



## Managing FLOGI, Name Server, and RSCN Databases

This chapter describes the fabric login database, the name server features, and Registered State Change Notification (RSCN) information provided in the Cisco MDS 9000 Family. It includes the following sections:

- [Displaying FLOGI Details, page 13-1](#)
- [Configuring the Name Server Proxy Feature, page 13-3](#)
- [Displaying RSCN Information, page 13-6](#)

### Displaying FLOGI Details

In a Fibre Channel fabric, each host or disk requires an FC ID. Use the **show flogi** command to verify if a storage device is displayed in the Fabric login (FLOGI) table as in the following examples. If the required device is displayed in the FLOGI table, the fabric login is successful. Examine the FLOGI database on a switch that is directly connected to the host HBA and connected ports. See Examples [13-1](#) to [13-4](#).

#### Example 13-1 Displays Details on the FLOGI Database

```
switch# show flogi database
```

INTERFACE	VSAN	FCID	PORT NAME	NODE NAME
sup-fc0	2	0xb30100	10:00:00:05:30:00:49:63	20:00:00:05:30:00:49:5e
fc9/13	1	0xb200e2	21:00:00:04:cf:27:25:2c	20:00:00:04:cf:27:25:2c
fc9/13	1	0xb200e1	21:00:00:04:cf:4c:18:61	20:00:00:04:cf:4c:18:61
fc9/13	1	0xb200d1	21:00:00:04:cf:4c:18:64	20:00:00:04:cf:4c:18:64
fc9/13	1	0xb200ce	21:00:00:04:cf:4c:16:fb	20:00:00:04:cf:4c:16:fb
fc9/13	1	0xb200cd	21:00:00:04:cf:4c:18:f7	20:00:00:04:cf:4c:18:f7

Total number of flogi = 6.

#### Example 13-2 Displays the FLOGI Database by Interface

```
switch# show flogi database interface fc1/11
```

INTERFACE	VSAN	FCID	PORT NAME	NODE NAME
fc1/11	1	0xa002ef	21:00:00:20:37:18:17:d2	20:00:00:20:37:18:17:d2
fc1/11	1	0xa002e8	21:00:00:20:37:38:a7:c1	20:00:00:20:37:38:a7:c1

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```

fc1/11      1      0xa002e4   21:00:00:20:37:6b:d7:18   20:00:00:20:37:6b:d7:18
fc1/11      1      0xa002e2   21:00:00:20:37:18:d2:45   20:00:00:20:37:18:d2:45
fc1/11      1      0xa002e1   21:00:00:20:37:39:90:6a   20:00:00:20:37:39:90:6a
fc1/11      1      0xa002e0   21:00:00:20:37:36:0b:4d   20:00:00:20:37:36:0b:4d
fc1/11      1      0xa002dc   21:00:00:20:37:5a:5b:27   20:00:00:20:37:5a:5b:27
fc1/11      1      0xa002da   21:00:00:20:37:18:6f:90   20:00:00:20:37:18:6f:90
fc1/11      1      0xa002d9   21:00:00:20:37:5b:cf:b9   20:00:00:20:37:5b:cf:b9
fc1/11      1      0xa002d6   21:00:00:20:37:46:78:97   20:00:00:20:37:46:78:97

```

Total number of flogi = 10.

### **Example 13-3 Displays the FLOGI Database by VSAN**

```
switch# show flogi database vsan 1
```

```

-----
INTERFACE  VSAN    FCID          PORT NAME          NODE NAME
-----
fc1/3      1      0xef02ef     22:00:00:20:37:18:17:d2  20:00:00:20:37:18:17:d2
fc1/3      1      0xef02e8     22:00:00:20:37:38:a7:c1  20:00:00:20:37:38:a7:c1
fc1/3      1      0xef02e4     22:00:00:20:37:6b:d7:18  20:00:00:20:37:6b:d7:18
fc1/3      1      0xef02e2     22:00:00:20:37:18:d2:45  20:00:00:20:37:18:d2:45
fc1/3      1      0xef02e1     22:00:00:20:37:39:90:6a  20:00:00:20:37:39:90:6a
fc1/3      1      0xef02e0     22:00:00:20:37:36:0b:4d  20:00:00:20:37:36:0b:4d
fc1/3      1      0xef02dc     22:00:00:20:37:5a:5b:27  20:00:00:20:37:5a:5b:27
fc1/3      1      0xef02da     22:00:00:20:37:18:6f:90  20:00:00:20:37:18:6f:90
fc1/3      1      0xef02d9     22:00:00:20:37:5b:cf:b9  20:00:00:20:37:5b:cf:b9
fc1/3      1      0xef02d6     22:00:00:20:37:46:78:97  20:00:00:20:37:46:78:97

```

Total number of flogi = 10.

### **Example 13-4 Displays the FLOGI Database by FC ID**

