

Troubleshooting Hardware and Related Issues on Catalyst 4500/4000 Switches Running Cisco IOS Software

TAC Notice: What's Changing on TAC Web

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Introduction

This document discusses the troubleshoot of hardware and related common issues on Cisco Catalyst 4500/4000 switches with Supervisor Engine II+, III, IV, and V modules. This document does not cover Supervisor Engine I and II troubleshoot practices. For information on the troubleshoot of Supervisor Engine I and II, refer to [Hardware Troubleshooting for Catalyst 4000/4912G/2980G/2948G Series Switches](#).

The Supervisor Engine II+, III, IV, and V run Cisco IOS® Software only. This table describes the support of these Supervisor Engine modules in various chassis:

| Supervisor Engine Model | Chassis with Support |
|-----------------------------------|--------------------------------|
| Supervisor Engine II+ (WS-X4013+) | 4006, 4503, 4506, 4507R |
| Supervisor Engine III (WS-X4014) | 4006, 4503, 4506 |
| Supervisor Engine IV (WS-X4515) | 4006, 4503, 4506, 4507R |
| Supervisor Engine V (WS-X4516) | 4006, 4503, 4506, 4507R, 4510R |

Note: Supervisor Engine modules need to run Cisco IOS Software Release 12.1(12c)EW or later in order to run on the 45xx chassis. The Supervisor Engine IV first release is Cisco IOS Software Release 12.1(12c)EW.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on these software and hardware versions:

- Catalyst 4500/4000 with a Supervisor Engine III and IV
- Cisco IOS Software Release 12.1(12c)EW

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to [Cisco Technical Tips Conventions](#) for more information on document conventions.

Supervisor Engine or Module Problems

Supervisor Engine LED Is Red or Status Indicates Faulty

If your switch Supervisor Engine LED is red or the status shows faulty, there can be a hardware problem. This [Common Reasons and Solutions](#) section provides common reasons for this problem and solutions:

Common Reasons and Solutions

- Console into the Supervisor Engine and issue the **show diagnostics power-on** command, if you can issue the command. If the action returns a failure, create a service request with [Cisco Technical Support](#) for further assistance.
- If the switch does not boot and fails self diagnostics during the boot sequence, capture the output. Then, create a [Cisco Technical Support](#) service request for further assistance.

If you do not see any hardware failure in the boot sequence or in the output of the **show diagnostics power-on** command, create a [Cisco Technical Support](#) service request for further assistance.

Switch Is in a Continuous Boot Loop, Freezes or Halts During Boot, Is in ROMmon Mode, or Does Not Have the System Image

If your switch Supervisor Engine is in a continuous boot loop, freezes or halts during boot, is in ROM Monitor (ROMmon) mode, or does not have the system image, the problem is mostly likely not a hardware problem. This [Common Reasons and Solutions](#) section provides common reasons for this problem and solutions to recover the switch:

Common Reasons and Solutions

- The Supervisor Engine is in a continuous loop if you have not set the boot variable correctly and you have set the configuration register to 0x2102. For instructions on how to recover the Supervisor Engine, refer to the [Recovering from a Continuous Reboot](#) section of the document [Recover a Cisco IOS Catalyst 4500/4000 Series Switch from a Corrupt or Missing Image or in Rommon Mode](#).
- The Supervisor Engine goes into ROMmon mode or fails to boot when the system image is either corrupt or absent. For instructions on how to recover the Supervisor Engine, refer to the [Recovering from a Corrupt or Missing Image](#) section of the document [Recover a Cisco IOS Catalyst 4500/4000 Series Switch from a Corrupt or Missing Image or in Rommon Mode](#).

The Supervisor Engine III, IV, and V have 64 MB of onboard system Flash, which should easily hold multiple system images. Therefore, have a backup image. In addition to the bootflash:, the Supervisor Engine supports up to 128 MB of compact Flash in the slot0: device. The Supervisor Engine also provides for transfer via TFTP of the image from ROMmon mode, which enables faster recovery of absent or corrupt images.

Note: The Supervisor Engine II+ has 32 MB of onboard system Flash.

Caution: If you run Cisco IOS Software Release 12.1(12c)EW, your switch can crash if you try to use the compact Flash. Format the compact Flash before use. The resolution of this issue is in Cisco IOS Software Release 12.1(13)EW and later.

