



## Configuring Fabric Configuration Servers

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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:

- [About FCS, page 26-2](#)
- [Configuring FCS, page 26-3](#)
- [Displaying FCS Information, page 26-4](#)

## 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 its 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.

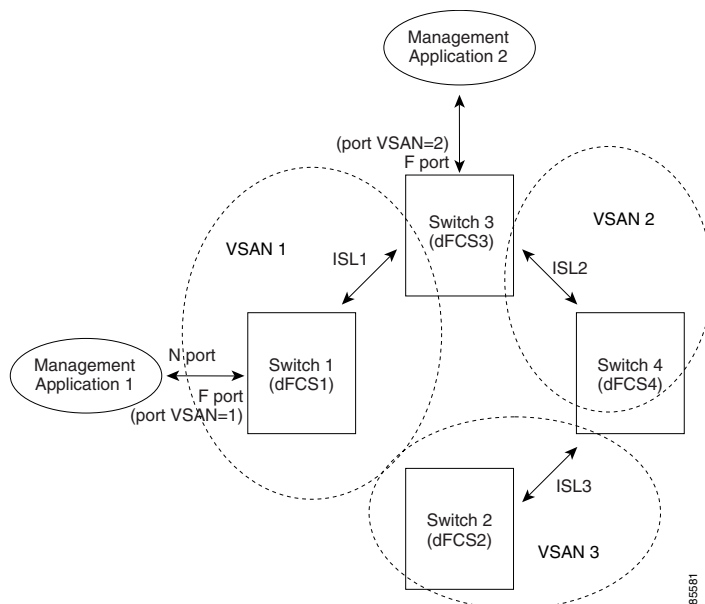
Each object has its own set of attributes and their values. A null value may also be defined for some attributes.

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

If you have attached a management application to a switch, all the frames directed towards the FCS in the switch is a part of the port VSAN in the switch port (Fx port). Hence 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 SNMP or CLI.

In Figure 2 Management Application 1 (M1) is connected through an F port with a port VSAN ID 1 and Management Application 2 (M2) is connected through an F port with a port VSAN ID 2. M1 can query FCS info 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 26-1 FCSs in a VSAN Environment**



## Significance of FCS

The significance of FCSs are as follows:

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

## Configuring FCS

Use the **fcs plat-check-global** command to specify if the platform name or node name uniqueness verification is for the entire fabric (globally) or only for locally (default) registered platforms.



### Note

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

To register platform attributes, follow these steps:

|        | Command  | Purpose   |
|--------|--|---|
| Step 1 | switch# <b>config t</b><br>switch(config)#   | Enters configuration mode.                      |
| Step 2 | switch(config)# <b>fcs register</b><br>switch(config-fcs-register)#  | Enters the FCS registration submode             |
| Step 3 | switch(config-fcs-register)# <b>platform name</b><br><b>SamplePlatform vsan 1</b><br>switch(config-fcs-register-attr)# | Enters the FCS registration attributes submode. |
|        | switch(config-fcs-register)# <b>no platform name</b><br><b>SamplePlatform vsan 1</b><br>switch(config-fcs-register)#   | Deletes a registered platform.                  |

|        | Command  | Purpose  |
|--------|--|--|
| Step 4 | switch(config-fcs-register-attrib)# <b>mgmt-addr</b><br><b>1.1.1.1</b><br>switch(config-fcs-register-attrib)#            | Configures the platform management address.  |
|        | switch(config-fcs-register)# <b>no mgmt-addr</b><br><b>1.1.1.1</b><br>switch(config-fcs-register)#                       | Deletes all management addresses on the platform.  |
| Step 5 | switch(config-fcs-register-attrib)# <b>nwnn</b><br><b>11:22:33:44:55:66:77:88</b><br>switch(config-fcs-register-attrib)# | Configures the platform node name.   |
|        | switch(config-fcs-register)# <b>no nwnn</b><br><b>11:22:33:44:55:66:77:88</b><br>switch(config-fcs-register)#            | Deletes the platform node name.  |
| Step 6 | switch(config-fcs-register-attrib)# <b>type 5</b><br>switch(config-fcs-register-attrib)#                                 | Configures the fc-gs-3 defined platform type.  |
|        | switch(config-fcs-register)# <b>no type 5</b><br>switch(config-fcs-register)#  | 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><br>switch(config-fcs-register)#  | Exits the FCS registration attributes submode  |
| Step 8 | switch(config-fcs-register)# <b>exit</b><br>switch(config)#  | Exits the FCS registration submode.  |

## Displaying FCS Information

Use the **show fcs** commands to display the status of the WWN configuration (see Example 26-1 to 26-9).

### Example 26-1 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 26-2 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 26-3 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 26-4 Displays Platform 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 26-5 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 26-6 Displays a List of Switchports 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 26-7 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 26-8 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 26-9 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

```