



# CHAPTER 54

## Configuring Fabric Configuration Server

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This chapter describes the Fabric Configuration Server (FCS) feature provided in the Cisco MDS 9000 Family of directors and switches. It includes the following sections:

- [Information About FCS section, page 54-1](#)
- [Default Settings section, page 54-3](#)
- [Configuring FCS section, page 54-3](#)
- [Verifying FCS Configuration section, page 54-5](#)
- [Additional References section, page 54-9](#)

### Information About FCS

The Fabric Configuration Server (FCS) provides discovery of topology attributes and maintains a repository of configuration information of fabric elements. A management application is usually connected to the FCS on the switch through an N port. The FCS views the entire fabric based on the following objects:

- Interconnect element (IE) object—Each switch in the fabric corresponds to an IE object. One or more IE objects form a fabric.
- Port object—Each physical port in an IE corresponds to a port object. This includes the switch ports (xE, Fx, and TL ports) and their attached Nx ports.
- Platform object—A set of nodes may be defined as a platform object to make it a single manageable entity. These nodes are end-devices (host systems, storage subsystems) attached to the fabric. Platform objects reside at the edge switches of the fabric.

Each object has its own set of attributes and values. A null value may also be defined for some attributes.

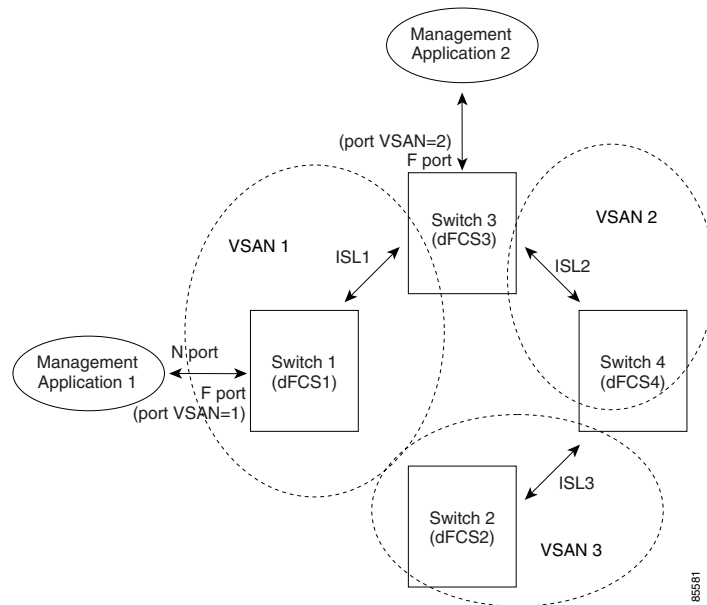
In the Cisco MDS 9000 Family switch environment, multiple VSANs constitute a fabric, where one instance of the FCS is present per VSAN.

As of Cisco NX-OS Release 4.1(1), FCS supports the discovery of virtual devices. The **fcs virtual-device-add** command, issued in FCS configuration submode, allows you to discover virtual devices in a particular VSAN or in all VSANs. The devices that are zoned for IVR must be discovered with this command and have request domain\_ID (RDI) enabled, before activating the IVR zone set.

If you have attached a management application to a switch, all the frames directed towards the FCS in the switch are part of the port VSAN in the switch port (Fx port). Your view of the management application is limited only to this VSAN. However, information about other VSANs that this switch is part of can be obtained either through the SNMP or CLI.

In [Figure 54-1](#) Management Application 1 (M1) is connected through an F port with port VSAN ID 1, and Management Application 2 (M2) is connected through an F port with port VSAN ID 2. M1 can query the FCS information of switches S1 and S3, and M2 can query switches S3 and S4. Switch S2 information is not known to both of them. FCS operations can be done only on those switches that are visible in the VSAN. Note that M2 can send FCS requests only for VSAN 2 even though S3 is also a part of VSAN 1.

**Figure 54-1** FCSs in a VSAN Environment



## Significance of FCS

This section lists the significance of FCSs.

- FCSs support network management including the following:
  - N port management application can query and obtain information about fabric elements.
  - SNMP manager can use the FCS management information base (MIB) to start discovery and obtain information about the fabric topology.
- FCSs support TE and TL ports in addition to the standard F and E ports.
- FCS can maintain a group of modes with a logical name and management address when a platform registers with it. FCSs maintain a backup of all registrations in secondary storage and update it with every change. When a restart or switchover happens, FCSs retrieve the secondary storage information and rebuild its database.
- SNMP manager can query FCSs for all IEs, ports, and platforms in the fabric.

