Online Diagnostics for NPU

Cisco 8000 Series Routers support the Online Diagnostics feature that enables you to run tests to verify the hardware functionality when connected to a live network. 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 issue in less time.

Table 1: Feature History Table

Feature Name	Release	Description
Online diagnostics for NPU	Release 7.5.2/	You can now use the online diagnostic feature to verify if the router NPUs are operational. NPU failure logs are captured in the system log output. You can also generate tech support information that is useful for Cisco Technical Support representatives when troubleshooting a router. This feature introduces the following commands: • **diagnostic monitor interval** • **diagnostic monitor location disable** • **diagnostic monitor syslog** • **diagnostic monitor threshold** • **show diagnostic trace location** • **show diagnostic result**

• Online Diagnostics for NPU, on page 2

Online Diagnostics for NPU

The diagnostic tests check different hardware components in a system and verify the data paths and control signals. The online diagnostics tests use the CPU to send packets to the Network Processing Unit (NPU) through the Punt switch. If a failure is detected, an NP Datalog is automatically generated to help diagnose the problem.

The default interval for the NPU loopback test is one minute, and the default threshold is 3.

The following is a sample system log output:

```
LC/0/6/CPU0:Oct 30 18:52:37.737 UTC: 8000_online_diag[123]: %DIAG-DIAG-3-GOLDXR_FAIL :
SFNPULoopback: Online diagnostic packet drops detected on NPU 0, slice 0. Please collect
"show tech-support online-diags".
LC/0/6/CPU0:Oct 30 18:52:37.737 UTC: 8000_online_diag[123]: %DIAG-DIAG-3-GOLDXR_FAIL : Use
 "show diagnostic result location <location> detail" to monitor online diagnostic results.
```

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

Types of Online diagnostic test	Description
Dynamic diagnostics	Online Diagnostics are enabled when the system starts and the system datapath is operational. When the system is in use and linked to a live network, these tests run in the background as a non-disruptive test.
On-demand diagnostics	Tests that are conducted as needed using a diagnostic start command from the command-line interface (CLI). These tests are useful when a hardware fault is suspected. You can use these diagnostics tests to determine the status and troubleshoot the hardware issues.