



# CHAPTER 5

## Troubleshooting Mixed Generation Hardware

This chapter describes how to identify and resolve problems that might occur when you combine Generation 1 and Generation 2 hardware components of the Cisco MDS 9000 Family. It includes the following sections:

- [Overview, page 5-1](#)
- [Combining Modules and Supervisors, page 5-7](#)
- [Initial Troubleshooting Checklist, page 5-7](#)
- [Generation 1 and Generation 2 Issues, page 5-7](#)

### Overview

[Table 5-1](#) identifies the modules supported by the Cisco MDS 9500 Series switches and Cisco MDS 9216A and Cisco MDS 9216i switches, as well as the Generation 2 switches:

**Table 5-1 Generation 2 Modules and Switches**

Part Number	Description
<b>Modules</b>	
DS-X9148	48-port 4-Gbps Fibre Channel switching module
DS-9304-18K9	18-port 1/2/4-Gbps Fibre Channel switching module with 4 Gigabit Ethernet ports
DS-X9112	12-port 4-Gbps Fibre Channel switching module
DS-X9704	4-port 10-Gbps Fibre Channel switching module
DS-X9530-SF2-K9	Supervisor-2 module (Cisco MDS 9500 Series switches only)
<b>Switches</b>	
DS-C9222i-K9	10-port 4-Gbps Fibre Channel switch with 4 Gigabit Ethernet IP storage services ports, and a modular expansion slot to host Cisco MDS 9000 Family Switching and Services Modules
DS-9134-K9	34-port 4-Gbps Fibre Channel switch

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**Table 5-1** Generation 2 Modules and Switches (continued)

Part Number	Description
DS-X9124	24-port 4-Gbps Fibre Channel switch
DS-9304-K9	18-port 1/2/4-Gbps Fibre Channel switch with 4 Gigabit Ethernet ports in fixed slot1



**Note**

Generation 2 Fibre Channel switching modules are not supported on the Cisco MDS 9216 switch; however, they are supported by both the Supervisor-1 module and the Supervisor-2 module.

The 4-port 10-Gbps Fibre Channel switching module supports 10-Gbps port rates. The rest of the Generation 2 modules support 1-Gbps, 2-Gbps, 4-Gbps, or autosensing port rates.

For detailed information about the installation and specifications for these modules, refer to the hardware installation guide or the Configuration guides at the following website:

[http://cisco.com/en/US/products/ps5989/tsd\\_products\\_support\\_series\\_home.html](http://cisco.com/en/US/products/ps5989/tsd_products_support_series_home.html).

This section explains the features of Generation 2 modules and includes the following topics:

- [Port Groups, page 5-2](#)
- [Port Speed Mode, page 5-3](#)
- [Dynamic Bandwidth Management, page 5-3](#)
- [Out-of-Service Interfaces, page 5-4](#)
- [Port Index Availability, page 5-4](#)

## Port Groups

Each module has four groups of one or more ports in port groups that share common resources, such as bandwidth and buffer credits. [Table 5-2](#) shows the port groups for the Generation 2 Fibre Channel switches and modules.

**Table 5-2** Bandwidth and Port Groups for Generation 2 Modules

Module or Switch	Description	Number of Ports Per Port Group	Bandwidth Per Port Group	Maximum Bandwidth Per Port
DS-X9148	48-port 4-Gbps	12	12.8	4-Gbps <sup>1</sup>
DS-X9124	24-port 4-Gbps	6	12.8	4-Gbps <sup>2</sup>
DS-9304-18K9	18-port/4-port 4-Gbps (MSM-18/4 module)	6	12.8	4-Gbps <sup>1</sup>
DS-X9112	12-port 4-Gbps	3	12.8	4-Gbps <sup>1</sup>
DS-X9704	4-port 10-Gbps	1	10	10-Gbps <sup>2</sup>
DS-C9134-K9	32-port 4-Gbps	4	16	4-Gbps
	2-port 10-Gbps	1	10	10-Gbps

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**Table 5-2 Bandwidth and Port Groups for Generation 2 Modules (continued)**

Module or Switch	Description	Number of Ports Per Port Group	Bandwidth Per Port Group	Maximum Bandwidth Per Port
DS-C9124	24-port 4 Gbps	6	12.8	4-Gbps
DS-C9222i-K9	18-port 4-Gbps	6	12.8	4-Gbps

1. Dedicated bandwidth with no oversubscription
2. Dedicated bandwidth or oversubscribed using shared buffer resources.



**Note**

Port groups are defined by the hardware and consist of sequential ports. For example, ports 1 through 12, ports 13 through 24, ports 25 through 36, and ports 37 through 48 are the port groups on the 48-port 4-Gbps Fibre Channel switching modules.