```
switch# show flogi database fcid 0xef02e2
```

```

-----
INTERFACE  VSAN    FCID          PORT NAME          NODE NAME
-----
fc1/3      1      0xef02e2     22:00:00:20:37:18:d2:45  20:00:00:20:37:18:d2:45

```

Total number of flogi = 1.

See the “Allocating Flat FC IDs” section on page 24-18 and the “Enabling Loop Monitoring” section on page 24-18.

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## Configuring the Name Server Proxy Feature

The name server functionality maintains a database containing the attributes for all hosts and storage devices in each VSAN. Name servers allow a database entry to be modified by a device which originally registered the information.

The proxy feature is useful when you wish to modify (update or delete) the contents of a database entry that was previously registered by a different device.

All name server registration requests come from the same port whose parameter is registered or changed. If it doesn't, then the request is rejected.

This authorization enables WWNs to register specific parameters for another node.

### Registering Name Server Proxies

To register the name server proxy, follow these steps:

	Command	Purpose
Step 1	switch# <b>config t</b> switch(config)#	Enters configuration mode.
Step 2	switch(config)# <b>fcns proxy-port 21:00:00:e0:8b:00:26:d0 vsan 2</b> switch(config)#	Configures a proxy port for the specified VSAN.

### Displaying Name Server Database Entries

The name server stores name entries for all hosts in the FCNS database. The name server permits an Nx port to register attributes during a PLOGI (to the name server) to obtain attributes of other hosts. These attributes are deregistered when the Nx port logs out either explicitly or implicitly.

In a multiswitch fabric configuration, the name server instances running on each switch shares information in a distributed database. One instance of the name server process runs on each switch.

Use the **show fcns** command to display the name server database and statistical information for a specified VSAN or for all VSANs (see Examples 13-5 to 13-9).

#### Example 13-5 Displays the Name Server Database

```
switch# show fcns database
-----
FCID          TYPE  PWWN                               (VENDOR)          FC4-TYPE:FEATURE
-----
0x010000      N     50:06:0b:00:00:10:a7:80             (Andiamo)         scsi-fcp fc-gs
0x010001      N     10:00:00:05:30:00:24:63             (Andiamo)         ipfc
0x010002      N     50:06:04:82:c3:a0:98:52             (Company 1)       scsi-fcp 250
0x010100      N     21:00:00:e0:8b:02:99:36             (Company A)       scsi-fcp
0x020000      N     21:00:00:e0:8b:08:4b:20             (Company A)
0x020100      N     10:00:00:05:30:00:24:23             (Andiamo)         ipfc
0x020200      N     21:01:00:e0:8b:22:99:36             (Company A)       scsi-fcp
```

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**Example 13-6 Displays the Name Server Database for the Specified VSAN**

```
switch# show fcns database vsan 1
VSAN 1:
-----
FCID          TYPE  PWWN                               (VENDOR)          FC4-TYPE:FEATURE
-----
0x030001      N     10:00:00:05:30:00:25:a3 (Cisco)           ipfc
0x030101      NL    10:00:00:00:77:99:60:2c (Interphase)
0x030200      N     10:00:00:49:c9:28:c7:01
0x030300      N     10:00:00:4a:c9:28:c7:01
0x030400      N     10:00:00:59:c9:28:c7:01
0xec0001      NL    21:00:00:20:37:a6:be:14 (Seagate)         scsi-fcp
0xec0100      N     10:00:00:05:30:00:26:23 (Cisco)           ipfc
0xec0200      N     10:00:00:5a:c9:28:c7:01

Total number of entries = 8
```

**Example 13-7 Displays the Name Server Database Details**

```
switch# show fcns database detail
-----
VSAN:1      FCID:0x030001
-----
port-wwn (vendor)      :10:00:00:05:30:00:25:a3 (Cisco)
node-wwn               :20:00:00:05:30:00:25:9e
class                  :2,3
node-ip-addr           :0.0.0.0
ipa                    :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:ipfc
symbolic-port-name     :
symbolic-node-name     :
port-type              :N
port-ip-addr           :0.0.0.0
fabric-port-wwn       :00:00:00:00:00:00:00:00
hard-addr              :0x000000
.
.
.
-----
VSAN:1      FCID:0xec0200
-----
port-wwn (vendor)      :10:00:00:5a:c9:28:c7:01
node-wwn               :10:00:00:5a:c9:28:c7:01
class                  :3
node-ip-addr           :0.0.0.0
ipa                    :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:
symbolic-port-name     :
symbolic-node-name     :
port-type              :N
port-ip-addr           :0.0.0.0
fabric-port-wwn       :22:0a:00:05:30:00:26:1e
hard-addr              :0x000000

Total number of entries = 8
```

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***Example 13-8 Displays the Name Server Statistics***

```
switch# show fcns statistics
registration requests received = 27
deregistration requests received = 0
queries received = 57
queries sent = 10
reject responses sent = 14
RSCNs received = 0
RSCNs sent = 0
```

***Example 13-9 Displays the Internal Name Server Information for the Specified VSAN***

