



## Troubleshooting

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This chapter describes basic troubleshooting methods used to resolve issues with Cisco Nexus 5000 Series switches. This chapter includes the following sections:

- [Recovering a Lost Password, page 49-1](#)
- [Troubleshooting Fibre Channel, page 49-3](#)
- [show tech-support Command, page 49-6](#)
- [Default Settings, page 49-14](#)

## Recovering a Lost Password

This section describes how to recover a lost network administrator password using the console port of the switch.

You can recover the network administrator password using one of two methods:

- From the CLI with a username that has network-admin privileges
- By power cycling the switch

This section includes the following topics:

- [Using the CLI with Network-Admin Privileges, page 49-1](#)
- [Power Cycling the Switch, page 49-2](#)

## Using the CLI with Network-Admin Privileges

If you are logged in to, or can log into, the switch with a username that has network-admin privileges, follow these steps:

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**Step 1** Verify that your username has network-admin privileges.

```
switch# show user-account
user:admin
    this user account has no expiry date
    roles:network-admin

user:dbgusr
    this user account has no expiry date
    roles:network-admin network-operator
```

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**Step 2** Assign a new network administrator password if your username has network-admin privileges.

```
switch# configure terminal
switch(config)# username admin password <new password>
switch(config)# exit
switch#
```

**Step 3** Save the configuration.

```
switch# copy running-config startup-config
```

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## Power Cycling the Switch

If you cannot start a session on the switch that has network-admin privileges, you must recover the network administrator password by power cycling the switch.



### Caution

This procedure disrupts all traffic on the switch.

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### Note

You cannot recover the administrator password from a Telnet or SSH session. You must have access to the local console connection.

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To recover the network administrator password by power cycling the switch, follow these steps:

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**Step 1** Establish a terminal session on the console port of the supervisor module.

**Step 2** Power cycle the switch.

**Step 3** Press the **Ctrl-B** key sequence from the console port session when the switch begins the Cisco NX-OS software boot sequence to enter the boot prompt mode.

```
Ctrl-B
switch(boot)#
```

**Step 4** Reset the network administrator password.

```
switch(boot)# configure terminal
switch(boot-config)# admin-password <new password>
switch(boot-config)# exit
switch(boot)#
```

**Step 5** Display the bootflash: contents to locate the Cisco NX-OS software image file.

```
switch(boot)# dir bootflash:
```

**Step 6** Load the Cisco NX-OS system software image.

In the following example, the system image filename is nx-os.bin:

```
switch(boot) # load bootflash:nx-os.bin
```

**Step 7** Log in to the switch using the new administrator password.

```
switch login: admin
Password: <new password>
```

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**Step 8** Reset the new password to ensure that it is also the SNMP password.

```
switch# configure terminal
switch(config)# username admin password <new password>
switch(config)# exit
switch#
```

**Step 9** Save the configuration.

```
switch# copy running-config startup-config
```

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# Troubleshooting Fibre Channel

This section describes troubleshooting methods to resolve issues with Fibre Channel. This section includes the following topics:

- [fctrace, page 49-3](#)
- [fcping, page 49-5](#)

## fctrace

The fctrace feature provides the following capabilities:

- Trace the route followed by data traffic.
- Compute inter-switch (hop-to-hop) latency.

You can invoke fctrace by providing the FC ID, the N port WWN, or the device alias of the destination.

The trace frame is routed normally through the network until it reaches the far edge of the fabric. When the frame reaches the edge of the fabric (the F port connected to the end node with the given port WWN or the FC ID), the frame is looped back (swapping the source ID and the destination ID) to the originator.

If the destination cannot be reached, the path discovery starts, which traces the path up to the point of failure.



### Note

The fctrace feature works only on TE ports. Make sure that only TE ports exist in the path to the destination. If there is an E port in the path, the fctrace frame is dropped by that switch. Also, fctrace times out in the originator, and path discovery does not start.

