Checking Port Status and Connectivity

Check Cable Status Using Time Domain Reflectometer

The Time Domain Reflectometer (TDR) feature allows you to determine if a cable is OPEN or SHORT when it is at fault.

With TDR, you can check the status of copper cables for the ports on the Catalyst 9300 Series Switches. TDR detects a cable fault by sending a signal through the cable and reading the signal that is reflected back. All or part of the signal can be reflected back due to defects in the cable.

Note Category 5 cable has four pairs. Each pair can assume one of the following states: open (not connected), broken, shorted, or terminated. The TDR test detects all four states and displays the first three as “Fault” conditions, and displays the fourth as “Normal”.

TDR feature is supported on the following modules:

- C9300-24T
- C9300-48T
- C9300-24P
- C9300-48P
- C9300-24U
- C9300-48U
- C9300-24UX
- C9300-48UXM
- C9300-48UN

TDR detects a cable fault by sending a signal along its wires. Depending on the reflected signal, it can determine roughly where a cable fault could be. The variations on how TDR signal is reflected back determine the results

on TDR. On Catalyst 9300 Series Switches, only two types of cable fault types are detected - OPEN, SHORT and IMPEDANCE MISMATCH. We do display Normal status in case cable is properly terminated and this is done for illustrative purpose.

Running the TDR Test

To start the TDR test, perform this task:

Procedure

	Command or Action	Purpose
Step 1	**test cable-diagnostics tdr** {**interface** { *interface-number* }}	Starts the TDR test.
Step 2	**show cable-diagnostics tdr** {**interface** *interface-number*}	Displays the TDR test counter information.

TDR Guidelines

The following guidelines apply to the use of TDR:

- Do not change the port configuration while the TDR test is running.
- If you connect a port undergoing a TDR test to an Auto-MDIX enabled port, the TDR result might be invalid.
- If you connect a port undergoing a TDR test to a 100BASE-T port such as that on the device, the unused pairs (4-5 and 7-8) are reported as faulty because the remote end does not terminate these pairs.
- Due to cable characteristics, you should run the TDR test multiple times to get accurate results.
- Do not change port status (for example, remove the cable at the near or far end) because the results might be inaccurate.
- TDR works best if the test cable is disconnected from the remote port. Otherwise, it might be difficult for you to interpret results correctly.
- TDR operates across four wires. Depending on the cable conditions, the status might show that one pair is OPEN or SHORT while all other wire pairs display as faulty. This operation is acceptable because you should declare a cable faulty provided one pair of wires is either OPEN or SHORT.
- TDR intent is to determine how poorly a cable is functioning rather than to locate a faulty cable.
- When TDR locates a faulty cable, you should still use an offline cable diagnosis tool to better diagnose the problem.
- TDR results might differ between runs on different switch models of Catalyst 9300 Series Switches because of the resolution difference of TDR implementations. When this occurs, you should refer to an offline cable diagnosis tool.

Feature History for Checking Port Status and Connectivity

This table provides release and related information for features explained in this module.

These features are available on all releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature	Feature Information
Cisco IOS XE Gibraltar 16.11.1	Time Domain Reflectometer (TDR)	TDR allows you to determine if a cable is OPEN or SHORT when it is at fault.

Use Cisco Feature Navigator to find information about platform and software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn.