

Example of the Time Domain Reflectometer function within a Cisco 3560 Switch

A most often overlooked, but cool feature in IOS is the TDR. It is not available on all platforms (more the high-end switches) and functionality depends both on hardware as well as IOS versions.

```
Switch3560# test cable-diagnostics tdr interface fastEthernet 0/8
Link state may be affected during TDR test
TDR test started on interface Fa0/8
A TDR test can take a few seconds to run on an interface
Use 'show cable-diagnostics tdr' to read the TDR results.
```

Result:

```
Switch3560# show cable-diagnostics tdr int fas0/8
TDR test last run on: March 01 01:14:55
```

Interface	Speed	Local pair	Pair	length	Remote pair	Pair status
Fa0/8	100M	Pair A	0	+/- 15 meters	Pair B	Normal
		Pair B	0	+/- 15 meters	Pair A	Normal
		Pair C	N/A		Pair D	Not Supported
		Pair D	N/A		Pair C	Not Supported

Other example:

Interface	Speed	Local pair	Pair	length	Remote pair	Pair status
Gi0/1	auto	Pair A	20	+/- 4 meters	N/A	Open
		Pair B	20	+/- 4 meters	N/A	Open
		Pair C	21	+/- 4 meters	N/A	Open
		Pair D	20	+/- 4 meters	N/A	Open

This last output shows a cable approximately 20 meters in length connected to interface G0/1, with nothing attached to the far end.

Example of a bad connection: (seems to be working.. but the connection is far from optimal)

```
SW-3560#show cable-diagnostics tdr interface gi 0/1
TDR test last run on: March 02 12:31:22
```

Interface	Speed	Local pair	Pair	length	Remote pair	Pair status
Gi0/1	1000M	Pair A	4	+/- 10 meters	Pair A	Normal
		Pair B	4	+/- 10 meters	Pair B	Normal
		Pair C	2	+/- 2 meters	Pair C	Open
		Pair D	2	+/- 2 meters	Pair D	Open

Explanation:

<https://supportforums.cisco.com/document/74231/how-use-time-domain-reflectometer-tdr>

Result	Explanation
Normal	Ideal result you want.
	<ul style="list-style-type: none">If testing FastEthernet, you want Pair A and B as "Normal".

	<ul style="list-style-type: none"> If testing GigabitEthernet, you want ALL as “Normal”.
Open	Open circuit. This means that one (or more) pair has “no pin contact”.
Short	Short circuit.
Impedance Mismatched	Bad cable. For more explanation, go here .

An ideal result is “Normal”. In practice, whether the remote-end device is FastEthernet or GigabitEthernet, I will **never accept a TDR result other than “Normal” in all four pairs**.

Cable Pairs explained?

This is how I see what each Pairs control:

Pairs	Function
A	This pair controls whether or not the port should go up or down.
B	Protocol-level and controls FastEthernet.
C	Power over Ethernet (PoE)
D	GigabitEthernet

Note that TDR is only for Copper interfaces. For fiber interfaces there is the Pseudo Random Bit Sequence test, or PRBS. (may not / yet be available on your platform) My platform (3560) has a Fiber connection but the PRBS test is not supported.