How to Copper Test a Port on a Switch

Objective

The Copper Test feature of the switch tests whether a port can link up or not through an RJ45 connector and also helps to determine the cable performance with the use of the Virtual Cable Tester (VCT). If an interface has problems, you can perform a diagnostic test on the cable that is plugged on that interface to see its status. With this information in hand, you can make better decisions when you troubleshoot an interface.

VCT performs two types of tests:

- Time Domain Reflectometry (TDR) technology tests the quality and characteristics of a copper cable attached to a port. Cables of up to 140 meters long can be tested. These results are displayed in the Test Results area of the Copper Test page.
- Digital Signal Processing or DSP-based tests are performed on active XG links to measure cable length. These results are displayed in the Advanced Information area of the Copper Test page. This test can run only when the link speed is 10G.

This article explains the performance of the copper ports test done by the VCT on Gigabit Ethernet (GE) ports.

Applicable Devices

- Sx200 Series
- Sx250 Series
- Sx300 Series
- Sx350 Series
- SG350X Series
- Sx500 Series
- Sx550X Series

Software Version

- 1.4.7.06 — Sx200, Sx300, Sx500
- 2.2.8.04 — Sx250, Sx350, SG350X, Sx550X

Copper Test a Port on your Switch

Preconditions to Running the Copper Port Test

Before running the test, do the following:

- Use a CAT6a data cable when testing cables using VCT.
- (Mandatory) Disable Short Reach mode on the port of your switch. Basic cable test results are accurate if Short Reach is disabled. To learn how to configure the Short Reach settings on the ports of your switch, click here for instructions.
- (Optional) Disable Energy Efficient Ethernet (EEE). The advanced cable test results are accurate if EEE is disabled on the port that you are going to test. To learn how to configure the EEE settings on the ports of your switch, click here.

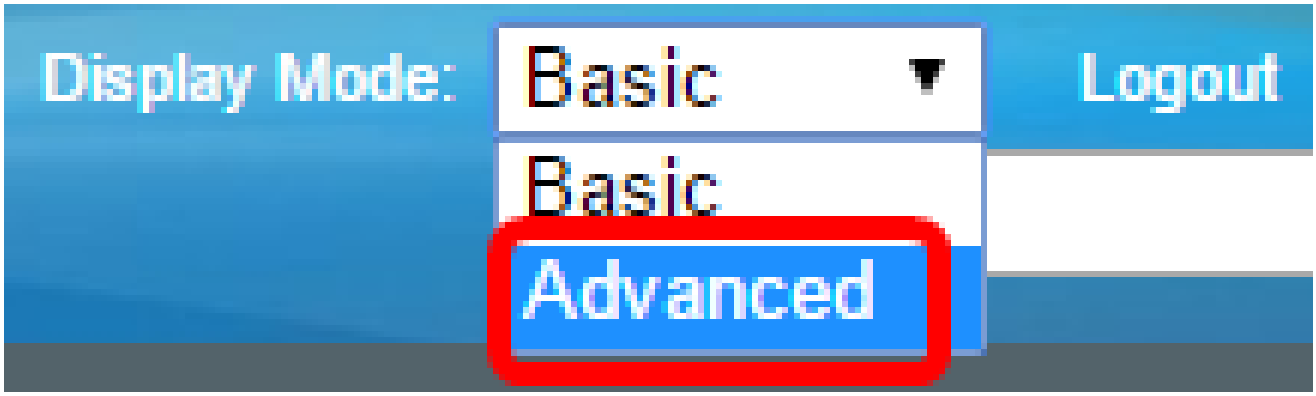
Important: When a port is tested, it is set to the Down state and communications are interrupted. After the test, the port returns to the Up state. It is not recommended that you run the copper port test on a port you are using to run the web-based utility of your switch because communications with that device will be disrupted.

Run the Copper Port Test

Note: The test results have an accuracy within an error range of +/- 10 for advanced testing and +/- 2 for basic testing.