Standby Supervisor Engine Module Is Not Online or Status Indicates Other

Another issue is the failure of the standby Supervisor Engine module to come online. The status of `other` or `faulty` in the output of the **show module** command or an amber Status LED indicates this problem. This [Common Reasons and Solutions](#) section provides common reasons:

Common Reasons and Solutions

- Console into the standby Supervisor Engine in order to check whether it is in ROMmon mode or in continuous reboot. If the standby Supervisor Engine is in either of these two states, refer to [Recover a Cisco IOS Catalyst 4500/4000 Series Switch from a Corrupt or Missing Image or in Rommon Mode](#).

```
4507#show module
Mod  Ports Card Type                Model          Serial No.
-----
  1      2  1000BaseX (GBIC) Supervisor(active) WS-X4515      JAB0627065V
  2      2  standby supervisor
  3      48  10/100/1000BaseTX (RJ45) WS-X4448-GB-RJ45 JAB053606AG
```

```

4      48  10/100BaseTX (RJ45)V          WS-X4148-RJ45V      JAE060800BL

M MAC addresses          Hw Fw          Sw          Status
-----+-----+-----+-----+-----+-----
1 0009.e845.6300 to 0009.e845.6301 0.4 12.1(12r)EW( 12.1(12c)EW, EAR Ok
2 Unknown          Unknown      Unknown      Other
3 0001.6443.dd20 to 0001.6443.dd4f 0.0           Ok
4 0008.2138.d900 to 0008.2138.d92f 1.6           Ok

```

- Make sure that the Supervisor Engine module properly seats in the backplane connector and that you have completely screwed down the Supervisor Engine installation screw. For more information, refer to the [Installing and Removing the Supervisor Engine](#) section of the document [Installation and Configuration Note for the Catalyst 4000 Family Supervisor Engine IV](#).
- In order to identify whether the standby Supervisor Engine is faulty, issue the **redundancy reload peer** command from the active Supervisor Engine and through the console to the standby Supervisor Engine. Observe the bootup sequence in order to identify any hardware failures. Currently, the active Supervisor Engine cannot access the power-on diagnostics results of the standby Supervisor Engine.
- Make sure that these configurations are synchronized between the active and redundant Supervisor Engines:
 - Startup configuration
 - Boot variable
 - Configuration register
 - Calendar
 - VLAN database

• If a software upgrade is performed on both the active and standby Supervisor Engines, check to determine if both Supervisor Engines run the same new software image. If the software images are not the same, upgrade the software image. Use the procedure in the [Performing a Software Upgrade](#) section of [Configuring Supervisor Engine Redundancy on the Catalyst 4507R](#).

If the standby Supervisor Engine still does not come on line, create a service request with [Cisco Technical Support](#). Use the log of the switch output that you collected from the above output and the troubleshoot steps.

Switch Has Reset or Rebooted on Own

This [Common Reasons and Solutions](#) section provides common reasons that your switch can reset without any manual intervention:

Common Reasons and Solutions

- The switch can have had a software crash. In order to check if a software crash is the reason, issue the **more crashinfo:data** command.

The **more crashinfo:data** command displays the crash information from the last time that the switch crashed on the console or terminal. This command identifies the date and time of the last crash, which helps you determine if the reset that you experienced is because of the crash that is on record.

The crashinfo:data are not present if the switch has never crashed. If the switch has crashed at least once, there is a record of the crash. Currently, there is no way to clear the crashinfo:data which exist in the memory. Make sure that the reset or reboot that you troubleshoot is due to the crashinfo:data. In order to verify the cause, check the date and the time of the last crash, as this example shows:

```

Switch#more crashinfo:data
Current time: 04/21/2000 19:58:10

Last crash: 04/21/2000 03:58:56

Build: 12.1(11b)EW, EARLY DEPLOYMENT

pc=006B14FC lr=006B14FC msr=0002B030 vector=00000700

!--- Output suppressed.

```

In order to display the standby Supervisor Engine crashinfo:data, issue the **more slavecrashinfo:data** command. This command displays any crashinfo:data that are on record in the current standby Supervisor Engine.

If the command indicates a software crash at the time that you suspect that the switch rebooted, the problem can be something other than a hardware failure. Contact [Cisco Technical Support](#) with the output of these commands:

- [show tech-support](#)
- [show logging](#)
- **more crashinfo:data**
- Check the power source for the switch to make sure that the power source did not fail. If you use an uninterruptible power supply (UPS), make sure that the UPS does not have any problems.

If you are still unable to determine the problem, contact the [Cisco Technical Support](#) Escalation Center.

Upgrade ROMmon (PROM Upgrade) and Cisco IOS Software Issues

If you have a Catalyst 4500/4000 series switch that runs Cisco IOS Software Release 12.1(12c)EW or earlier and you want to upgrade your switch to Cisco IOS Software Release 12.1(12c)EW1, you must also upgrade the Supervisor Engine III or IV ROMmon version to Cisco IOS Software Release 12.1(12r)EW or later. If you need further assistance, refer to the [Upgrading the System Software](#) section of the [Release Notes for the Catalyst 4500 Series Switch, Cisco IOS Release 12.1\(20\)EW2](#). If you still need assistance, contact the [Cisco Technical Support](#) Escalation Center.

Ports 1/2 and 2/2 Do Not Function with Dual Supervisor Engines in 4507R

If you have dual Supervisor Engines in a Catalyst 4507R chassis and your ports 1/2 and 2/2 do not function, the problem is not a hardware problem. The system works as per the design. See this [Common Reasons and Solutions](#) section for further information:

Common Reasons and Solutions

In a Catalyst 4507R that uses Supervisor Engine IV modules, the design of the dual uplinks is to work when only one Supervisor Engine is present. This design means that if only one Supervisor Engine is present and is in slot 1, both ports 1/1 and 1/2 are functional. Also, if only one Supervisor Engine is present and is in slot 2, ports 2/1 and 2/2 are functional. When dual Supervisor Engines are present, only ports 1/1 and 2/1 are functional and 1/2 and 2/2 are not functional. This lack of function is not a failure. For more information, refer to the [Supervisor Engine Redundancy Guidelines and Restrictions](#) section of the document [Configuring Supervisor Engine Redundancy on the Catalyst 4507R](#).

