Revised: September 29, 2025

TDR for cable status

Feature History for TDR

This table provides release and platform support information for the features explained in this module.

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

Release	Feature Name and Description	Supported Platform
Cisco IOS XE 17.18.1	TDR: The Time Domain Reflectometer (TDR) is a diagnostic test that is used to determine if an Ethernet cable connected to a switch port is faulty and estimate the location of the fault in the cable.	Cisco C9350 Series Smart Switches Cisco C9610 Series Smart Switches

Check cable status with TDR

The Time Domain Reflectometer (TDR) is a diagnostic test that is used to determine if an Ethernet cable connected to a switch port is faulty and estimate the location of the fault in the cable. Use the TDR test to quickly diagnose if network issues are caused by faulty copper cables before inspecting other devices.

Additionally, you can also use the TDR test to measure the length of a cable that is connected to a port and determine whether the cable exceeds the allowed length.

How TDR works

Summary

When the TDR test command is executed, the switch sends a TDR signal along the Ethernet cable that is connected to its port. If there is a fault in the cable, the signal is reflected back. The switch analyzes the reflected signal to estimate the type of fault and the approximate distance to the fault.

Type of faults

There are three types of faults that can occur in a cable.

The following table details the fault types and the reason behind the faults.

Fault type	Reason
Open circuit	The cable must be broken.
Short circuit	The cable is in contact with another cable.
Impedance mismatch	The cable must have damages such as insulation damage or water damage.

Support of TDR on switch modules

TDR is supported only on the C9600-LC-48TX module of the Cisco 9610 Series Switches.

Guidelines to run a TDR test

Read the following guidelines before running the TDR test:

- Run the TDR test multiple times to improve accuracy due to variations in cable characteristics.
- TDR works best if the test cable is disconnected from a remote port. Otherwise, it might be difficult for you to interpret results correctly.
- Keep the port configuration unchanged while running the TDR test.
- Keep the port status unchanged to avoid inaccurate results.
- When a port undergoing a TDR test connects to an Auto-MDIX-enabled port, invalid results can be displayed.
- 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.
- TDR operates across four wires. Based on the cable conditions, the status may indicate one pair is open or short status while others are faulty. This result is acceptable because if one pair is open or short, the cable is declared faulty.
- If TDR locates a faulty cable, use an offline cable diagnosis tool for a detailed analysis.
- TDR results might differ between runs on different switch models of Catalyst 9300 Series Switches because of the resolution difference of TDR implementations. If this happens, refer to an offline cable diagnosis tool.
- Category 5 cable has four pairs. Each pair can assume one of these 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.

Run the TDR test

To start the TDR test, perform this task:

Step 1 **test cable-diagnostics tdr** {**interface** { *interface-number* }}

Example:

```
Device# test cable-diagnostics tdr interface HundredGigE3/0/5
```

Starts the TDR test.

Step 2 **show cable-diagnostics tdr** {**interface** *interface-number*}

Example:

```
Device# show cable-diagnostics tdr interface HundredGigE3/0/5
```

Displays the TDR test counter information.

Example: View the TDR test results

The following is a sample output of the **test cable-diagnostics tdr** command on a Cisco 9610 Series Switch:

```
Switch#test cable-diagnostics tdr int te7/0/1
Link state may be affected during TDR test
A TDR test can take a few seconds to run on an interface
Use 'show cable-diagnostics tdr' to read the TDR results.
Switch#
*Jun 20 06:44:29.259: %PM-6-CABLE_TEST: TDR test started on interface Te7/0/1
*Jun 20 06:44:30.263: %LINEPROTO-5-UPDOWN: Line protocol on Interface TenGigabitEthernet7/0/1, changed state
to down
Switch#
*Jun 20 06:44:31.264: %LINK-3-UPDOWN: Interface TenGigabitEthernet7/0/1, changed state to down
```

The following is a sample output of the **show cable-diagnostics tdr** command on a Cisco 9610 Series Switch:

```
Switch#show cable-diagnostics tdr interface te7/0/1
TDR test last run on: June 20 06:44:29

Interface   Speed Local pair Pair length        Remote pair Pair status
---------   ----- ---------- ------------------ ----------- --------------------
Te7/0/1     10G   Pair A     15   +/- 10 meters Pair A      Normal
                  Pair B     15   +/- 10 meters Pair B      Normal
                  Pair C     15   +/- 10 meters Pair C      Normal
                  Pair D     15   +/- 10 meters Pair D      Normal
```

Status	Explanation
Open	Cable is not connected.
Broken	Cable is broken.
Shorted	Cable is in contact with another cable
Normal	Cable is terminated at the other end.