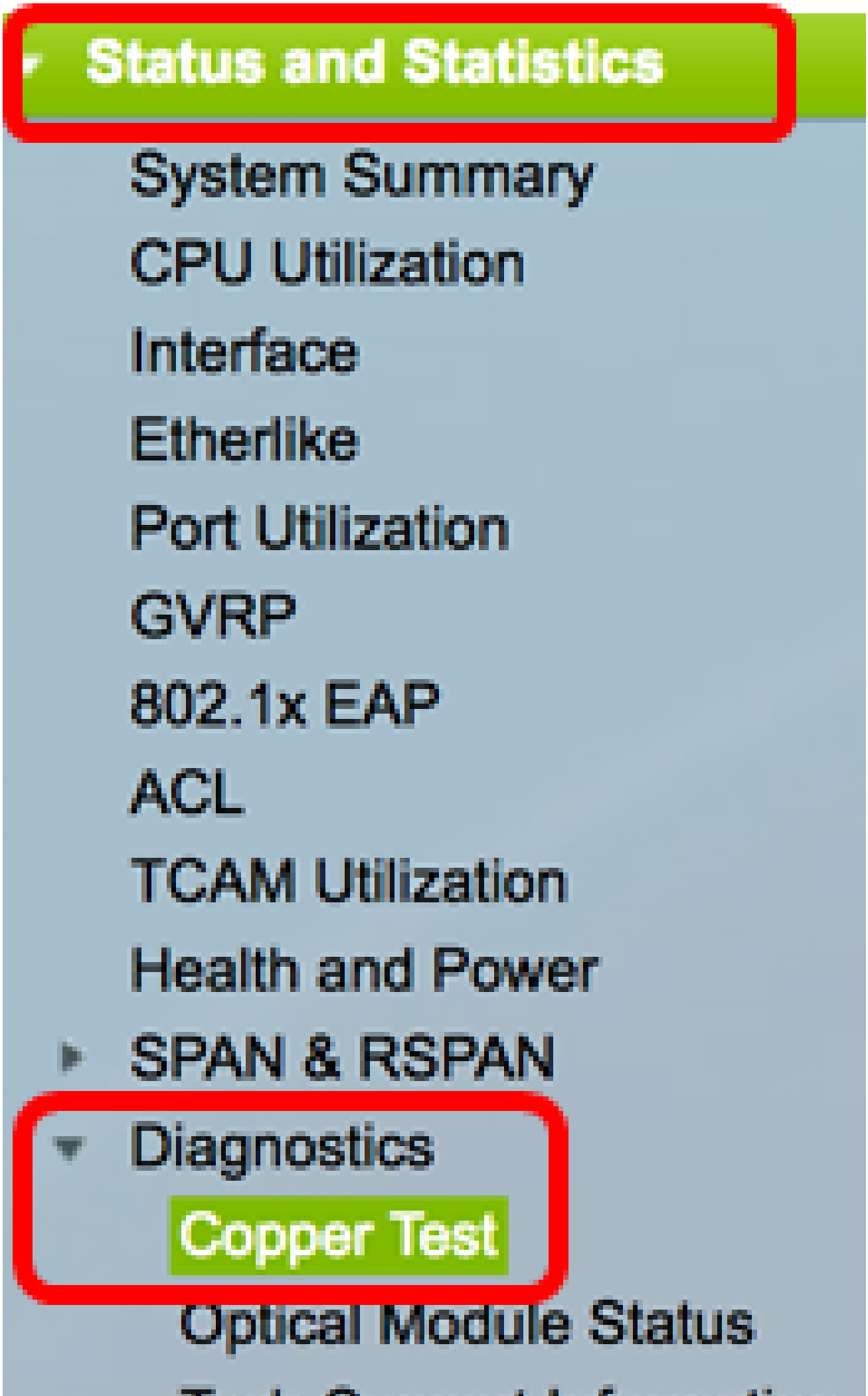
Step 1. Log in to the web-based utility of your switch then choose **Advanced** in the Display Mode drop-down list.

Note: In this example, SG350X-48MP switch is used.