Supervisor Engine III That Runs Cisco IOS Software Release 12.1(11b)EW Ceases to Work or Unexpectedly Reboots

If your switch Supervisor Engine that runs Cisco IOS Software Release 12.1(11b)EW suddenly fails to work or unexpectedly reboots, the problem can be the bug that Cisco bug ID [CSCdx94797](#) (registered customers only) describes. The fix is available in Cisco IOS Software Release 12.1(11)EW1 or later. If you still need assistance, contact the [Cisco Technical Support](#) Escalation Center. For additional information about this issue, refer to the [Field Notice: Catalyst 4000 Switches Defer 12.1\(11b\)EW Image - System Failure Possible](#).

Supervisor Engine III or IV Exhibits Packet Loss

If your system is a Catalyst 4500/4000 with Supervisor Engine III or IV and exhibits partial or full loss of network connectivity or packet loss, make sure to perform basic troubleshoot procedures to eliminate the common causes. The common causes include:

- Bad cabling
- A bad port
- Speed and duplex mismatch
- Network interface card (NIC) issues

If you troubleshoot these common reasons and you are not able to narrow down the problem, follow the troubleshoot steps in this section and capture the output of commands at each step. Contact [Cisco Technical Support](#) for troubleshoot assistance.

1. Issue the **show platform software interface all** command at the time that you observe the packet loss issue.

If you run software earlier than Cisco IOS Software Releases 12.1(8a)EW or 12.1(8a)EW1, issue the **show platform software interface all | include TxCrErrors** command multiple times and look for increments in the `TxCrcErrors` counter. Here is an example:

```

cat4k#show platform software interface all | include TxCrErrors
TxCrErrors: 1870
cat4k#

cat4k#show platform software interface all | include TxCrErrors
TxCrErrors: 1920
cat4k#

```

If you run Cisco IOS Software Release 12.1(11b)EW or later, issue the **show platform software interface all | include DroppedBadPackets** command multiple times and look for increments in the `DroppedBadPackets` counter. Here is an example:

```

cat4k#show platform software interface all | include DroppedBadPackets
DroppedBadPackets : 8004
cat4k#

cat4k#show platform software interface all | include DroppedBadPackets
DroppedBadPackets : 8130
cat4k#

```

These counters are only visible if they have a nonzero value in them. Therefore, if you issue the command and do not see any output, your switch does not exhibit the problem. Here is an example:

```

cat4k#show platform software interface all | include DroppedBadPackets
cat4k#

```

If you see increments in the `TxCrcErrors` or `DroppedBadPackets` counters, continue to Step 2.

2. If you run Cisco IOS Software Release 12.1(8a)EW or 12.1(8a)EW1, issue the **show platform cpuport all** command multiple times and look for increments in the `VlanZero` counter.

Here is an example:

```

cat4k#show platform cpuport all | include VlanZero
VlanZero      130363          5          5          5          4
Cat4k#

cat4k#show platform cpuport all | include VlanZero
VlanZero      130383          5          5          5          4
Cat4k#

```

Note: The VlanZero counter can increase even if the TxCrErrors counter does not increase. This situation can indicate a different issue. Contact [Cisco Technical Support](#) for further assistance.

If you run Cisco IOS Software Release 12.1(11b)EW or later, issue the **show platform cpu packet statistics** command multiple times and look for increments in the VlanZeroBadCrc counter. Here is an example:

```
cat4k#show platform cpu packet statistics | include VlanZeroBadCrc
VlanZeroBadCrc 94471 9 9 8 7
cat4k#

cat4k#show platform cpu packet statistics | include VlanZeroBadCrc
VlanZeroBadCrc 94545 9 9 8 7
cat4k#
```

- If both Step 1 and Step 2 show symptoms of packet loss, issue the **reload** command to soft reset the switch, and observe the power-on self test (POST) results at system reset.