## Port Speed Mode

Table 5-3 shows the port speeds allowed on each Generation 2 switching module.

**Table 5-3 Configurable Port Speeds on Generation 2 Switching Modules**

Module	Port Speed Modes	Default Configuration
48-port 4-Gbps	Auto, auto (max 2 Gbps), 1, 2, 4	Auto, shared
24-port 4-Gbps	Auto, auto max 2000 (2 Gbps), 1, 2, 4	Auto, shared
12-port 4-Gbps	Auto, auto max 2000 (2 Gbps), 1, 2, 4	Auto, dedicated
4-port 10-Gbps	Auto <sup>1</sup>	Auto, dedicated

1. 4-port 10-Gbps can be configured as auto mode, but only supports 10-Gbps connections.

## Dynamic Bandwidth Management

Table 5-4 shows the bandwidth reserved based on port speed for ports in dedicated mode.

**Table 5-4 Bandwidth Reserved for Dedicated Mode**

Port Speed	Bandwidth Reserved per Port
Auto / 4 Gbps	4 Gbps
Auto max 2000 / 2 Gbps	2 Gbps
1 Gbps	1 Gbps
10 <sup>1</sup>	10 Gbps

1. Available only on the 4-port 10-Gbps switching module.

Table 5-5 shows the bandwidth reserved based on port speed for ports in shared mode.

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**Table 5-5 Bandwidth Reserved for Shared Mode**

Module Type	Port Speed	Bandwidth Reserved
24-port 4-Gbps	Auto / 4 Gbps	1 Gbps
	Auto max 2000 / 2 Gbps	0.5 Gbps
	1 Gbps	0.25 Gbps
48-port 4-Gbps	Auto / 4 Gbps	0.8 Gbps
	Auto max 2000 / 2 Gbps	0.4 Gbps
	1 Gbps	0.2 Gbps



**Tip**

When migrating a host only supporting up to 2-Gbps traffic to the 4-Gbps switching modules, use autosensing with 2-Gbps maximum bandwidth.



**Note**

The 4-port 10-Gbps switching module only supports 10-Gbps links.

## Out-of-Service Interfaces

You can take interfaces out of service to release shared resources that are needed for dedicated bandwidth. This feature is especially useful for the 48-port 4-Gbps switching modules. When an interface is taken out of service, all shared resources are released and made available to the other interface in the port group or module.



**Caution**

If you need to bring an interface back into service, you might disrupt traffic if you need to release shared resources from other interfaces.

## Port Index Availability

Each chassis in the Cisco MDS 9000 Series has a hardware-based maximum port availability based on internally assigned port indexes. When the maximum number of port indexes is reached in a chassis, any modules remaining or added to the chassis will not boot up. The number of physical ports on a Fibre Channel module is equal to its number of port indexes. However, for Gigabit Ethernet modules (IPS-8, IPS-4, and MPS-14/2), one physical port is equal to four port indexes (one port index for iSCSI and three port indexes for FC IP tunnels). [Table 5-6](#) lists the physical ports and port indexes (virtual ports) allocated per Cisco MDS 9000 module.

**Table 5-6 Port Index Allocation**

Module	Physical Ports	Port Indexes Allocated
48-port 4-Gbps Fibre Channel switching module	48	48
24-port 4-Gbps Fibre Channel switching module	24	24

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**Table 5-6 Port Index Allocation (continued)**

Module	Physical Ports	Port Indexes Allocated
12-port 4-Gbps Fibre Channel switching module	12	12
4-port 10-Gbps Fibre Channel switching module	4	4
16-port 2-Gbps Fibre Channel module	16	16 <sup>1</sup>
32-port 2-Gbps Fibre Channel module	32	32 <sup>1</sup>
8-port Gigabit Ethernet IP Storage services module	8	32 <sup>1</sup>
4-port Gigabit Ethernet IP Storage services module	4	32 (with Supervisor-1) 16 (with Supervisor-2)
32-port 2-Gbps Fibre Channel Storage Services Module (SSM).	32	32 <sup>1</sup>
14-port Fibre Channel/2-port Gigabit Ethernet Multiprotocol Services (MPS-14/2) module	16 <sup>2</sup>	32 (with Supervisor-1) 22 (with Supervisor-2)

1. All Generation 1 modules reserve port indexes on fixed boundaries with Supervisor-1. See [Table 5-7](#).
2. Fourteen Fibre Channel ports and two Gigabit Ethernet ports.

