



Troubleshooting

The LEDs on the front panel of the Catalyst 2900 series XL switch provide troubleshooting information about the switch. They show failures in the power-on self-test (POST), port-connectivity problems, and overall switch performance. For a full description of the switch LEDs, see the [“LEDs” section on page 1-9](#).

You can also get statistics from the browser interface, from the command-line interface (CLI), or from an SNMP workstation. See the *Catalyst 2900 Series XL and Catalyst 3500 Series XL Software Configuration Guide*, the *Catalyst 2900 Series XL and Catalyst 3500 Series XL Command Reference*, or the documentation that came with your SNMP application for details.

This chapter describes these topics for troubleshooting problems:

- Understanding POST Results
- Diagnosing Problems

Understanding POST Results

Each time the switch is powered on, eight POSTs run automatically to check the most important system components before the switch begins forwarding packets. When the switch begins its POST, the port status LEDs turn amber for 2 seconds, and then they turn green. As each test runs, the port status LEDs turn off, starting with number 1x. The port status LEDs for ports 2x to 8x each turn off in turn as the system completes a test.

When the POST is successful, the port status LEDs go off, meaning that the switch is operational. If a test fails, the port status LED associated with the test turns amber, and the system LED turns amber. Table 3-1 lists the eight tests and their associated LEDs.

**Note**

POST failures are usually fatal. Call Cisco Systems if your switch does not pass POST.

Table 3-1 *POST Descriptions*

Switch LED	Component Tested
1	DRAM
2	Flash memory
3	Switch CPU
4	System board
5	CPU interface ASIC
6	Switch core ASIC
7	Ethernet controller ASIC
8	Ethernet interfaces

Correcting Module POST Failures

If you install modules WS-X2914-XL or WS-X2922-XL in a Catalyst 2924M XL or Catalyst 2912MF XL switch, the module fails POST. This failure occurs because the expansion modules support 2048 MAC addresses and the switch supports 8192 MAC addresses. To correct the failure, restart the switch with the module installed. After the restart, the address capacity of the switch is reduced to 2048 MAC addresses.

Diagnosing Problems

Common switch problems fall into the following categories:

- Poor performance
- No connectivity
- Corrupted software

[Table 3-2](#) describes how to detect and resolve these problems.

Table 3-2 Common Problems and Their Solutions

Symptom	Possible Cause	Resolution
Poor Performance or Excessive Errors.	Duplex autonegotiation mismatch.	Refer to the <i>Catalyst 2900 Series XL and Catalyst 3500 Series XL Software Configuration Guide</i> for information on identifying autonegotiation mismatches.
	Cabling distance exceeded. <ul style="list-style-type: none"> • Port statistics show excessive frame check sequence (FCS), late-collision, or alignment errors. • For 100BASE-TX connections: <ul style="list-style-type: none"> • The distance between the port and the attached device exceeds 328 feet (100 meters). • If the switch is attached to a repeater, the total distance between the two end stations exceeds the 100BASE-T cabling guidelines. • For 10BASE-T connections: The distance between the port and the attached device exceeds 328 feet (100 meters). 	<ul style="list-style-type: none"> • Refer to the <i>Catalyst 2900 Series XL and Catalyst 3500 Series XL Software Configuration Guide</i> for information on displaying port statistics. • Reduce the cable length to within the recommended distances. Refer to your 100BASE-T repeater documentation for cabling guidelines. • Reduce the cable length to within the recommended distances.
	Bad adapter in attached device. <ul style="list-style-type: none"> • Excessive errors found in port statistics. • STP checking for possible loops. 	<ul style="list-style-type: none"> • Run adapter card diagnostic utility. • Wait 30 seconds for LED to turn green.