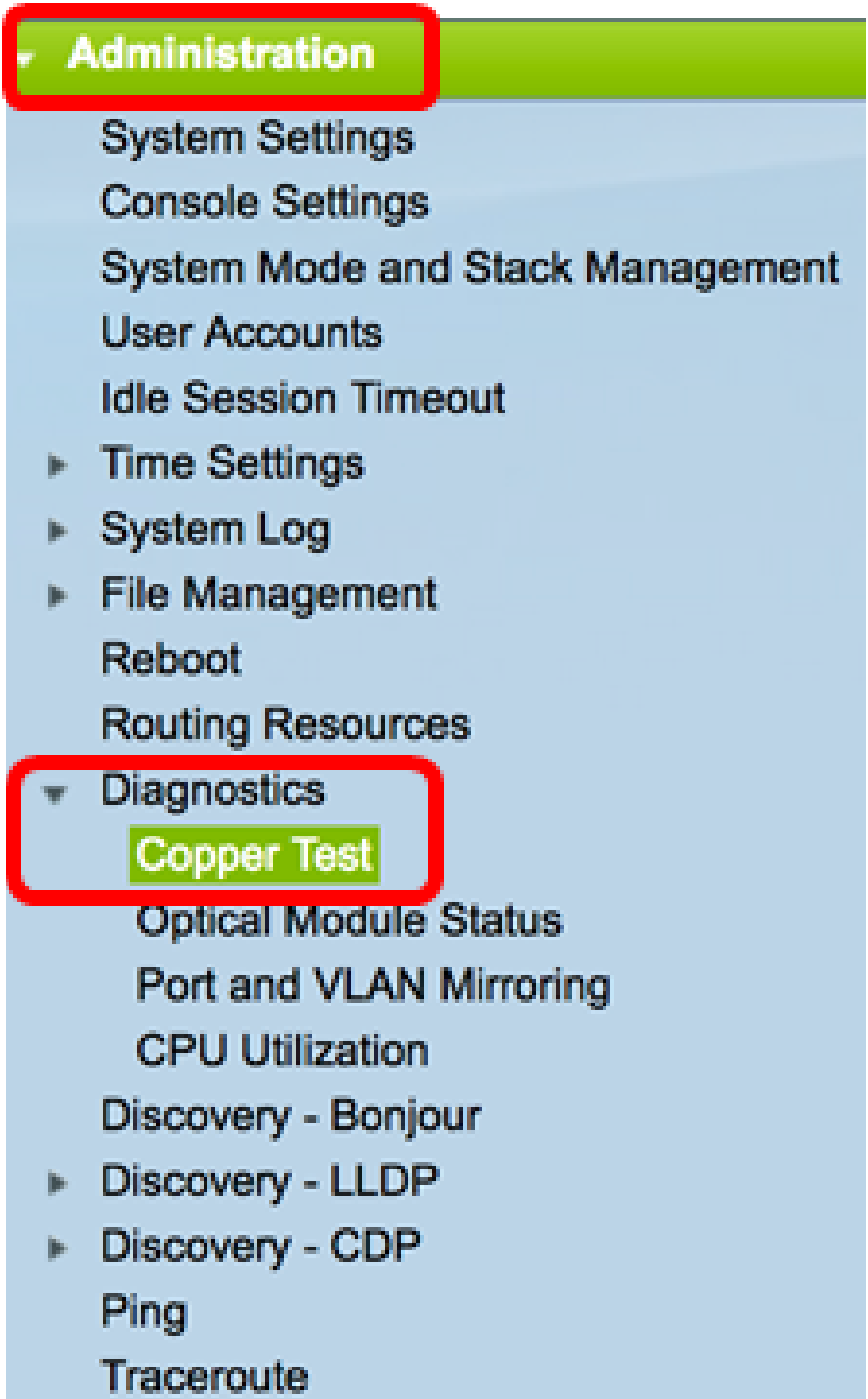


Note: If you have an Sx300 or Sx500 Series switch, skip to Step 2.

Step 2. Log in to the web-based utility of your switch then choose **Status and Statics > Diagnostics > Copper Test**.