Using any combination of modules that include a Generation 1 module or a Supervisor-1 module limits the port index availability to 252 on all Cisco MDS 9500 Series directors. Generation 1 modules also require contiguous port indexes where the system assigns a block of port index numbers contiguously starting from the first port index reserved for the slot that the module is inserted in (See [Table 5-7](#)). This means that while there may be enough port indexes available for a Generation 1 module, the module may not boot up because the available port indexes are not in a contiguous range or the contiguous block does not start at the first port index for a given slot.

[Example 5-1](#) shows a case with a Supervisor-1 module, where a 48-port Generation 2 module borrowed port indexes from the first slot. Slot 1 still has 16 port indexes available, but the full 32 indexes are no longer available (28-31 are used by the module in slot 4). This means that no Generation 1 module except a 16-port Fibre Channel switching module can be inserted into slot 1 because some of the port indexes for the slot are already in use.

#### **Example 5-1 Borrowing Port Indexes from Another Slot**

```
switch#show port index-allocation
Module index distribution:
-----+-----
Slot   | Allowed | Alloted indices info |
      | range*  | Total   | Index values          |
-----+-----+-----+-----
1      | 0- 31  | -       | -                     |
2      | 32- 63 | 32      | 32-63                 |
3      | 64- 95 | 48      | 64-95,224-239        |
4      | 96- 127| 48      | 96-127, 240-252, 28-31 |
7      | 128- 159| 32      | 128-159               |
8      | 160- 191| 32      | 160-191               |
9      | 192- 223| 32      | 192-223               |
SU     | 253-255| 3       | 253-255               |
*Allowed range applicable only for Generation-1 modules
```

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Using any combination of modules that include a Generation 1 module and a Supervisor-2 module limits the port index availability to 252 on all Cisco MDS 9500 Series directors. The Generation 1 modules can use any contiguous block of port indexes that start on the first port index reserved for any slot in the range 0-252. (See [Table 5-7](#)).

Using any combination of only Generation 2 with a Supervisor-2 module allows a maximum of 528 (with an architectural limit of 1020) port indexes on all Cisco MDS 9500 Series directors. Generation 2 modules do not need contiguous port indexes. Generation 2 modules use the available indexes in the slot that it is installed and then borrow available indexes from the supervisors. If the module requires more indexes, it starts borrowing available indexes from slot 1 of the chassis until it has the number of port indexes necessary.



**Note**

Use the **purge module** CLI command to free up reserved port indexes after you remove a module.

**Table 5-7 Port Index Requirements**

Supervisor	Module	Port Index Requirements
Supervisor-1	Generation 1	Indexes must: <ul style="list-style-type: none"> <li>• Be contiguous.</li> <li>• In the range assigned to the given slot.</li> <li>• Start with the lowest value assigned to that slot.<sup>1,2</sup></li> <li>• Have no port indexes above 256 allocated to any other operational modules.</li> </ul> Maximum 252 assignable port indexes available.
	Generation 2	Indexes can be any available number in the range 0-252.
Supervisor-2	Generation 1	Indexes must: <ul style="list-style-type: none"> <li>• Be contiguous.</li> <li>• Start with the lowest value assigned to any slot.<sup>2</sup></li> <li>• Have no port indexes above 256 allocated to any other operational modules.</li> </ul> Maximum 252 assignable port indexes available.
	Generation 2	Indexes can be any available number in the range 0-1020 if all modules are Generation 2 modules. Otherwise, indexes can be any available number in the range 0-252.

1. See the Allowed Ranges column in [Example 5-1](#) for the port indexes assigned to each slot for Generation 1 modules.
2. 16-port Fibre Channel switching modules can use the upper 16 indexes within a slot (for example, 16-31).

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## Combining Modules and Supervisors

All the existing Generation 1 and Generation 2 switching modules are supported by Cisco MDS SAN-OS Release 3.0(1) and later. However, there are limitations to consider when combining the various modules and supervisors in the Cisco MDS 9500 Series platform chassis.

