

- Control Ethernet Ping Test
- Fabric Diagnostic Test
- Control Ethernet Inactive Link Test
- NPU Path Ping Test
- File System Diagnostic Test

Note Cisco NCS 6000 Routers support only File System tests in Release 6.3.1.

File System (FS) Diagnostic Tests: File System test runs diagnostics on the file system of the virtual machine on which it is running. File System tests can detect if the file-system is full, file-system corruptions, and permission issues. For details on online diagnostic commands see, *Online Diagnostic Commands* chapter in System Monitoring Command Reference for Cisco NCS 6000 Series Routers.