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To perform the fctrace operation, perform one of these tasks:

Command	Purpose
<pre>switch# fctrace fcid 0xd70000 vsan 1 Route present for : 0xd70000 20:00:00:0b:46:00:02:82(0xffffcd5) Timestamp Invalid. 20:00:00:05:30:00:18:db(0xffffcd7) Timestamp Invalid. 20:00:00:05:30:00:18:db(0xffffcd7)</pre>	<p>Invokes fctrace for the specified FC ID of the destination N port.</p>
<pre>switch# fctrace pwn 21:00:00:e0:8b:06:d9:1d vsan 1 timeout 5 Route present for : 21:00:00:e0:8b:06:d9:1d 20:00:00:0b:46:00:02:82(0xffffcd5) Timestamp Invalid. 20:00:00:05:30:00:18:db(0xffffcd7) Timestamp Invalid. 20:00:00:05:30:00:18:db(0xffffcd7)</pre>	<p>Invokes fctrace using the pWWN of the destination N port.</p> <p>By default the period to wait before timing out is 5 seconds, The range is from one through 10 seconds.</p>
<pre>switch# fctrace device-alias disk1 v 1 Route present for : 22:00:00:0c:50:02:ce:f8 20:00:00:05:30:00:31:1e(0xffffca9)</pre>	<p>Invokes fctrace using the device alias of the destination N port.</p>

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## fcping

The fcping feature verifies reachability of a node by checking its end-to-end connectivity. You can invoke the fcping feature by providing the FC ID, the destination port WWN, or the device alias information.

To perform a fcping operation, perform this task:

	Command	Purpose
Step 1	<pre>switch# fcping fcid 0xd70000 vsan 1 28 bytes from 0xd70000 time = 730 usec 28 bytes from 0xd70000 time = 165 usec 28 bytes from 0xd70000 time = 262 usec 28 bytes from 0xd70000 time = 219 usec 28 bytes from 0xd70000 time = 228 usec  5 frames sent, 5 frames received, 0 timeouts Round-trip min/avg/max = 165/270/730 usec</pre>	Invokes fcping for the specified pWWN or the FC ID of the destination. By default, five frames are sent.
	<pre>switch# fcping fcid 0xd70000 vsan 1 count 10 28 bytes from 0xd70000 time = 730 usec 28 bytes from 0xd70000 time = 165 usec 28 bytes from 0xd70000 time = 262 usec 28 bytes from 0xd70000 time = 219 usec 28 bytes from 0xd70000 time = 228 usec 28 bytes from 0xd70000 time = 230 usec 28 bytes from 0xd70000 time = 230 usec 28 bytes from 0xd70000 time = 225 usec 28 bytes from 0xd70000 time = 229 usec 28 bytes from 0xd70000 time = 183 usec  10 frames sent, 10 frames received, 0 timeouts Round-trip min/avg/max = 165/270/730 usec</pre>	Sets the number of frames to be sent using the count option. The range is from 0 through 2147483647. A value of 0 causes the command to send frames forever.
	<pre>switch# fcping fcid 0xd500b4 vsan 1 timeout 10 28 bytes from 0xd500b4 time = 1345 usec ... 5 frames sent, 5 frames received, 0 timeouts Round-trip min/avg/max = 340/581/1345 usec</pre>	Sets the timeout value. The default period to wait is 5 seconds. The range is from 1 through 10 seconds.
	<pre>switch# fcping device-alias disk1 vsan 1 28 bytes from 22:00:00:0c:50:02:ce:f8 time = 1883 usec 28 bytes from 22:00:00:0c:50:02:ce:f8 time = 493 usec 28 bytes from 22:00:00:0c:50:02:ce:f8 time = 277 usec 28 bytes from 22:00:00:0c:50:02:ce:f8 time = 391 usec 28 bytes from 22:00:00:0c:50:02:ce:f8 time = 319 usec  5 frames sent, 5 frames received, 0 timeouts Round-trip min/avg/max = 277/672/1883 usec</pre>	Invokes fcping for the specified device alias of the destination.
Step 2	<pre>switch# fcping fcid 0x010203 vsan 1 No response from the N port.  switch# fcping pwn 21:00:00:20:37:6f:db:dd vsan 1 28 bytes from 21:00:00:20:37:6f:db:dd time = 1454 usec ... 5 frames sent, 5 frames received, 0 timeouts Round-trip min/avg/max = 364/784/1454 usec</pre>	<p>Returns a “No response from the N port” message even when the N port is active. This is due to resource exhaustion at the N port.</p> <p>Retry the command a few seconds later.</p>

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## Verifying Switch Connectivity

You can verify connectivity to a destination switch.