You can combine Generation 1 and Generation 2 switching modules with either Supervisor-1 modules or Supervisor-2 modules. However, combining switching modules and supervisor modules has the following limitations:

- Use a Supervisor-2 module and all Generation 2 modules in a chassis to get up to 1020 port indexes.
- Use the **show port index-allocation** CLI command to determine available port index values before inserting new modules in a chassis if you have a mix of Generation 1 and Generation 2 modules.
- Use only Supervisor-2 modules on a Cisco MDS 9513 director.



**Note**

You cannot downgrade from a Supervisor-2 module to a Supervisor-1 module.

## Initial Troubleshooting Checklist

Begin troubleshooting Generation 1 and Generation 2 module issues by checking the following issues:

Checklist	Check off
Verify the port index allocation if a newly inserted module does not power up.	<input type="checkbox"/>
Check that the interface that you plan to use is not set to out-of-service.	<input type="checkbox"/>
Verify appropriate port rate mode and port speed for your configuration.	<input type="checkbox"/>
Ensure that both ends of a 10-Gbps link terminate in 10-Gbps ports.	<input type="checkbox"/>
Verify that no Supervisor-1 modules are used in a Generation 2 switch.	<input type="checkbox"/>

Use the **show interface transceiver** CLI command to view enhanced diagnostics on the X2 transceivers for Generation 2 modules. This is supported on 4-Gbps and 10-Gbps ports. Use these diagnostics to isolate physical layer problems, like contact problems, major failures within SFPs, or abnormal error rates associated with excessive optical attenuation. The diagnostic information includes temperature, voltage and current, transmit power level, and receive power level.

## Generation 1 and Generation 2 Issues

This section describes troubleshooting issues for Generation 1 and Generation 2 modules and includes the following topics:

- [Module Does Not Come Online, page 5-8](#)
- [Cannot Configure Port in Dedicated Mode, page 5-10](#)
- [Cannot Enable a Port, page 5-13](#)
- [Cannot Upgrade Supervisor System Image, page 5-13](#)

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## Module Does Not Come Online

**Symptom** Module does not come online.

**Table 5-8** *Module Does Not Come Online*

Symptom	Possible Cause	Solution
Module does not come online.	Not enough port indexes are available.	See the “ <a href="#">Verifying Port Index Allocation Using Device Manager</a> ” section on page 5-8 or the “ <a href="#">Verifying Port Index Allocation Using the CLI</a> ” section on page 5-9. If the switch has Generation 1 modules inserted, upgrade to all Generation 2 modules to gain higher total port index availability.
	Available port indexes are non-contiguous.	See the “ <a href="#">Verifying Port Index Allocation Using Device Manager</a> ” section on page 5-8 or the “ <a href="#">Verifying Port Index Allocation Using the CLI</a> ” section on page 5-9.
	Not enough power is available in the chassis.	Use the <b>show environment</b> CLI command to determine if you have enough available power for the module. Upgrade your power supply, if necessary.

## Verifying Port Index Allocation Using Device Manager

To verify port index allocation using Device Manager, follow these steps:

- Step 1** Choose **Interfaces > Show Port Index Allocation > Current** to display the allocation of port indexes on the switch.

Module index distribution:

```

-----+
Slot | Allowed |      Alloted indices info
      | range   | Total |      Index values
-----+-----+-----+-----+
  1  | 0- 255 | 16   | 32-47
  2  | 0- 255 | 12   | 0-11
  3  | 0- 255 | -    | (None)
  4  | 0- 255 | -    | (None)
  7  | 0- 255 | -    | (None)
  8  | 0- 255 | -    | (None)
  9  | 0- 255 | -    | (None)
SUP  | ----- | 3    | 253-255
-----+

```

In some cases, the sequence in which switching modules are inserted into the chassis determines if one or more modules is powered up.

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- Step 2** Choose **Interfaces > Show Port Index Allocation > Startup** to display the index allocation that the switch uses when it reboots.

Startup module index distribution:

```
-----+
Slot | Allowed |      Alloted indices info |
      | range   | Total |      Index values |
-----+-----+-----+
  1  | 0- 255 | 16   | 64-79 |
  2  | 0- 255 | 12   | 0-11  |
SUP  | ----- | 3    | 253-255 |
-----+-----+-----+
```

- Step 3** Choose **Physical > Modules** to display the reason why a module does not power up.