Make sure to capture all the output to a text file.

```
cat4k#reload
Proceed with reload? [confirm]

1d21h: %SYS-5-RELOAD: Reload requested
<output truncated>
Decompressing the image : #####
##### [OK]

k2diags version 1.6

prod: WS-X4014 part: 73-6854-09 serial: JAB0620090U

Power-on-self-test for Module 1: WS-X4014
Status: (. = Pass, F = Fail)

Traffic using serdes loopback (L2; one port at a time)...
switch port 0: . switch port 1: . switch port 2: .
switch port 3: . switch port 4: . switch port 5: .
switch port 6: . switch port 7: . switch port 8: .
switch port 9: . switch port 10: . switch port 11: .
switch port 12: . switch port 13: . switch port 14: .
switch port 15: . switch port 16: . switch port 17: .
switch port 18: . switch port 19: . switch port 20: .
switch port 21: . switch port 22: . switch port 23: .
switch port 24: . switch port 25: . switch port 26: .
switch port 27: . switch port 28: . switch port 29: .
switch port 30: . switch port 31: .

Traffic using asic loopback (L2; all ports at once)...
switch port 0: F switch port 1: F switch port 2: F
switch port 3: F switch port 4: F switch port 5: F
switch port 6: F switch port 7: F switch port 8: F
switch port 9: F switch port 10: F switch port 11: F
switch port 12: F switch port 13: F switch port 14: F
switch port 15: F switch port 16: F switch port 17: F
switch port 18: F switch port 19: F switch port 20: F
switch port 21: F switch port 22: F switch port 23: F
switch port 24: F switch port 25: F switch port 26: F
switch port 27: F switch port 28: F switch port 29: F
switch port 30: F switch port 31: F

Traffic using asic loopback (L3; all ports at once)...
switch port 0: F switch port 1: F switch port 2: F
switch port 3: F switch port 4: F switch port 5: F
switch port 6: F switch port 7: F switch port 8: F
switch port 9: F switch port 10: F switch port 11: F
switch port 12: F switch port 13: F switch port 14: F
switch port 15: F switch port 16: F switch port 17: F
switch port 18: F switch port 19: F switch port 20: F
switch port 21: F switch port 22: F switch port 23: F
switch port 24: F switch port 25: F switch port 26: F
switch port 27: F switch port 28: F switch port 29: F
switch port 30: F switch port 31: F

Module 1 Failed
Exiting to ios...
```

This example shows a Supervisor Engine module diagnostic failure.

- If Step 3 results in a Supervisor Engine module diagnostic failure, power cycle the switch and observe the POST results at bootup.
- Issue the **show diagnostics power-on** command to verify the POST results from bootup and determine if diagnostics fail again.

If diagnostics fail again, the problem is most likely bad hardware. Contact [Cisco Technical Support](#) for further assistance.

If the Supervisor Engine passes the diagnostics tests without any failure after the power cycle in Step 4, perform these steps:

- Collect the output from the **show tech-support** command.
- Remove all power supplies from the box, and collect the serial numbers, Cisco part number, and manufacturer of the power supplies.
- Contact [Cisco Technical Support](#) with the information that you collected.

Note: If [Cisco Technical Support](#) did not assist with the troubleshoot procedure, you must provide the information in the order of these steps.

Troubleshoot Error Messages in the Syslog or Console

If you get error messages in the syslog or console, see this [Common Reasons and Solutions](#) section in order to help identify the problem:

Common Reasons and Solutions

The system messages appear on the console if you have enabled console logging or appear in the syslog if you have enabled syslog. Some of the messages are for informational purposes only and do not indicate an error condition. Issue the **show logging** command in order to display the log messages. In order to better understand a specific system message, refer to [Message and Recovery Procedures](#).

If you still cannot narrow down the problem, or if the error message is not present in the document, contact the [Cisco Technical Support](#) Escalation Center.

Troubleshoot Module Failure to Come Online

Part of the module can fail to come online. You may have a module failure if you see an amber or red status LED or if you see one of these statuses in the output of the **show module** command:

- other
- faulty
- err-disable
- power-deny
- power-bad

Common Reasons and Solutions

- Check the *Supported Hardware* section of the [Release Notes](#) for the relevant release. If the module does not have support in the software that you currently run, download the necessary software from [Downloads - Cisco IOS Software](#) (registered customers only).
- Note:** The WS-X4232-L3 module is not supported on a Supervisor Engine II+, III, IV, or V.
- Ensure that the switch loads an image that supports the corresponding line card or module.
- If the status is `power-deny`, the switch does not have enough power available to power this module. Issue the **show power** command in order to confirm whether enough power is available. For more information, refer to [Environmental Monitoring and Power Management](#).
- If the status is `power-bad`, the switch is able to see a card but unable to allocate power. This situation is possible if the Supervisor Engine is not able to access the serial PROM (SPROM) contents on the module in order to determine the identification of the line card. Issue the **show idprom module slot** command in order to verify if the SPROM is readable. If SPROM is not accessible, you can reset the module.
- Make sure that the module is properly seated and that you have completely screwed down the module. If the module still does not come online, issue the **hw-module slot slot number reset** command. If the module still does not come online, try the module in a spare slot, swap the module with the slot of a module that works, or try the module in a different chassis.
- Issue the **show diagnostics online module slot number** command in order to identify any hardware failures on the module. You may follow the previous solution before you conclude that the module had hardware that failed.

If the module still does not come online, create a service request with [Cisco Technical Support](#) in order to troubleshoot further. Use the log of the switch output that you collected in the above output and the troubleshooting steps that you performed.