### Note

The FC ID variable used in this procedure is the domain controller address; it is not a duplication of the domain ID.

To verify connectivity to a destination switch, perform this task:

	Command	Purpose
Step 1	<pre>switch# show fcdomain domain-list vsan 200 Number of domains: 7 Domain ID          WWN -----          - 0x01(1)           20:c8:00:05:30:00:59:df [Principal] 0x02(2)           20:c8:00:0b:5f:d5:9f:c1 0x6f(111)         20:c8:00:05:30:00:60:df 0xda(218)         20:c8:00:05:30:00:87:9f [Local] 0x06(6)           20:c8:00:0b:46:79:f2:41 0x04(4)           20:c8:00:05:30:00:86:5f 0x6a(106)         20:c8:00:05:30:00:f8:e3</pre>	<p>Displays the destination switch's domain ID.</p> <p>To obtain the domain controller address, concatenate the domain ID with FFFC. For example, if the domain ID is 0xda(218), the concatenated ID is 0xfffcda.</p>
Step 2	<pre>switch# fcping fcid 0xFFFCDA vsan 200 28 bytes from 0xFFFCDA time = 298 usec 28 bytes from 0xFFFCDA time = 260 usec 28 bytes from 0xFFFCDA time = 298 usec 28 bytes from 0xFFFCDA time = 294 usec 28 bytes from 0xFFFCDA time = 292 usec  5 frames sent, 5 frames received, 0 timeouts Round-trip min/avg/max = 260/288/298 usec</pre>	<p>Verifies reachability of the destination switch by checking its end-to-end connectivity.</p>

## show tech-support Command

The **show tech-support** command is useful when collecting a large amount of information about the switch for troubleshooting purposes. The output of this command can be provided to technical support representatives when reporting a problem.

The **show tech-support** command displays the output of several **show** commands at once. The output from this command varies depending on your configuration. Use the **show tech-support** command in EXEC mode to display general information about the switch when reporting a problem.

You can choose to have detailed information for each command. You can specify the output for a particular interface, module, or VSAN. Each command output is separated by line and the command precedes the output.



### Note

Explicitly set the **terminal length** command to 0 (zero) to disable auto-scrolling and enable manual scrolling. Use the **show terminal** command to view the configured the terminal size. After obtaining the output of this command, remember to reset your terminal length as required.

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**Tip**

You can save the output of this command to a file by appending > (left arrow) and the filename to the **show tech-support** command. If you save this file, verify you have sufficient space to do so—each of these files may take about 1.8 MB. However, you can zip this file using the **gzip filename** command. Copy the zipped file to the required location using the **copy** command and unzip the file using the **gunzip** command.

The default output of the **show tech-support** command includes the output of the following commands:

- **show switchname**
- **show system uptime**
- **show interface mgmt0**
- **show interface mgmt1**
- **show system resources**
- **show version**
- **dir bootflash:**
- **show inventory**
- **show diagnostic result all**
- **show logging log**
- **show module**
- **show environment**
- **show srom backplane**
- **show clock**
- **show callhome**
- **show cfs application**
- **show cfs lock**
- **show snmp**
- **show interface brief**
- **show interface**
- **show running-config**
- **show startup-config**
- **show ip route**
- **show arp**
- **show monitor session**
- **show accounting log**
- **show process**
- **show process cpu**
- **show process log**
- **show process memory**
- **show processes log details**

