



## 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	<p>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.</p> <p>You can also generate tech support information that is useful for Cisco Technical Support representatives when troubleshooting a router.</p> <p>This feature introduces the following commands:</p> <ul style="list-style-type: none"><li>• <b>diagnostic monitor interval</b></li><li>• <b>diagnostic monitor location disable</b></li><li>• <b>diagnostic monitor syslog</b></li><li>• <b>diagnostic monitor threshold</b></li><li>• <b>show diagnostic trace location</b></li><li>• <b>show diagnostic result</b></li></ul>

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# Online Diagnostics for NPU

The diagnostic tests check different hardware components in a system and verify the data paths and control signals. By default, online diagnostics operation uses the Central processing unit (CPU) to send packets to the Network Processing Unit (NPU) through the Punt switch once every minute.

By default, if a particular NPU fails to transmit the traffic back to the CPU three times in a row, an NP Datalog is generated to help diagnose the problem. The NPU failures are logged in the system log output with the text `ONLINE_DIAG_FAIL`.

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	<p>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.</p> <p>The default interval for Online Diagnostic execution is one minute and can be modified using the <b>diagnostic monitor interval</b> command.</p>
On-demand diagnostics	<p>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.</p> <p>You can use these diagnostics tests to determine the status and troubleshoot the hardware issues.</p>