## Default Settings

Table 54-1 lists the default FCS settings.

**Table 54-1** Default FCS Settings

Parameters	Default
Global checking of the platform name	Disabled.
Platform node type	Unknown.

## Configuring FCS

The Fabric Configuration Server (FCS) provides discovery of topology attributes and maintains a repository of configuration information of fabric elements.

This section includes the following topic:

- [Specifying a FCS Name section, page 54-3](#)
- [Creating an FCS Platform section, page 54-4](#)

## Specifying a FCS Name

You can specify if the unique name verification is for the entire fabric (globally) or only for locally (default) registered platforms.

### Restrictions

- Set this command globally only if all switches in the fabric belong to the Cisco MDS 9000 Family.

To enable global checking of the platform name, follow these steps:

	Command	Purpose
Step 1	switch# <b>config t</b> switch(config)#	Enters configuration mode.
Step 2	switch(config)# <b>fcs plat-check-global vsan 1</b>	Enables global checking of the platform name.
	switch(config)# <b>no fcs plat-check-global vsan 1</b>	Disables (default) global checking of the platform name.

To register platform attributes, follow these steps:

	Command	Purpose
Step 1	switch# <b>config t</b> switch(config)#	Enters configuration mode.
Step 2	switch(config)# <b>fcs register</b> switch(config-fcs-register)#	Enters the FCS registration submodule.

	Command	Purpose
Step 3	switch(config-fcs-register)# <b>platform name</b> <b>SamplePlatform vsan 1</b> switch(config-fcs-register-attrib)#	Enters the FCS registration attributes submode.
	switch(config-fcs-register)# <b>no platform name</b> <b>SamplePlatform vsan 1</b> switch(config-fcs-register)#	Deletes a registered platform.
Step 4	switch(config-fcs-register-attrib)# <b>mgmt-addr</b> <b>1.1.1.1</b>	Configures the platform management IPv4 address.
	switch(config-fcs-register-attrib)# <b>no</b> <b>mgmt-addr 1.1.1.1</b>	Deletes the platform management IPv4 address.
	switch(config-fcs-register-attrib)# <b>mgmt-addr</b> <b>2001:0DB8:800:200C::417A</b>	Configures the platform management IPv6 address.
	switch(config-fcs-register-attrib)# <b>no</b> <b>mgmt-addr 2001:0DB8:800:200C::417A</b>	Deletes the platform management IPv6 address.
Step 5	switch(config-fcs-register-attrib)# <b>nwwn</b> <b>11:22:33:44:55:66:77:88</b>	Configures the platform node name.
	switch(config-fcs-register-attrib)# <b>no nwwn</b> <b>11:22:33:44:55:66:77:88</b>	Deletes the platform node name.
Step 6	switch(config-fcs-register-attrib)# <b>type 5</b>	Configures the fc-gs-3 defined platform type.
	switch(config-fcs-register-attrib)# <b>no type 5</b>	Deletes the configured type and reverts the switch to its factory default of unknown type.
Step 7	switch(config-fcs-register-attrib)# <b>exit</b>	Exits the FCS registration attributes submode.
Step 8	switch(config-fcs-register)# <b>exit</b> switch(config)#	Exits the FCS registration submode.

## Creating an FCS Platform

To create an FCS platform, follow these steps:

- 
- Step 1** Choose **FC > Advanced > Fabric Config Server**.  
You see the Fabric Config Server dialog box.
  - Step 2** Click the **Platforms (Enclosures)** tab.
  - Step 3** Click **Create**.  
You see the Create Fabric Config Server dialog box.
  - Step 4** Enter the VSAN ID, or select the ID from the drop-down list of available VSAN IDs.
  - Step 5** Enter the Fabric Configuration Server name in the Name field.
  - Step 6** Choose the type of server (**Gateway, Host, Storage**).
  - Step 7** Enter the WWNs for the server.
  - Step 8** Enter the management addresses for the server.
  - Step 9** Click **Create** to create the server, or click **Close** to discard your changes and return to the Fabric Config Server dialog box.
-

## Verifying FCS Configuration

To display the FCS configuration information, perform one of the tasks in this section:

Command	Purpose
<code>show fcs database</code>	Displays FCS Local Database Information.
<code>show fcs ie vsan 1</code>	Displays a List of All IEs for a Specific VSAN.
<code>show fcs ie nwwn 20:01:00:05:30:00:16:df vsan 1</code>	Displays Interconnect Element Object Information for a Specific nWWN
<code>show fcs platform name SamplePlatform vsan 1</code>	Displays Information for a Specific Platform
<code>show fcs platform vsan 1</code>	Displays a List of Platforms for a Specified VSAN
<code>show fcs port vsan 24</code>	Displays a List of Switch Ports in a Specified VSAN
<code>show fcs port pwwn 20:51:00:05:30:00:16:de vsan 24</code>	Displays Port Information for a Specified pWWN
<code>show fcs statistics</code>	Displays FCS Statistics
<code>show fcs vsan</code>	Displays Platform Settings for Each VSAN

For detailed information about the fields in the output from these commands, refer to the *Cisco MDS 9000 Family Command Reference*.

This section includes the following topics:

- [Displaying FCS Discovery section, page 54-5](#)
- [Displaying FCS Elements section, page 54-5](#)

## Displaying FCS Discovery

To display FCS discovery information, follow these steps:

- 
- Step 1** Choose **FC > Advanced > Fabric Config Server**.  
You see the Fabric Config Server dialog box.
- Step 2** Click the **Discovery** tab.
- Step 3** Click **Discover** to rediscover the fabric, or click **Refresh** to update the display.
- 

## Displaying FCS Elements

Use the `show fcs` commands to display the status of the WWN configuration (see Example 54-1 to 54-9).

### Example 54-1 Displays FCS Local Database Information

```
switch# show fcs database
```

FCS Local Database in VSAN: 1

```
-----
Switch WWN           : 20:01:00:05:30:00:16:df
Switch Domain Id    : 0x7f(127)
Switch Mgmt-Addresses : snmp://172.22.92.58/eth-ip
                   : http://172.22.92.58/eth-ip
Fabric-Name         : 20:01:00:05:30:00:16:df
Switch Logical-Name : 172.22.92.58
Switch Information List : [Cisco Systems*DS-C9509*0*20:00:00:05:30:00
Switch Ports:
```

```
-----
Interface  pWWN                               Type      Attached-pWWNs
-----
fc2/1      20:41:00:05:30:00:16:de  TE        20:01:00:05:30:00:20:de
fc2/2      20:42:00:05:30:00:16:de  Unknown   None
fc2/17     20:51:00:05:30:00:16:de  TE        20:0a:00:05:30:00:20:de
```

FCS Local Database in VSAN: 5

```
-----
Switch WWN           : 20:05:00:05:30:00:12:5f
Switch Domain Id    : 0xef(239)
Switch Mgmt-Addresses : http://172.22.90.171/eth-ip
                   : snmp://172.22.90.171/eth-ip
                   : http://10.10.15.10/vsan-ip
                   : snmp://10.10.15.10/vsan-ip
Fabric-Name         : 20:05:00:05:30:00:12:5f
Switch Logical-Name : 172.22.90.171
Switch Information List : [Cisco Systems*DS-C9509**20:00:00:05:30:00:12:5e]
Switch Ports:
```

```
-----
Interface  pWWN                               Type      Attached-pWWNs
-----
fc3/1      20:81:00:05:30:00:12:5e  TE        22:01:00:05:30:00:12:9e
fc3/2      20:82:00:05:30:00:12:5e  TE        22:02:00:05:30:00:12:9e
fc3/3      20:83:00:05:30:00:12:5e  TE        22:03:00:05:30:00:12:9e
```

### Example 54-2 Displays a List of All IEs for a Specific VSAN

```
switch# show fcs ie vsan 1
IE List for VSAN: 1
```

```
-----
IE-WWN           IE-Type                               Mgmt-Id
-----
20:01:00:05:30:00:16:df  Switch (Local)                         0xffffc7f
20:01:00:05:30:00:20:df  Switch (Adjacent)                      0xffffc64
[Total 2 IEs in Fabric]
```

**Example 54-3 Displays Interconnect Element Object Information for a Specific nWWN**

```

switch# show fcs ie nwwn 20:01:00:05:30:00:16:df vsan 1
IE Attributes
-----
Domain-Id = 0x7f(127)
Management-Id = 0xffffc7f
Fabric-Name = 20:01:00:05:30:00:16:df
Logical-Name = 172.22.92.58
Management Address List =
    snmp://172.22.92.58/eth-ip
    http://172.22.92.58/eth-ip
Information List:
    Vendor-Name = Cisco Systems
    Model Name/Number = DS-C9509
    Release-Code = 0