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- **show logging log**
- **show license host-id**
- **show license**
- **show license usage**
- **show system reset-reason**
- **show logging nvram**
- **show install all status**
- **show install all failure-reason**
- **show system internal log install**
- **show system internal log install details**
- **show cores**
- **show topology**
- **show kernel internal aipc**
- **show tech-support acl**
- **show vlan**
- **show vlan access-map**
- **show mac-address-table**
- **show spanning-tree summary**
- **show spanning-tree active**
- **show interface trunk**
- **show aclmgr status**
- **show aclmgr internal dictionaries**
- **show aclmgr internal log**
- **show aclmgr internal ppf**
- **show aclmgr internal state-cache**
- **show access-lists**
- **show platform software ethpm internal info all**
- **show object-group**
- **show logging onboard obfl-logs**

## show tech-support brief Command

Use the **show tech-support brief** command to obtain a quick, condensed review of the switch configurations. This command provides a summary of the current running state of the switch (see the following example).

The **show tech-support brief** command is useful when collecting information about the switch for troubleshooting purposes. The output of this command can be provided to technical support representatives when reporting a problem.

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You can save the output of this command to a file by appending > (left arrow) and the filename to the **show tech-support brief** command.

This example shows how to display a condensed view of the switch configurations:

```
switch# show tech-support brief
Switch Name           : switch
Switch Type           :
Kickstart Image       : 4.0(0) bootflash:///nuova-or-kickstart-nsg.4.0.0.001.bin
System Image          : 4.0(0) bootflash:///nuova-or-system-nsg.4.0.0.001.binmms-or-47
IP Address/Mask       : 172.16.24.47/24
Switch WWN            : 20:00:00:0d:ec:6b:cd:c0
No of VSANs           : 1
Configured VSANs     : 1
```

```
VSAN    1:    name:VSAN0001, state:active, interop mode:default
          domain id:0xa6(166), WWN:20:01:00:0d:ec:6b:cd:c1 [Principal]
          active-zone:<NONE>, default-zone:deny
```

```
-----
Interface  Vsan    Admin  Admin  Status      SFP    Oper  Oper  Port
          Mode    Trunk  Mode
          Mode
-----
fc3/1      1        auto   on     down        swl    --   --   --
fc3/2      1        auto   on     sfpAbsent   --     --   --   --
fc3/3      1        auto   on     down        swl    --   --   --
fc3/4      1        auto   on     sfpAbsent   --     --   --   --
fc3/5      1        auto   on     down        swl    --   --   --
fc3/6      1        auto   on     sfpAbsent   --     --   --   --
fc3/7      1        auto   on     down        swl    --   --   --
fc3/8      1        auto   on     down        swl    --   --   --
-----
```

```
-----
Interface          Status      IP Address      Speed      MTU      Port
                  Channel
-----
Ethernet1/1        sfpIsAbsen --              --         1500      --
Ethernet1/2        sfpIsAbsen --              --         1500      --
Ethernet1/3        up          --              10000     1500      --
Ethernet1/4        sfpIsAbsen --              --         1500      --
Ethernet1/5        sfpIsAbsen --              --         1500      --
Ethernet1/6        sfpIsAbsen --              --         1500      --
Ethernet1/7        sfpIsAbsen --              --         1500      --
Ethernet1/8        sfpIsAbsen --              --         1500      --
Ethernet1/9        sfpIsAbsen --              --         1500      --
Ethernet1/10       sfpIsAbsen --              --         1500      --
Ethernet1/11       sfpIsAbsen --              --         1500      --
Ethernet1/12       sfpIsAbsen --              --         1500      --
Ethernet1/13       sfpIsAbsen --              --         1500      --
Ethernet1/14       sfpIsAbsen --              --         1500      --
Ethernet1/15       notConnect --              --         1500      --
Ethernet1/16       sfpIsAbsen --              --         1500      --
Ethernet1/17       sfpIsAbsen --              --         1500      --
Ethernet1/18       sfpIsAbsen --              --         1500      --
Ethernet1/19       notConnect --              --         1500      --
Ethernet1/20       sfpIsAbsen --              --         1500      --
Ethernet1/21       sfpIsAbsen --              --         1500      --
Ethernet1/22       sfpIsAbsen --              --         1500      --
Ethernet1/23       sfpIsAbsen --              --         1500      --
-----
```