## Verifying Port Index Allocation Using the CLI

To verify port index allocation using the CLI, follow these steps:

- Step 1** Use the **show port index-allocation** command to display the allocation of port indexes on the switch.

```
switch# show port index-allocation
```

Module index distribution:

```
-----+
Slot | Allowed |      Alloted indices info |
      | range   | Total |      Index values |
-----+-----+-----+
  1  | 0- 255 | 16   | 32-47 |
  2  | 0- 255 | 12   | 0-11  |
  3  | 0- 255 | -    | (None) |
  4  | 0- 255 | -    | (None) |
  7  | 0- 255 | -    | (None) |
  8  | 0- 255 | -    | (None) |
  9  | 0- 255 | -    | (None) |
SUP  | ----- | 3    | 253-255 |
-----+-----+-----+
```

In some cases, the sequence in which switching modules are inserted into the chassis determines if one or more modules is powered up.

- Step 2** Use the **show port index-allocation startup** command to display the index allocation the switch uses when it reboots.

```
switch# show port index-allocation startup
```

Startup module index distribution:

```
-----+
Slot | Allowed |      Alloted indices info |
      | range   | Total |      Index values |
-----+-----+-----+
  1  | 0- 255 | 16   | 64-79 |
  2  | 0- 255 | 12   | 0-11  |
SUP  | ----- | 3    | 253-255 |
-----+-----+-----+
```

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**Step 3** Use the **show module** command to display the reason why a module does not power up.

```
sw# show module
Mod  Ports  Module-Type                Model                Status
-----
1    48     1/2/4 Gbps FC Module      DS-X9148             ok
2    48     1/2/4 Gbps FC Module      DS-X9148             ok
3    48     1/2/4 Gbps FC Module      DS-X9148             ok
4    32     1/2 Gbps FC Module        DS-X9032             ok
5    0      Supervisor/Fabric-1       DS-X9530-SF1-K9     active *
6    0      Supervisor/Fabric-1       DS-X9530-SF1-K9     ha-standby
7    16     1/2 Gbps FC Module        DS-X9016             ok
8    48     1/2/4 Gbps FC Module      DS-X9148             powered-dn
9    48     1/2/4 Gbps FC Module      DS-X9148             ok

Mod  Power-Status  Power Down Reason
-----
8    powered-dn   Insufficient resources (dest Index)
* this terminal session
```

**Step 4** If the module is powered down because of port index issues, use the **show module recovery-steps** command to determine how to correct the problem.

```
switch# show module 4 recovery-steps
Failure Reason:
Contiguous and aligned indices unavailable for Generation-1 modules
Check "show port index-allocation" for more details
Please follow the steps below:
1. Power-off module in one of the following slots: 12
2. Power-on module in slot 4 and wait till it comes online
3. Power-on the module powered-off in step 1
4. Do "copy running-config startup-config" to save this setting
```



**Note**

Verify that the **debug module no-power-down** command is not turned on.

## Cannot Configure Port in Dedicated Mode

**Symptom** Cannot configure port in dedicated mode.

**Table 5-9** Cannot Configure Port in Dedicated Mode

Symptom	Possible Cause	Solution
Cannot configure a port in dedicated mode.	Not enough bandwidth is available in the port group.	See the <a href="#">“Verifying Bandwidth Utilization in a Port Group Using Device Manager”</a> section on page 5-11 or the <a href="#">“Verifying Bandwidth Utilization in a Port Group Using the CLI”</a> section on page 5-12.

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## Verifying Bandwidth Utilization in a Port Group Using Device Manager

To verify bandwidth utilization in a port group using Device Manager, follow these steps:

- Step 1** Right-click the module and select **Show Port Resources....** to display the Generation 2 module shared resources configuration.

```
Module 2
Available dedicated buffers are 5164
```

```
Port-Group 1
Total bandwidth is 12.8 Gbps
Total shared bandwidth is 4.8 Gbps
Allocated dedicated bandwidth is 8.0 Gbps
```

```
-----
Interfaces in the Port-Group      B2B Credit  Bandwidth  Rate Mode
                                Buffers      (Gbps)
-----
fc2/1                             16           4.0  shared
fc2/2                             16           4.0  shared
fc2/3                             16           4.0  shared
fc2/4                             16           4.0  shared
fc2/5                             16           4.0  dedicated
fc2/6                             16           4.0  dedicated
```

...

In this example, there is not enough available shared bandwidth in Port-Group 1 to switch any more ports to 4-Gbps dedicated mode.

- Step 2** Do one of the following to free up bandwidth for the port that you want to place in dedicated mode.
- Right-click one or more ports and choose **Service > Out** to put a port in out-of-service mode to free up more resources.
  - Right-click a port and select **Configure**. Lower the port speed.