Interface Problems

Workstation Is Unable to Log In to the Network During Startup or Unable to Obtain the DHCP Address

If you observe one of these symptoms when you have powered up a client machine or rebooted, the problem can be due to an initial connectivity delay that the switch introduced:

- Microsoft network client displays "No Domain Controllers Available".
- DHCP reports "No DHCP Servers Available".
- A Novell Internetwork Packet Exchange (IPX) network workstation does not have the Novell login screen upon bootup.
- An AppleTalk network client displays, "Access to your AppleTalk network has been interrupted. In order to reestablish your connection, open and close the AppleTalk control panel." The AppleTalk client chooser application can either fail to display a zone list or display an incomplete zone list.
- IBM Network stations can have one of these messages:

- NSB83619—Address resolution failed
- NSB83589—Failed to boot after 1 attempt
- NSB70519—Failed to connect to a server

See this [Common Reasons and Solutions](#) section in order to determine if you experience one of the common reasons:

Common Reasons and Solutions

The reason for these symptoms can be an interface delay that either Spanning Tree Protocol (STP), EtherChannel, trunking, or an autonegotiation delay causes. For more information about these delays and possible solutions, refer to [Using PortFast and Other Commands to Fix Workstation Startup Connectivity Delays](#).

If you review and follow the procedure in the document and you still have issues, contact [Cisco Technical Support](#).

Troubleshoot NIC Compatibility Issues

You can have NIC compatibility or misconfiguration issues with the switch if you experience one of these symptoms:

- A server or client connection to the switch does not come up.
- You have autonegotiation issues.
- You see errors on the port.

See this [Common Reasons and Solutions](#) section for more information on the misconfiguration issues:

Common Reasons and Solutions

- The reason for these symptoms can be a known NIC driver issue, speed and duplex mismatch, or autonegotiation or cabling problems. For more troubleshoot information, refer to [Troubleshooting Cisco Catalyst Switches to NIC Compatibility Issues](#).
- This table shows the known issue with the Catalyst 4000 that runs the Supervisor Engine III and IV:

| Symptom | Description | Fix |
|--|---|---|
| WS-X4424-GB-RJ45 does not link up with hard code for speed and duplex. | A Catalyst 4000 Supervisor Engine that runs Cisco IOS Software Release 12.1(12c)EW or earlier does not link up on a WS-X4424-GB-RJ45 line card interface if you have hard coded for speed and duplex. The workaround is to issue the shutdown/no shutdown interface command. | Cisco IOS Software Release 12.1(12c)EW1 and later |

If you still have issues after you review and follow the procedure in the document [Troubleshooting Cisco Catalyst Switches to NIC Compatibility Issues](#), contact [Cisco Technical Support](#) for further assistance.

Interface Is in errdisable Status

If the interface status is `err-disabled` in the output of the **show interface status** command, see this [Common Reasons and Solutions](#) section:

Common Reasons and Solutions

The interface goes into `err-disabled` state for a variety of reasons. Some of the possibilities include:

- Duplex mismatch
- Port channel misconfiguration
- Bridge protocol data unit (BPDU) guard violation
- UniDirectional Link Detection (UDLD) condition
- Late-collision detection
- Link-flap detection
- Security violation
- Port Aggregation Protocol (PAgP) flap
- Layer Two Tunneling Protocol (L2TP) guard
- DHCP snooping rate-limit

In order to determine the reason, issue the **show errdisable recovery** command.

In order to reenable the interface manually, issue the **no shutdown** interface command. Or, you can set up the time-out mechanism in order to reenable the port after a time period that you configure. Once you know the cause of the errdisable state, you can troubleshoot the problem and fix the root of the issue. For example, your port can be in `err-disabled` state because of the receipt of a BPDU on an access port on which you have enabled PortFast. You can troubleshoot in order to determine if a switch has accidental connection to that port, or if a hub was connected in a loop fashion, which makes the switch see its own BPDU. In order to troubleshoot other scenarios, refer to the specific feature information in the [Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide, 12.1\(12c\)EW](#).

If you review and troubleshoot with use of this document and you still have issues, contact [Cisco Technical Support](#) for further assistance.

Troubleshoot Interface Errors

If you see an error in the output of the **show interface** command, see this [Common Reasons and Solutions](#) section:

Common Reasons and Solutions

- The reason for the interface errors can be:
 - A physical layer issue, such as a faulty cable or NIC
 - A configuration issue, such as a speed and duplex mismatch
 - A performance issue, such as an oversubscription

In order to understand and troubleshoot these issues, refer to [Troubleshooting Switch Port and Interface Problems](#).