```
switch# show fcns internal info vsan 8
Local Domain: 13
Remote Domain:
Info for 21
updating_db = 0
Requests sent to the switch with response pending:
Indexed objects details:
port_id index::
size:10240 incr_factor:512 slots_free:10239
portwnn index::
size:10240 incr_factor:512 slots_free:10239
nodewwn index::
size:10240 incr_factor:512 slots_free:10239
ip addr index::
size:10240 incr_factor:512 slots_free:10240
```

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## Displaying RSCN Information

The Registered State Change Notification (RSCN) is a Fibre Channel service that informs hosts about changes in the fabric. Hosts can receive this information by registering with the fabric controller (through SCR). These notifications provide a timely indication of one or more of the following events:

- Disks joining or leaving the fabric.
- A name server registration change.
- A new zone enforcement.
- IP address change
- Or any other similar event that affects the operation of the host

Apart from sending these events to registered hosts a switch RSCN (SW-RSCN) is sent to all reachable switches in the fabric.



### Note

The switch sends an RSCN to notify registered nodes that a change has occurred. It is up to the nodes to query the Name Server again to obtain the new information. The details of the changed information are not delivered by the switch in the RSCN sent to the nodes.

Use the **show rscn** command to display RSCN information (see Examples 13-10 and 13-11).

### Example 13-10 Displays Register Device Information

```
switch# show rscn scr-table vsan 1
SCR table for VSAN: 1
-----
FC-ID          REGISTERED FOR
-----
0x1b0300      fabric detected rscns

Total number of entries = 1
```



### Note

The SCR table cannot be configured, it is only populated if one or more hosts send SCR frames to register for RSCN information. If the **show rscn scr-table** command does not return any entries, no host is interested in receiving RSCN information.

### Example 13-11 Displays RSCN Counter Information

```
switch# show rscn statistics vsan 1

Statistics for VSAN: 1
-----
Number of SCR received           = 8
Number of SCR ACC sent           = 8
Number of SCR RJT sent           = 0
Number of RSCN received          = 0
Number of RSCN sent              = 24
Number of RSCN ACC received      = 24
Number of RSCN ACC sent          = 0
Number of RSCN RJT received      = 0
Number of RSCN RJT sent          = 0
Number of SW-RSCN received       = 6
Number of SW-RSCN sent           = 15
```

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```
Number of SW-RSCN ACC received = 15
Number of SW-RSCN ACC sent     = 6
Number of SW-RSCN RJT received = 0
Number of SW-RSCN RJT sent     = 0
```

## Sending RSCNs

If the RSCN **multi-pid** option is enabled then RSCNs generated to the registered Nx ports may contain more than one affected port IDs. In this case, zoning rules are applied before putting the multiple affected port IDs together in a single RSCN. By enabling this option, you can reduce the number of RSCNs.

For example, you have two disks (D1, D2) and a host (Host H) connected to switch 1. Host H is registered to receive RSCNs. D1, D2 and H belong to the same zone. If disks D1 and D2 are online at the same time, then one of the following applies:

- If the **multi-pid** option is disabled on switch 1, then two RSCNs is generated to Host H—one for the disk D1 and another for disk D2.
- If the **multi-pid** format is enabled on switch 1, then a single RSCN is generated to host H, and the RSCN payload lists the affected port IDs (in this case, both D1 and D2).

To configure the **multi-pid** option, follow these steps:

	Command	Purpose
Step 1	switch# <b>config t</b> switch(config)#	Enters configuration mode.
Step 2	switch(config)# <b>rscn multi-pid vsan 105</b>	Sends RSCNs in a multi-pid format for the specified VSAN.



### Note

Some Nx ports may not understand multi-pid RSCN payloads. If so, you must disable the **multi-pid** RSCN option.

## Clearing RSCN Statistics

Use the **clear rscn statistics** command to clear the RSCN statistics for the specified VSAN.

```
switch# clear rscn statistics vsan 1
```

After clearing the RSCN statistics, you can view the cleared counters by issuing the **show rscn** command.

```
switch# show rscn statistics vsan 1
```

```
Statistics for VSAN: 1
-----
Number of SCR received      = 0
Number of SCR ACC sent     = 0
Number of SCR RJT sent     = 0
Number of RSCN received    = 0
Number of RSCN sent        = 0
Number of RSCN ACC received = 0
Number of RSCN ACC sent    = 0
Number of RSCN RJT received = 0
Number of RSCN RJT sent    = 0
```

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```
Number of SW-RSCN received      = 0
Number of SW-RSCN sent          = 0
Number of SW-RSCN ACC received = 0
Number of SW-RSCN ACC sent     = 0
Number of SW-RSCN RJT received = 0
Number of SW-RSCN RJT sent     = 0
```

This command is used for debugging purposes. When you clear the counters and later view the counters for a different set of events. For example, you can keep track of how many RSCNs or SW-RSCNs are generated on a particular event (like ONLINE or OFFLINE events). You can use these statistics to monitor responses for each event in the VSAN.