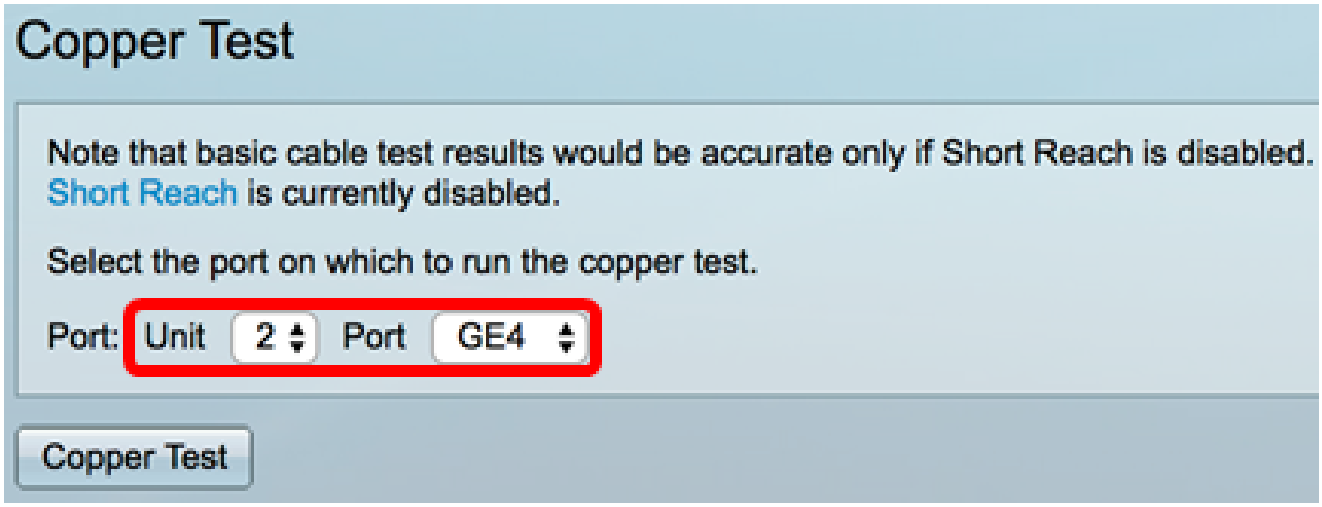

Status and Statistics
System Summary
CPU Utilization
Interface
Etherlike
Port Utilization
GVRP
802.1x EAP
ACL
TCAM Utilization
Health and Power
SPAN & RSPAN
Diagnostics
Copper Test
Optical Module Status

Note: If you have an Sx200, Sx300, or Sx500 Series Switch, choose **Administration > Diagnostics > Copper Test**.

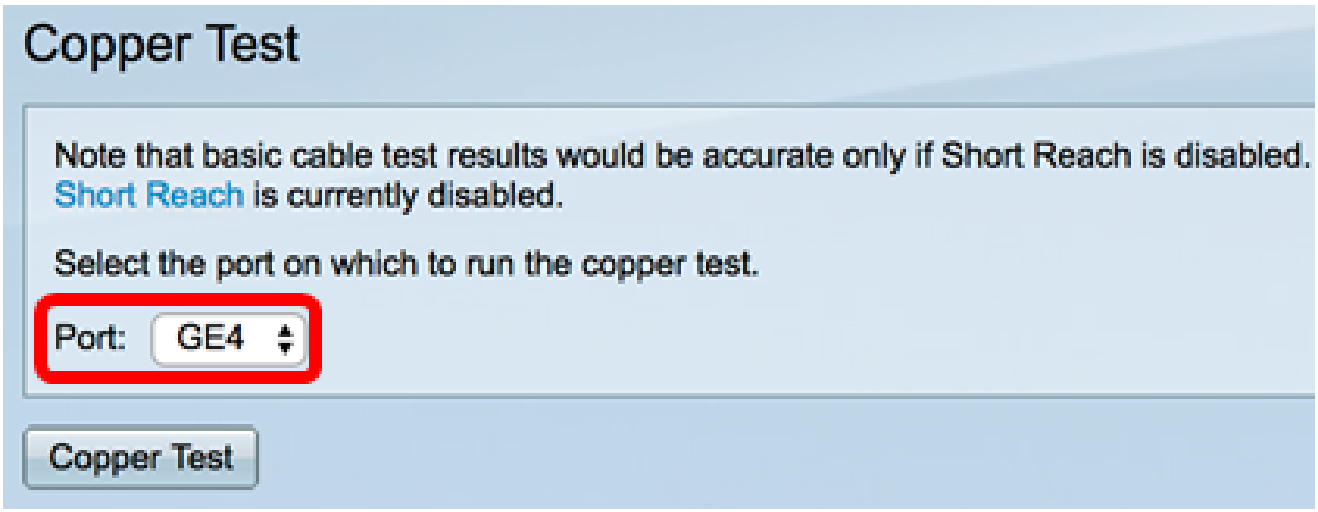

Administration
System Settings
Console Settings
System Mode and Stack Management
User Accounts
Idle Session Timeout
Time Settings
System Log
File Management
Reboot
Routing Resources
Diagnostics
Copper Test
Optical Module Status
Port and VLAN Mirroring
CPU Utilization
Discovery - Bonjour
Discovery - LLDP
Discovery - CDP
Ping
Traceroute