See the [“Dynamic Bandwidth Management”](#) section on page 5-3 for the minimum bandwidth requirements for port rate modes and port speeds.

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## Verifying Bandwidth Utilization in a Port Group Using the CLI

To verify bandwidth utilization in a port group using the CLI, follow these steps:

- Step 1** Use the **show port-resources module** command to display the Generation 2 module shared resources configuration.

```
switch# show port-resources module 2
Module 2
Available dedicated buffers are 5164
```

```
Port-Group 1
Total bandwidth is 12.8 Gbps
Total shared bandwidth is 4.8 Gbps
Allocated dedicated bandwidth is 8.0 Gbps
-----
Interfaces in the Port-Group      B2B Credit   Bandwidth   Rate Mode
                                Buffers      (Gbps)
-----
fc2/1                             16           4.0   shared
fc2/2                             16           4.0   shared
fc2/3                             16           4.0   shared
fc2/4                             16           4.0   shared
fc2/5                             16           4.0   dedicated
fc2/6                             16           4.0   dedicated
```

...

In this example, there is not enough available shared bandwidth in Port-Group 1 to switch any more ports to 4 Gbps dedicated mode.

- Step 2** Do one of the following to free bandwidth for the port that you want to place in dedicated mode.
- Use the **out-of-service** command in interface mode to put one or more ports in out-of-service mode to free more resources.
  - Use the **switchport speed** command on one or more ports to change the port speed to a lower port speed. See the [“Dynamic Bandwidth Management”](#) section on page 5-3 for the minimum bandwidth requirements for port rate modes and port speeds.

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## Cannot Enable a Port

**Symptom** Cannot enable a port.

**Table 5-10** *Cannot Enable a Port*

Symptom	Possible Cause	Solution
Cannot enable a port.	Port is out of service.	In Device Manager, right-click the port and select <b>Configure</b> to see if the port is out of service.  Using the CLI, use the <b>show interface brief</b> command to see if the port is out of service.  See the “ <a href="#">Verifying Bandwidth Utilization in a Port Group Using Device Manager</a> ” section on page 5-11 or the “ <a href="#">Verifying Bandwidth Utilization in a Port Group Using the CLI</a> ” section on page 5-12 to free up enough port resources to bring the port in service.
	Not enough bandwidth is available in the port group.	See the “ <a href="#">Verifying Bandwidth Utilization in a Port Group Using Device Manager</a> ” section on page 5-11 or the “ <a href="#">Verifying Bandwidth Utilization in a Port Group Using the CLI</a> ” section on page 5-12.

## Cannot Upgrade Supervisor System Image

**Symptom** Cannot upgrade supervisor system image.

**Table 5-11** *Cannot Upgrade Supervisor System Image*

Symptom	Possible Cause	Solution
Cannot upgrade supervisor system image.	Wrong Cisco SAN-OS image type.	Use the appropriate Cisco SAN-OS image for your supervisor. See the “ <a href="#">Selecting the Correct Software Images</a> ” section on page 5-13. In Device Manager, choose <b>Physical &gt; Modules</b> to find the supervisor type.  Or use the <b>show module</b> CLI command to determine the supervisor type.

## Selecting the Correct Software Images

The Supervisor-1 and Supervisor-2 modules supported by Cisco MDS 9100, 9200 and 9500 Series switches require different system and kickstart images. You can determine which images to use on your switch by the naming conventions shown in [Table 5-12](#).

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**Table 5-12 Supervisor Module Software Image Naming Conventions**

<b>Cisco MDS 9500 Series Switch Type</b>	<b>Supervisor Module Type</b>	<b>Naming Convention</b>
9120 or 9140	Supervisor-1 module	Filename begins with m9100-s1ek9
9134 Cisco Fabric Switch for HP-c Class BladeSystem Cisco Fabric Switch for IBM BladeCenter	Supervisor-2 module	Filename begins with m9100-s2ek9
9221i	Supervisor-2 module	Filename begins with m9200-s2ek9
9216, 9216A or 9216i	Supervisor-1 module	Filename begins with m9200-s1k9
9506 or 9509	Supervisor-1 module	Filename begins with m9500-sf1ek9
	Supervisor-2 module	Filename begins with m9500-sf2ek9
9513	Supervisor-2 module	Filename begins with m9500-sf2ek9