Table 3-2 Common Problems and Their Solutions (continued)

Symptom	Possible Cause	Resolution
No Connectivity.	<p>Incorrect or bad cable.</p> <p>The following are indicated by no link at both ends:</p> <ul style="list-style-type: none"> • A crossover cable was used when a straight-through was required or vice-versa. • The cable is wired incorrectly. • STP checking for possible loops. 	<ul style="list-style-type: none"> • For the correct pinouts and the proper application of crossover or straight-through cables, see the “Crossover and Straight-Through Cable Pinouts” section on page B-3. • Replace with a tested good cable. • Wait 30 seconds for the LED to turn green.
Amber System LED.	Corrupted software.	Use the show POST EXEC command to see which test failed.
Amber Module Slot LED.	Module not seated in module slot.	Tighten the thumb screws on the module front panel.
Unreadable Characters on the Management Console.	Incorrect baud rate.	Reset the emulation software to 9600 baud.
LRE LED not turned on.	Telephone cable loose or not connected properly.	Reseat telephone cable into telephone wall jack and Cisco LRE CPE.
	Telephone cable defective.	Replace telephone cable.
	Cable trunking defective.	Repair cable trunking or select an alternative pair.
	Cisco LRE CPE not communicating with or might be attempting to exceed rate or reach selected by the Catalyst 2900 LRE XL switch.	Verify switch and upstream network status.

Table 3-2 Common Problems and Their Solutions (continued)

Symptom	Possible Cause	Resolution
LRE status LED not turned on.	RJ-21 cable loose or not connected properly.	Reseat RJ-21 connector and fasten with screw or cable tie.
	Trunk cable defective.	Test trunk cable. If cable is defective, repair or use alternate pair.
	CPE device absent, not powered, or defective.	Check LRE CPE device, and refer to installation guide.
	CPE device out of maximum range.	Consider modification to topology to shorten reach or improve wiring quality.

Table 3-2 Common Problems and Their Solutions (continued)

Symptom	Possible Cause	Resolution
LRE status LED stays amber.	The switch and CPE are unable to establish an LRE link with the profile selected by the switch.	<ul style="list-style-type: none"> Change to a lower profile. For more information, refer to the <i>Catalyst 2900 Series XL and Catalyst 3500 Series XL Software Configuration Guide</i>. Reduce the effect of stubs or bridge taps by terminating them with 300-ohm microfilters.
	Trunk quality too poor to support desired profile.	<ul style="list-style-type: none"> Change to a lower profile. For more information, refer to the <i>Catalyst 2900 Series XL and Catalyst 3500 Series XL Software Configuration Guide</i>. Assess possibility of improving trunk quality.
	Excessive interference from other services in bundle.	<ul style="list-style-type: none"> Consider use of appropriate public profile in bundles shared with other services. Restrict the use of spectrally incompatible services.
	Local nonstandard noise source.	Consult Cisco sales representative for installation optimization.

Table 3-2 Common Problems and Their Solutions (continued)

Symptom	Possible Cause	Resolution
LRE link goes down when telephone is taken off-hook, placed on-hook, rings, or dials.	Unfiltered telephone tap on LRE line.	<ul style="list-style-type: none">• Connect telephone cable into PHONE socket on LRE CPE device.• Terminate additional telephone lines with microfilters. For more information about microfilters, contact your Cisco sales representative.

Table 3-2 Common Problems and Their Solutions (continued)

Symptom	Possible Cause	Resolution
Ethernet performance degradation due to excessive network latency.	Interleaver introduces extra latency to increase noise margin.	<ul style="list-style-type: none"> Adjust upper-layer network protocols to allow for high latency. Change to a profile with a higher data rate to increase link bandwidth. This decreases the noise margin. Select a low-latency (LL) LRE profile, such as LRE-5LL, LRE-10LL, or LRE-15LL. <p>Note Use the low-latency (LL) private profiles with care. The LL profiles have the LL feature enabled and the interleaver feature disabled. The LL feature does not delay data transmission, but it makes data more susceptible to interruptions on the LRE link.</p> <p>All other profiles, public and private, have the interleaver feature enabled and the LL feature disabled. The interleaver feature provides maximum protection against small interruptions on the LRE link but delays data transmission. For more information about the LRE profiles, refer to the <i>Catalyst 2900 Series XL and Catalyst 3500 Series XL Software Configuration Guide</i>.</p>