Step 3. In the Port area, choose the port that you want to test.

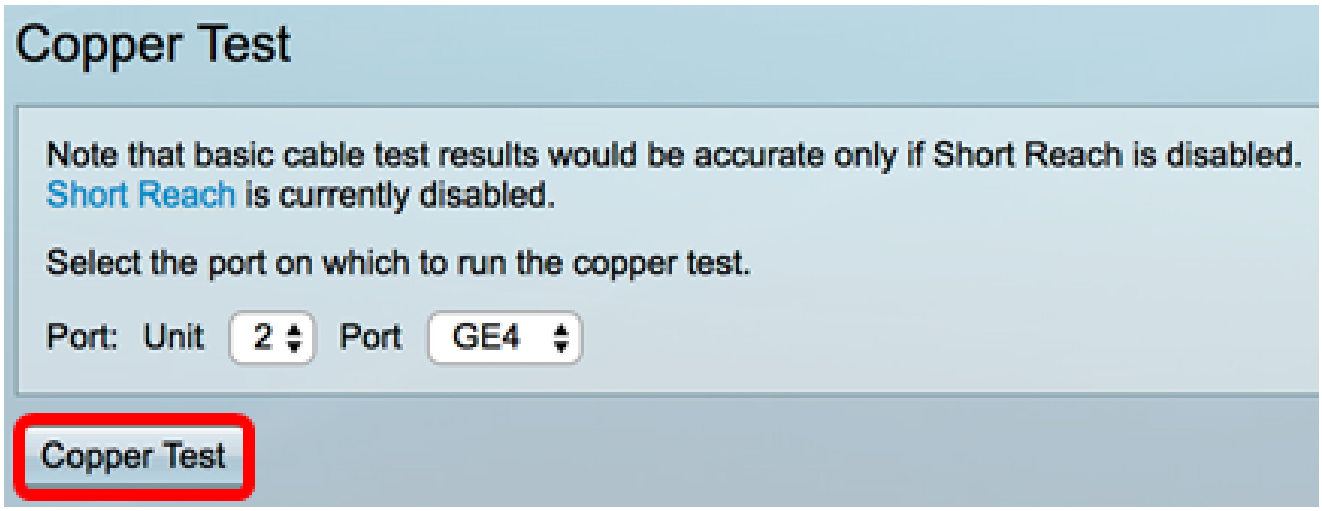
Note: In this example, Port GE4 of Unit 2 is chosen.



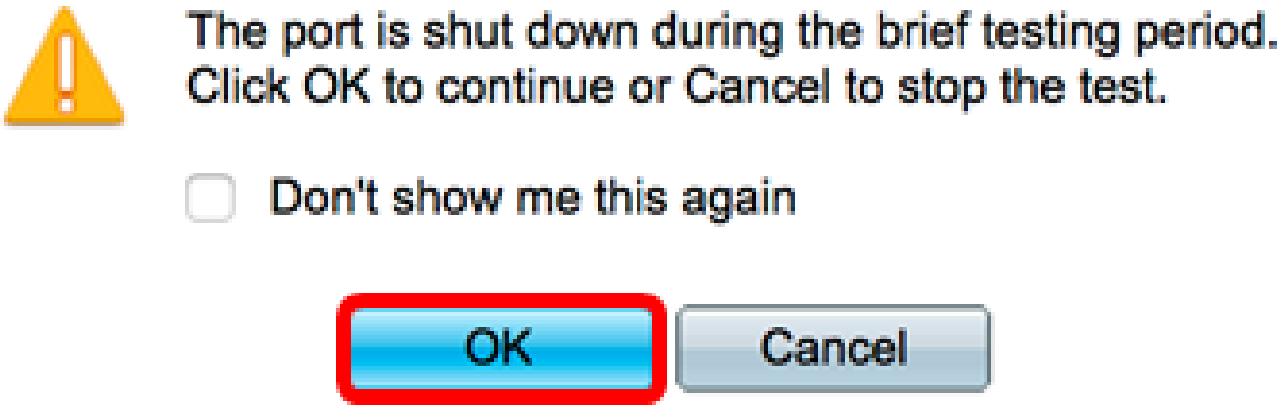
Note: If you have a non-stackable switch such as Sx200, Sx250, or Sx300 Series Switch, choose a port only.



