



CHAPTER 12

Configuring Fabric Configuration Server

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, page 12-1](#)
- [Default Settings, page 12-3](#)
- [Configuring FCS, page 12-3](#)
- [Verifying FCS Configuration, page 12-4](#)
- [Additional References, page 12-8](#)

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.

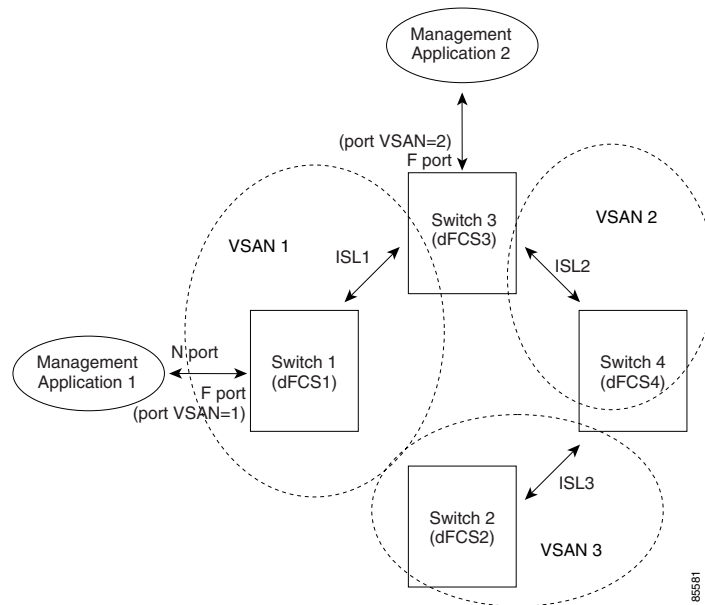
As of Cisco NX-OS Release 4.1(1), FCS supports the discovery of virtual devices. The **fcs virtual-device-add** command, issued in FCS configuration submode, allows you to discover virtual devices in a particular VSAN or in all VSANs. The devices that are zoned for IVR must be discovered with this command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

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In Figure 12-1 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 12-1 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.

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Default Settings

Table 12-1 lists the default FCS settings.

Table 12-1 **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, page 12-3](#)

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.

Detailed Steps

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

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

To register platform attributes, follow these steps:

	Command	Purpose
Step 1	switch# config t switch(config)#	Enters configuration mode.
Step 2	switch(config)# fcs register switch(config-fcs-register)#	Enters the FCS registration submenu.

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

Verifying FCS Configuration

To display the FCS configuration information, perform one of the following tasks:

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

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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 Elements, page 12-5](#)

Displaying FCS Elements

Use the **show fcs** commands to display the status of the WWN configuration (see Example 12-1 to 12-9).

Example 12-1 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
```

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Example 12-2 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)                        0xfffc7f
20:01:00:05:30:00:20:df  Switch (Adjacent)                     0xfffc64
[Total 2 IEs in Fabric]
```

Example 12-3 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 = 0xfffc7f
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 12-4 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 12-5 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]
```

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Example 12-6 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 12-7 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 12-8 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
...
```

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Example 12-9 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
```

Additional References

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

- [MIBs, page 12-8](#)

MIBs

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