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```

Ethernet1/24          sfpIsAbsen --          --          1500 --
Ethernet1/25          sfpIsAbsen --          --          1500 --
Ethernet1/26          sfpIsAbsen --          --          1500 --
Ethernet1/27          sfpIsAbsen --          --          1500 --
Ethernet1/28          sfpIsAbsen --          --          1500 --
Ethernet1/29          sfpIsAbsen --          --          1500 --
Ethernet1/30          sfpIsAbsen --          --          1500 --
Ethernet1/31          sfpIsAbsen --          --          1500 --
Ethernet1/32          sfpIsAbsen --          --          1500 --
Ethernet1/33          sfpIsAbsen --          --          1500 --
Ethernet1/34          sfpIsAbsen --          --          1500 --
Ethernet1/35          up                --          10000      1500 --
Ethernet1/36          sfpIsAbsen --          --          1500 --
Ethernet1/37          sfpIsAbsen --          --          1500 --
Ethernet1/38          sfpIsAbsen --          --          1500 --
Ethernet1/39          sfpIsAbsen --          --          1500 --
Ethernet1/40          sfpIsAbsen --          --          1500 --

```

```

-----
Interface            Status      IP Address          Speed    MTU
-----
mgmt0                up         172.16.24.47       100     1500

```

## show tech-support fc Command

Use the **show tech-support fc** command to obtain information about the FC configuration on your switch.

The output of the **show tech-support fc** command includes the output of the following commands:

- **show interface brief**
- **show interface**
- **show port internal info all**
- **show port internal event-history lock**
- **show port internal event-history msgs**
- **show port internal event-history errors**
- **show port internal mem-stats detail**
- **show san-port-channel internal event-history all**
- **show san-port-channel internal event-history errors**
- **show san-port-channel internal event-history msgs**
- **show san-port-channel internal event-history lock**
- **show san-port-channel internal mem-stats detail**
- **show san-port-channel usage**
- **show san-port-channel summary**
- **show san-port-channel consistency detail**
- **show tech-support device-alias**
- **show fcdomain domain-list**
- **show tech-support fcns**
- **show fcns database vsan 1-4093**

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- **show fcns database detail vsan 1-4093**
- **show fcns database local vsan 1-4093**
- **show fcns database local detail vsan 1-4093**
- **show fcns statistics vsan 1-4093**
- **show fcns statistics detail vsan 1-4093**
- **show fcns internal info vsan 1-4093**
- **show fcns internal event-history**
- **show fcns internal event-log**
- **show fcroute unicast**
- **show fcs database**
- **show fcs ie**
- **show fetimer**
- **show flogi database**
- **show flogi internal info**
- **show fspf**
- **show fspf database**
- **show tech-support rscn**
- **show rscn internal vsan 1-4093**
- **show rscn internal event-history**
- **show rscn internal mem-stats detail**
- **show rscn internal session-history vsan 1-4093**
- **show rscn internal merge-history vsan 1-4093**
- **show rscn statistics vsan 1-4093**
- **show rscn scr-table vsan 1-4093**
- **show rscn session status vsan 1-4093**
- **show vsan**
- **show vsan membership**
- **show tech-support zone**
- **show zone status vsan 1-4093**
- **show zoneset active vsan 1-4093**
- **show zoneset vsan 1-4093**
- **show zone vsan 1-4093**
- **show fcalias vsan 1-4093**
- **show zone-attribute-group vsan 1-4093**
- **show zone policy vsan 1-4093**
- **show zoneset pending active vsan 1-4093**
- **show zoneset pending vsan 1-4093**
- **show zone pending vsan 1-4093**

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- **show zone pending active vsan 1-4093**
- **show fcalias pending vsan 1-4093**
- **show zone policy pending vsan 1-4093**
- **show zone pending-diff vsan 1-4093**
- **show zone analysis active vsan 1-4093**
- **show zone analysis vsan 1-4093**
- **show zone ess vsan 1-4093**
- **show zone internal vsan 1-4093**
- **show zone internal change event-history vsan 1-4093**
- **show zone internal ifindex-table vsan 1-4093**