- At times, error counters increment incorrectly because of a software bug or hardware limitations. This table lists some of the known counter issues with the Catalyst 4000 Supervisor Engine III and IV platform:

| Symptom | Description | Fix |
|---|--|--|
| There are output errors in the show interface command. | The output queue drops incorrectly count as output errors. Note: Valid output errors still count as such. | Cisco IOS Software Release 12.1(11)EW and later |
| The input queue size is greater than the input queue maximum size in the show interface command output. Here is sample output: Input queue: 3285/2000/0/0 (size/max/drops/flushes) | The input queue size incorrectly includes counts of all the input packets. | Cisco IOS Software Release 12.1(12c)EW and later |
| The broadcast counter in the show interface vlan <i>vlan-id</i> command output does not work. The counter is always zero. | The broadcast counter does not count the valid broadcast frames to the VLAN SVI ¹ . | Cisco IOS Software Release 12.1(12c)EW and later |
| The ISL ² trunk port reports giants, and there are input errors on certain line cards in the show interface <i>interface-id</i> command output. | Packets that are larger than 1522 bytes count as oversize, or "giants". These giants also show up as input errors. ISL packets can have a maximum size of 1548 bytes. Packets between 1522 and 1548 bytes switch correctly, but still count as giants because of a known limitation. | Not available |
| A CRC ³ error, and input error, appear in the show interface <i>interface-id</i> command output. | Under certain conditions, the Supervisor Engine III can transmit packets that generate internally with a bad CRC. Packets that enter the switch on external interfaces do not become corrupt under these conditions. Refer to Cisco bug ID CSCdx36065 ☞ (registered customers only) for more information. | Cisco IOS Software Release 12.1(11)EW and later |
| Output that continuously increments drops in the show interface <i>interface-id</i> command output. | The output total drop count should count the total of all Tx ⁴ queue drops for that interface. The counter increments continuously once the <code>tx-queue-drop</code> field has a nonzero value. The drops add cumulatively, which is erroneous. Refer to Cisco bug ID CSCdx62202 ☞ (registered customers only) for more information. | Cisco IOS Software Release 12.1(12c)EW and later |
| Baby giants count as oversize giants on certain line cards in the show interface <i>interface-id</i> command output. | This is a known limitation. For more information, refer to the Catalyst 4000 Series section of the document Jumbo/Giant Frame Support on Catalyst Switches Configuration Example . | Not available |

¹ SVI = switched virtual interface.

² ISL = Inter-Switch Link Protocol.

³ CRC = cyclic redundancy check.

⁴ Tx = transmit.

If you review and troubleshoot with the documents that this section references and you still have issues, contact [Cisco Technical Support](#) for further assistance.

Interface Is Stuck in the Receive Direction on Ports That Connect to Hubs or Other Devices

If certain interfaces are stuck in the receive direction when they connect to hubs or other devices, the problem can be the bug that Cisco bug ID [CSCdx79678](#) [↗](#) ([registered](#) customers only) describes. You can still see the switch through Cisco Discovery Protocol if the switch connects to another Cisco device. But this switch does not learn any MAC address on the port and does not forward traffic. Other adjacent working ports forward the traffic without issue. The root cause of the bug is the interface receipt of a packet that is larger in size than the maximum transmission unit (MTU) size on the interface.

The bug can affect these line cards:

- WS-X4504-FX-MT
- WS-X4232-GB-RJ
- WS-X4148-FX-MT
- WS-X4148-RJ
- WS-X4148-RJ21
- WS-X4148-RJ45V

The fix is available in Cisco IOS Software Release 12.1(12c)EW and later. The workaround is to issue the [hw-module module slot number reset](#) command in order to reset the module which has the problem port. This temporarily fixes the problem.

MAC Address of Directly Connected Port is Not Learned by the Remote Device

When a packet gets routed, it carries the source MAC address as that of the physical interface or VLAN interface, which performs the routing rather than the outgoing interface which is in switchport mode.

In order to learn the MAC address of the directly connected interface or port, you can configure the port for native VLAN. When any untagged frames are sent out of this port, the source MAC address associated physical port is learned and added to the MAC address table in the remote device.

Power Supply and Fan Problems

Power Supply on a 4500 Chassis Is in errdisable State in the Output of the show power Command

If the power supply in a Catalyst 4500 chassis is in the `err-disable` state in the output of the `show power` command, see this [Common Reasons and Solutions](#) section:

Common Reasons and Solutions

The Catalyst 4500 has two power supply slots to provide 1+1 redundancy. However, the switch does not allow two different power supplies in the same chassis. The power supplies must be the same wattage and AC/DC type. The switch uses only the first power supply that the switch recognizes. The switch puts the second power supply into `err-disable` state and ignores this power supply. You can safely remove the errdisable power supply from the chassis after you turn the chassis off. For more information, refer to the [Power Management](#) section of the document [Environmental Monitoring and Power Management](#).

Power Supply Fail LED Is On

If the power supply LED with the label Fail is on, see this [Common Reasons and Solutions](#) section in order to help identify the problem:

Common Reasons and Solutions

- If you have dual power supplies, and they have different wattage or are of different AC/DC type, see the [Power Supply on a 4500 Chassis Is in errdisable State in the Output of the show power Command](#) section of this document.
- If you have either a single power or dual power supply of the same type and the Fail LED is on, refer to the [Troubleshooting the Power Supply](#) section of the document [Troubleshooting the Installation](#).
- If the `show module` command output shows a message that states "not enough power for module", check the [Catalyst 4500 Series Power Supplies](#) section of the document [Specifications](#) for the minimum power requirements.