Step 4. Click **Copper Test**.



Step 5. Once the message appears, click **OK** to confirm to shut down the port or **Cancel** to abort the test.



The following information are displayed in the Test Results area:

Note: In this example, one end of the connected cable is broken.

- Last Update — Time of the last test conducted on the port.
- Test Results — Shows the cable test results. Possible values are:

- OK — Cable has passed the test.

- No Cable — Cable is not connected to the port.

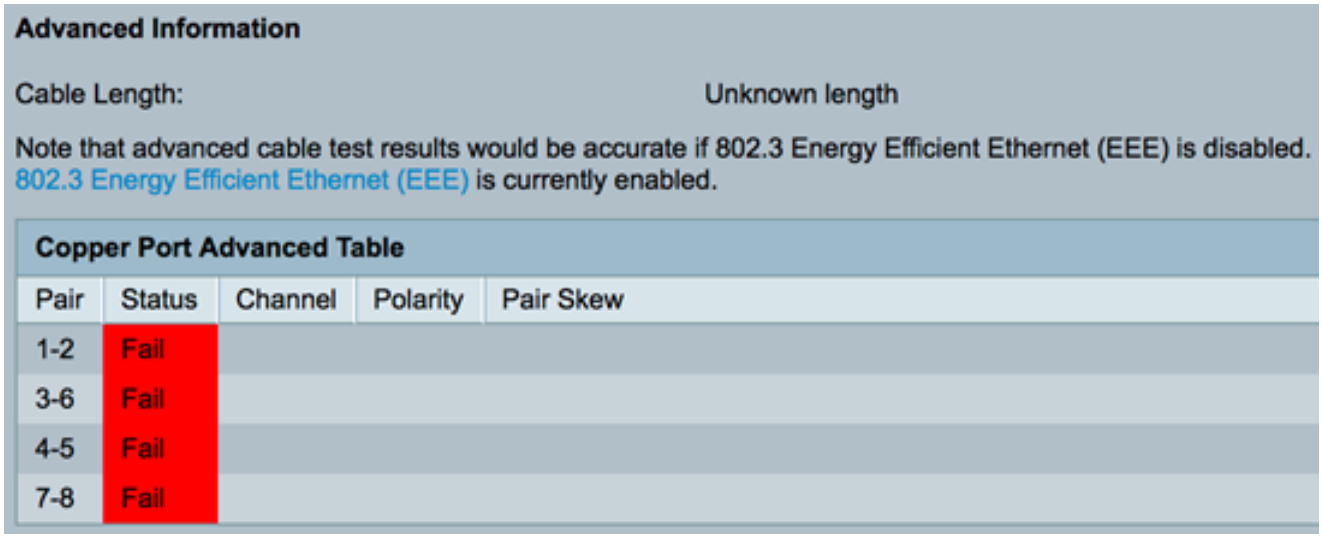
- Open Cable — Only one end of the cable is connected.

- Short Cable — Short circuit has occurred in the cable.

- Unknown Test Result — Error has occurred.

