



Checking Port Status and Connectivity

This chapter describes how to check switch port status and connectivity on the Catalyst enterprise LAN switches.



Note

For complete syntax and usage information for the commands used in this chapter, refer to the *Command Reference* publication for your switch.

This chapter consists of these sections:

- Checking Module Status, page 21-1
- Checking Port Status, page 21-3
- Checking Port Capabilities, page 21-5
- Using Telnet, page 21-6
- Monitoring User Sessions, page 21-7
- Using Ping, page 21-8
- Using IP Traceroute, page 21-9

Checking Module Status

The Catalyst enterprise LAN switches are multimodule systems. You can see what modules are installed, as well as the MAC address ranges and version numbers for each module, using the **show module** [*mod_num*] command. Specify a particular module number to see detailed information on that module.

The Catalyst 2926G series, 4912G, 2948G, and 2980G switches are fixed-configuration switches, but are logically modular. You must apply configuration commands to the appropriate module. For example, on a Catalyst 2926G series switch, the 24 Fast Ethernet ports belong logically to module 2.



Note

For detailed information on the output of the **show module** command, see the *Command Reference* publication for your switch.

This example shows how to check module status on a Catalyst 5000 family switch. The output shows that there are two supervisor engine modules (one in standby mode), four additional modules (including an RSM/VIP2 in slots 4 and 5 and a two-slot 10BaseT Ethernet module in slots 9 and 10), and a LightStream 1010 ASP installed in the chassis.

```

Console> (enable) show module
Mod Slot Ports Module-Type Model Status
-----
1 1 4 100BaseFX MMF Supervisor WS-X5530 ok
2 2 4 100BaseFX MMF Supervisor WS-X5530 standby
4 4 Route Switch Ext Port
5 5 1 Route Switch WS-X5302 ok
7 7 1 Network Analysis/RMON WS-X5380 ok
8 8 1 MM OC-3 ATM WS-X5155 ok
9 9 10/100BaseTX Ethernet Ext WS-X5238
10 10 48 10/100BaseTX Ethernet WS-X5238 ok
13 13 ASP/SRP

Mod Module-Name Serial-Num
-----
1 00007451586
2 00012114992
4
5 00007460757
7 00008175475
8 00003414855
9 00011578014
10 00011578014

Mod MAC-Address(es) Hw Fw Sw
-----
1 00-e0-4f-ac-b0-00 to 00-e0-4f-ac-b3-ff 1.3 3.1.2 5.1(1)
1 00-e0-1e-9b-2e-00 to 00-e0-1e-9b-31-ff 1.3 3.1.2 5.1(1)
5 00-e0-1e-91-d5-14 to 00-e0-1e-91-d5-15 5.0 20.7 11.3 (3a)WA4 (5)
7 00-e0-14-10-18-00 0.100 4.1.1 4.3 (0.31)
8 00-e0-1e-a9-20-b9 1.2 1.3 3.2 (7)
10 00-50-0f-08-c3-f0 to 00-50-0f-08-c4-1f 0.1 5.3 (1)B 5.1 (1)

Mod Sub-Type Sub-Model Sub-Serial Sub-Hw
-----
1 NFFC WS-F5521 0011462777 1.1
1 uplink WS-U5538 0011464723 2.0
2 NFFC WS-F5521 0008936340 1.1
2 uplink WS-U5538 0007464204 2.0
Console> (enable)

```

This example shows how to check module status on a Catalyst 2948G switch. On the Catalyst 4912G, Catalyst 2948G, and Catalyst 2980G switches, there are two logical modules but both are in slot 1.

```

Console> (enable) show module
Mod Slot Ports Module-Type Model Status
-----
1 1 0 Switching Supervisor WS-X2948 ok
2 1 50 10/100/1000 Ethernet WS-X2948G ok

Mod Module-Name Serial-Num
-----
1 Supervisor JAB023807H1
2 Switch Ports JAB023807H1

```

```

Mod MAC-Address(es)                               Hw    Fw    Sw
-----
1  00-50-73-12-09-00 to 00-50-73-12-0c-ff 1.0   4.4(1)  5.1(1)
2  00-50-73-12-0c-9e to 00-50-73-12-0c-fd 1.0
Console> (enable)

```

This example shows how to check module status on a specific module:

```

Console> (enable) show module 4
Mod Slot Ports Module-Type           Model           Status
-----
4   4   12   100BaseFX MM Ethernet   WS-X5201R      ok

Mod Module-Name      Serial-Num
-----
4   Backbone Links   00007285650

Mod MAC-Address(es)                               Hw    Fw    Sw
-----
4  00-e0-1e-38-48-cc to 00-e0-1e-38-48-d7 0.2   4.1(0.53-E 5.1(1)
Console> (enable)

```

Checking Port Status

You can see summary or detailed information on the switch ports using the **show port** [*mod_num*[/*port_num*]] command. To see summary information on all of the ports on the switch, enter the **show port** command with no arguments. Specify a particular module number to see information on the ports on that module only. Enter both the module number and the port number to see detailed information about the specified port.