Fan Assembly Failed in the show environment status Command

If you issue the `show environment status` command and find that the fan assembly has failed, see this [Common Reasons and Solutions](#) section in order to help identify the problem:

Common Reasons and Solutions

For more information on this problem, refer to the [Troubleshooting the Fan Assembly](#) section of the document [Troubleshooting the Installation](#).

Diagnostic Commands

- [show version](#)
- [show module](#)
- [show diagnostics online module](#)
- [show diagnostics power-on](#)
- [show power](#)
- [show environment status](#)
- [show interface interface-id status](#)
- [show errdisable recovery](#)
- [show interface interface-id counters error](#)

show version

The `show version` command output provides this type of information:

- The software version that the Supervisor Engine currently runs
- Uptime, which is the time since the last reset
- The reason for the last reset
- The system image file that currently runs
- The amount of memory that you have installed
- The configuration register and serial number

The information appears in **boldface** in this sample output:

```
4507#show version
Cisco Internetwork Operating System Software
IOS (tm) Catalyst 4000 L3 Switch Software (cat4000-IS-M), Version 12.1(12c)EW,
  EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2002 by cisco Systems, Inc.
Compiled Thu 22-Aug-02 19:28 by hqluong
Image text-base: 0x00000000, data-base: 0x00CA7148

ROM: 12.1(12r)EW(1.05)
Dagobah Revision 63, Swamp Revision 24

4507 uptime is 6 days, 23 hours, 17 minutes
System returned to ROM by redundancy reset
System image file is "bootflash:cat4000-is-mz.121-12c.EW"

cisco WS-C4507R (XPC8245) processor (revision 4) with 524288K bytes of memory.
Processor board ID FOX062105FP
Last reset from Redundancy Reset
48 FastEthernet/IEEE 802.3 interface(s)
52 Gigabit Ethernet/IEEE 802.3 interface(s)
403K bytes of non-volatile configuration memory.

Configuration register is 0x2102
```

show module

The `show module` command provides this critical information:

- What Supervisor Engine is active, in a 4507R or 4510R
- The model number of the modules that are present in various slots
- The status of the modules

The information appears in **boldface** in this sample output:

```
4507#show module

Mod  Ports  Card Type                               Model              Serial No.
-----+-----+-----+-----+-----+-----
  1      2  1000BaseX (GBIC) Supervisor(standby)  WS-X4515          JAB0627065V
  2      2  1000BaseX (GBIC) Supervisor(active)  WS-X4515          JAB062408TV
  3     48  10/100/1000BaseTX (RJ45)              WS-X4448-GB-RJ45  JAB053606AG
```

```

4      48  10/100BaseTX (RJ45)V          WS-X4148-RJ45V  JAE060800BL
M MAC addresses          Hw Fw          Sw          Status
-----
1 0009.e845.6300 to 0009.e845.6301 0.4      Ok
2 0009.e845.6302 to 0009.e845.6303 0.4 12.1(12r)EW( 12.1(12c)EW, EAR Ok
3 0001.6443.dd20 to 0001.6443.dd4f 0.0      Ok
4 0008.2138.d900 to 0008.2138.d92f 1.6      Ok

```

show diagnostics online module

The **show diagnostics online module slot #** command provides results of diagnostic tests for the module in slots 3 through 7. You perform the diagnostic test, which is available only for the active Supervisor Engine, with the issue of the **show diagnostics power-on** command.

```

4507#show diagnostics online module 3
Slot Ports Card Type          Diag Status  Diag Details
-----
3      48  10/100/1000BaseTX (RJ45)    Passed      None

Detailed Status
-----
. = Pass          U = Unknown
L = Loopback failure  S = Stub failure
I = IIC failure     P = Port failure
E = EEPROM failure  G = GBIC integrity check failure

Ports 1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16
      .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
Ports 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
      .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
Ports 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
      .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .

```

show diagnostics power-on

The **show diagnostics power-on** command provides POST results for the active Supervisor Engine. Currently, with Route Processor Redundancy (RPR), the results of the standby Supervisor Engine are not available.

```

4507#show diagnostics power-on
Power-On-Self-Test Results

Power-on-self-test for Module 2: WS-X4515

Traffic using serdes loopback (L2; all ports at once)...
switch port 0: .      switch port 1: .      switch port 2: .
switch port 3: .      switch port 4: .      switch port 5: .
switch port 6: .      switch port 7: .      switch port 8: .
switch port 9: .      switch port 10: .     switch port 11: .
switch port 12: .     switch port 13: .     switch port 14: .
switch port 15: .     switch port 16: .     switch port 17: .
switch port 18: .     switch port 19: .     switch port 20: .
switch port 21: .     switch port 22: .     switch port 23: .
switch port 24: .     switch port 25: .     switch port 26: .
switch port 27: .     switch port 28: .     switch port 29: .
switch port 30: .     switch port 31: .

Traffic using asic loopback (L2; all ports at once)...
switch port 0: .      switch port 1: .      switch port 2: .
switch port 3: .      switch port 4: .      switch port 5: .
switch port 6: .      switch port 7: .      switch port 8: .
switch port 9: .      switch port 10: .     switch port 11: .
switch port 12: .     switch port 13: .     switch port 14: .
switch port 15: .     switch port 16: .     switch port 17: .
switch port 18: .     switch port 19: .     switch port 20: .
switch port 21: .     switch port 22: .     switch port 23: .
switch port 24: .     switch port 25: .     switch port 26: .
switch port 27: .     switch port 28: .     switch port 29: .
switch port 30: .     switch port 31: .

Traffic using asic loopback (L3; all ports at once)...
switch port 0: .      switch port 1: .      switch port 2: .
switch port 3: .      switch port 4: .      switch port 5: .
switch port 6: .      switch port 7: .      switch port 8: .
switch port 9: .      switch port 10: .     switch port 11: .
switch port 12: .     switch port 13: .     switch port 14: .
switch port 15: .     switch port 16: .     switch port 17: .
switch port 18: .     switch port 19: .     switch port 20: .
switch port 21: .     switch port 22: .     switch port 23: .
switch port 24: .     switch port 25: .     switch port 26: .
switch port 27: .     switch port 28: .     switch port 29: .
switch port 30: .     switch port 31: .

Module 2 Passed