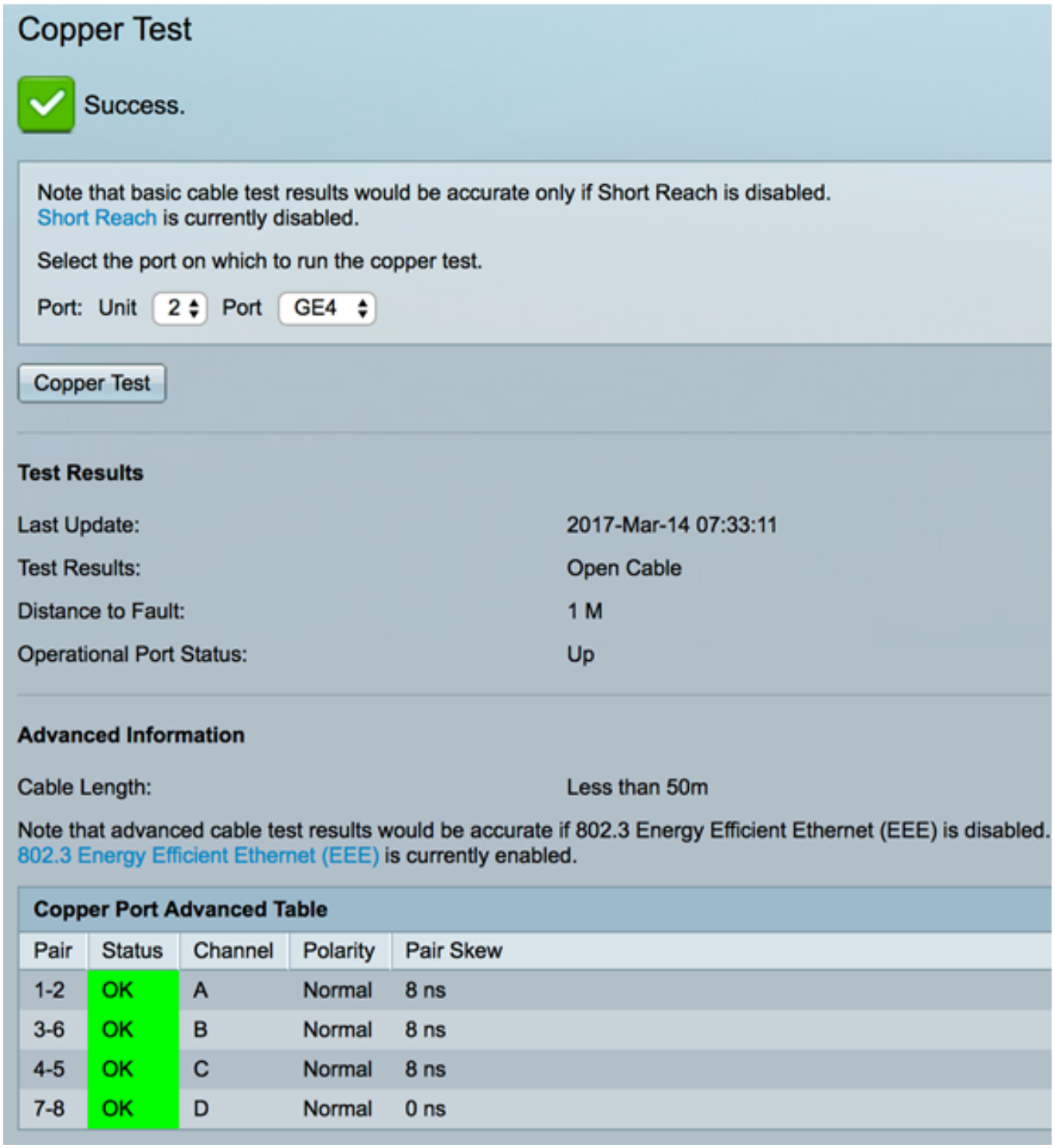
- Distance to Fault — Distance from the port to the location on the cable where the fault was discovered.
- Operational Port Status — Displays whether the port is up or down.

When the VCT is run on a Gigabit port, the Advanced Information area will display the following information:



- Cable Length — Provides an estimate for the cable length.
- Pair — Cable wire pair being tested.
- Status — Wire pair status. A Fail status shown in red indicates fault while an OK status in green indicates that the cable is good.
- Channel — Cable channel indicating whether the wires are straight or cross-over.
- Polarity — Indicates if automatic polarity detection and correction has been activated for the wire pair. Polarity means the TX/RX through the wire. Automatic polarity detection and correction permits automatic adjustment of wiring errors on all RJ45 ports.
- Pair Skew — Difference in delay between wire pairs.

In the example below, the broken cable has been replaced with a new one.



You should now have successfully conducted a copper test on a port of your switch.