```

**Example 54-4 Displays Information for a Specific Platform**

```

switch# show fcs platform name SamplePlatform vsan 1
Platform Attributes
-----
Platform Node Names:
    11:22:33:44:55:66:77:88
Platform Type = Gateway
Platform Management Addresses:
    1.1.1.1

```

**Example 54-5 Displays a List of Platforms for a Specified VSAN**

```

switch# show fcs platform vsan 1
Platform List for VSAN: 1
Platform-Names
-----
SamplePlatform
[Total 1 Platforms in Fabric]

```

**Example 54-6 Displays a List of Switch Ports in a Specified VSAN**

```

switch# show fcs port vsan 24
Port List in VSAN: 24
    -- IE WWN: 20:18:00:05:30:00:16:df --
-----
Port-WWN                Type      Module-Type      Tx-Type
-----
20:41:00:05:30:00:16:de  TE_Port  SFP with Serial Id  Shortwave Laser
20:51:00:05:30:00:16:de  TE_Port  SFP with Serial Id  Shortwave Laser
[Total 2 switch-ports in IE]
    -- IE WWN: 20:18:00:05:30:00:20:df --
-----
Port-WWN                Type      Module-Type      Tx-Type
-----
20:01:00:05:30:00:20:de  TE_Port  SFP with Serial Id  Shortwave Laser
20:0a:00:05:30:00:20:de  TE_Port  SFP with Serial Id  Shortwave Laser
[Total 2 switch-ports in IE]

```

**Example 54-7 Displays Port Information for a Specified pWWN**

```
switch# show fcs port pwwn 20:51:00:05:30:00:16:de vsan 24
Port Attributes
-----
Port Type = TE_Port
Port Number = 0x1090000
Attached-Port-WWNs:
    20:0a:00:05:30:00:20:de
Port State = Online
```

**Example 54-8 Displays FCS Statistics**

```
switch# show fcs statistics
FCS Statistics for VSAN: 1
-----
FCS Rx Get Reqs    :2
FCS Tx Get Reqs    :7
FCS Rx Reg Reqs    :0
FCS Tx Reg Reqs    :0
FCS Rx Dereg Reqs :0
FCS Tx Dereg Reqs :0
FCS Rx RSCNs       :0
...
FCS Statistics for VSAN: 30
-----
FCS Rx Get Reqs    :2
FCS Tx Get Reqs    :2
FCS Rx Reg Reqs    :0
FCS Tx Reg Reqs    :0
FCS Rx Dereg Reqs :0
FCS Tx Dereg Reqs :0
FCS Rx RSCNs       :0
FCS Tx RSCNs       :0
...
```

**Example 54-9 Displays Platform Settings for Each VSAN**

```
switch# show fcs vsan
-----
VSAN    Plat Check fabric-wide
-----
0001    Yes
0010    No
0020    No
0021    No
0030    No
```

To display FCS interconnect element information, follow these steps:

---

**Step 1** Choose **FC > Advanced > Fabric Config Server**.

You see the Fabric Config Server dialog box.

**Step 2** Click the **Interconnect Elements** tab.

**Step 3** Click **Close** to close the dialog box.

---



## Displaying FCS Fabric Ports

To display FCS discovery information, follow these steps:

- 
- Step 1** Choose **FC > Advanced > Fabric Config Server**.  
You see the Fabric Config Server dialog box.
- Step 2** Click the **Fabric Ports** tab.  
You see a list of fabric ports.
- Step 3** Click **Refresh** to update the display.
- 

## Field Descriptions for FCS

This section displays the field descriptions for FCS.

Field	Description
FabricConfigServer - Request Rejects	Specifies if the Fabric Configuration Server should issue a notification on rejects.

## Additional References

For additional information related to implementing FCS, see the following section:

- [MIBs section, page 54-9](#)

## MIBs

MIBs	MIBs Link
<ul style="list-style-type: none"> <li>• CISCO-FCS-MIB</li> </ul>	To locate and download MIBs, go to the following URL: <a href="http://www.cisco.com/en/US/products/ps5989/prod_technical_reference_list.html">http://www.cisco.com/en/US/products/ps5989/prod_technical_reference_list.html</a>

■ Additional References