- **show zone internal merge event-history vsan 1-4093**
- **show zone internal event-history**
- **show zone internal event-history errors**
- **show zone internal tcam event-history vsan 1-4093**
- **show zone statistics vsan 1-4093**
- **show system default zone**
- **show zone internal ddas-table**
- **show zone internal sdv-table vsan 1-4093**
- **show zone internal mem-stats**
- **show zone internal mem-stats detail**
- **show zone internal transit-table received vsan 1-4093**
- **show zone internal transit-table forwarded vsan 1-4093**
- **show zone internal transit-table rejected vsan 1-4093**



### Tip

---

You can save the output of this command to a file by appending > (left arrow) and the filename to the **show tech-support zone** command.

---

## show tech-support platform Command

Use the **show tech-support platform** command to obtain information about the platform configuration of your switch.

The output of the **show tech-support platform** command includes the output of the following commands:

- **show platform fwm mem-stats detail**
- **show platform fwm info global**
- **show platform fwm info pif all verbose**
- **show platform fwm info lif all verbose**
- **show platform fwm info vlan all verbose**

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- **show platform fwm info error stats**
- **show platform fwm info error history**
- **show platform fwm info stm-stats**
- **show platform fwm info pc all verbose**
- **show platform fwm info ppf**
- **show platform fwm info pss all**
- **show platform hardware fwm info vlan all**
- **show platform hardware fwm info pif all**
- **show platform hardware fwm info lif all**
- **show platform hardware fwm info global**
- **show platform software zschk internal info**
- **show platform software zschk internal msgs**
- **show platform software statsclient msgs**
- **show hardware internal gatos detail**
- **show hardware internal gatos all-ports detail**
- **show hardware internal altos detail**
- **show hardware internal altos event-history errors**
- **show hardware internal altos event-history messages**
- **show platform fcfib fcflow**
- **show platform fcfib event-history all**
- **show platform fcfib unicasts**
- **show platform fcfib unicasts forwarding-configuration**
- **show platform fcfib vsan**
- **show platform fcfib san-port-channel**
- **show platform software fcfib devices**
- **show platform software fcfib multipath**
- **show platform software fcfib vsanidxtable**
- **show platform software fcfib domainidxtable**
- **show platform hardware fcfib pathselecttable**
- **show platform hardware fcfib pathselecttable all**
- **show platform software fcfib fctable-check**
- **show fc2 internal event-history errors**
- **show system internal liod liod\_db**
- **show system internal liod queues**
- **show system internal liod state**
- **show system internal liod time\_db**
- **show system internal rib domain**
- **show system internal rib system-attributes**

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- show system internal rib unicast
- show system internal rib vsan-attributes
- show system internal fcfwd fwidxmap if\_index
- show system internal fcfwd idxmap interface-to-port
- show system internal fcfwd pemap
- show platform afm info global
- show platform afm info attachment brief
- show platform afm info group-cfg all
- show platform afm info lop all
- show platform software altos detail
- show platform software altos event-history errors
- show platform software altos event-history msgs
- show platform software altos ports all
- show platform hardware altos counters all
- show platform hardware altos counters interrupts all
- show platform hardware altos interrupts all detail

## Default Settings

Table 49-1 lists the default settings for the features included in this chapter.

**Table 49-1**      *Default Settings for Troubleshooting Features*

Parameters	Default
Timeout period to invoke fctrace	5 seconds
Number of frame sent by the fcping feature	5 frames
Remote capture connection protocol	TCP
Remote capture connection mode	Passive
Local capture frame limits	10 frames
FC ID allocation mode	Auto mode