```

Note: In this sample output, the Supervisor Engine in slot 2 is in active mode, and slot 1 is in standby mode.

show power

The **show power** command provides information about the power supplies that you have installed in the system. The command also gives information about the available power and the status of power supplies.

```

4507#show power
Power
Supply Model No          Type          Status          Fan Sensor Inline Status
-----
PS1    PWR-C45-2800AC        AC 2800W      good            good            good
PS2    PWR-C45-1000AC        AC 1000W      err-disable     good            n.a.

*** Power Supplies of different type have been detected***

Power Supply Max Min Max Min Absolute
(Nos in Watts) Inline Inline System System Maximum
-----
PS1          1400 1400 1360 1360 2800
PS2           0    0    0    0    0

Power Summary
(in Watts) Available Used Remaining
-----
System Power    1360    450    910
Inline Power    1400    18    1382
Maximum Power   2800    468    2332

Power supplies needed by system : 1

Mod Model          Power Used Power Used
      (online) (in Reset)
-----
1  WS-X4515          110      110
2  WS-X4515          110      110
3  WS-X4448-GB-RJ45  120      72
4  WS-X4148-RJ45V    60       50

```

Note: In this sample output, the second power supply is in **err-disable** mode because there is no allowance for the mix of different types of power supplies.

show environment status

The **show environment status** command provides information about the status of the power supplies, the Supervisor Engine module, and the fan tray.

```

Switch#show environment status
Power
Supply Model No          Type          Status          Fan Sensor
-----
PS1    PWR-C45-1400AC        AC 1400W      good            good
PS2    PWR-C45-1400AC        AC 1400W      good            good

Power Supply Max Min Max Min Absolute
(Nos in Watts) Inline Inline System System Maximum
-----
PS1           0    0  1360  1360  1400
PS2           0    0  1360  1360  1400

Power supplies needed by system : 1

Chassis Type : WS-C4506

Supervisor Led Color : Green

Fantray : good

Power consumed by Fantray : 50 Watts

```

show interface interface-id status

The **show interface interface-id status** command gives the status of the interface, which is one of these statuses:

- connected
- notconnect
- disabled

- errdisable
- faulty

The command output also contains the VLAN of the interface and the speed and duplex information.

```
4507#show interfaces gigabitethernet 1/1 status
Port  Name          Status      Vlan      Duplex  Speed Type
Gi1/1                notconnect  1         auto     1000 No Gbic
```

show errdisable recovery

The **show errdisable recovery** command helps you to know the status of the automatic errdisable time-out configuration for each of the ErrDisable reasons. Also, the command provides the primary way to know why a certain port is in the errdisable mode.

```
Switch#show errdisable recovery
ErrDisable Reason  Timer Status
-----
udld                Disabled

bpduguard          Disabled
channel-misconfig  Disabled
pagp-flap          Disabled
dtp-flap           Disabled
link-flap          Disabled
security-violation Disabled

Timer interval:300 seconds

Interfaces that will be enabled at the next timeout:
Interface  Errdisable reason  Time left(sec)
-----
Fa6/1      link-flap          279
Switch#
```

show interface interface-id counters error

The **show interface interface-id counters error** command provides the error counter details of an interface.

```
4507#show interfaces gigabitethernet 1/1 counters errors
Port      CrcAlign-Err  Dropped-Bad-Pkts  Collisions  Symbol-Err
Gi1/1      0              0                  0           0

Port      Undersize  Oversize  Fragments  Jabbers
Gi1/1     0          0         0          0

Port      Single-Col  Multi-Col  Late-Col  Excess-Col
Gi1/1     0          0         0         0

Port      Deferred-Col  False-Car  Carri-Sen  Sequence-Err
Gi1/1     0            0          0          0
```

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Related Information

- [Recover a Cisco IOS Catalyst 4500/4000 Series Switch from a Corrupt or Missing Image or in Rommon Mode](#)
- [Catalyst 4000 Series Switches Support](#)
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