The Catalyst 2926G series, 4912G, 2948G, and 2980G switches are fixed-configuration switches, but are logically modular. To apply configuration commands to a particular port, you must specify the appropriate logical module. For more information, see the “Checking Module Status” section on page 21-1.



Note

For detailed information on the output of the **show port** command, see the *Command Reference* publication for your switch.

This example shows how to see information on the ports on a specific module only:

```

Console> (enable) show port 3
Port Name           Status      Vlan      Level Duplex Speed Type
-----
3/1                 connected  10        normal full  1000 1000BaseSX
3/2                 connected  10        normal full  1000 1000BaseSX
3/3                 connected  20        normal full  1000 1000BaseSX
3/4                 connected  40        normal full  1000 1000BaseSX
3/5                 notconnect 1         normal full  1000 No GBIC
3/6                 notconnect 1         normal full  1000 No GBIC

Port Security Secure-Src-Addr Last-Src-Addr Shutdown Trap IfIndex
-----
3/1 disabled
3/2 disabled
3/3 disabled
3/4 disabled
3/5 disabled
3/6 disabled

```

```

Port      Send FlowControl  Receive FlowControl  RxPause TxPause  Unsupported
      admin   oper      admin   oper      opcodes
-----
3/1      desired on       desired on           0       0       0
3/2      desired on       desired on           0       0       0
3/3      desired on       desired on           0       0       0
3/4      desired on       desired on           0       0       0
3/5      desired off      off    off           0       0       0
3/6      desired off      off    off           0       0       0

Port      Status      Channel  Channel  Neighbor
      mode      status   device
-----
3/1      connected  off     not channel
3/2      connected  off     not channel
3/3      connected  off     not channel
3/4      connected  off     not channel
3/5      notconnect off     not channel
3/6      notconnect off     not channel

Port      Align-Err  FCS-Err   Xmit-Err  Rcv-Err   UnderSize
-----
3/1      -          0         0         0         0
3/2      -          0         0         0         0
3/3      -          0         0         0         0
3/4      -          0         0         0         0
3/5      -          0         0         0         0
3/6      -          0         0         0         0

Port      Single-Col  Multi-Coll  Late-Coll  Excess-Col  Carri-Sen  Runts   Giants
-----
3/1      0           0           0           0           0           0       0
3/2      0           0           0           0           0           0       0
3/3      0           0           0           0           0           0       0
3/4      0           0           0           0           0           0       0
3/5      0           0           0           0           0           0       0
3/6      0           0           0           0           0           0       0

```

Last-Time-Cleared

```

-----
Fri Apr 30 1999, 18:54:17
Console> (enable)

```

This example shows how to see information on an individual port:

```
Console> (enable) show port 2/1
```

```

Port      Name      Status      Vlan      Level  Duplex  Speed  Type
-----
2/1      connected trunk      normal   full   1000  1000BaseSX

Port      Security  Secure-Src-Addr  Last-Src-Addr  Shutdown  Trap  IfIndex
-----
2/1      disabled

Port      Send FlowControl  Receive FlowControl  RxPause TxPause  Unsupported
      admin   oper      admin   oper      opcodes
-----
2/1      desired off      off    off           0       0       0

```

```

Port  Status      Channel  Channel  Neighbor  Neighbor
-----
2/1   connected   auto     not channel
-----
Port  Align-Err  FCS-Err  Xmit-Err  Rcv-Err  UnderSize
-----
2/1           -         0         0         0         0
-----
Port  Single-Col Multi-Coll Late-Coll  Excess-Col Carri-Sen Runts  Giants
-----
2/1           0         0         0         0         0         0         0
-----
Last-Time-Cleared
-----
Tue Dec 8 1998, 13:26:01
Console> (enable)

```

Checking Port Capabilities

You can display the capabilities of any port in a switch using the **show port capabilities** `[[mod_num][port_num]]` command.

This example shows you how to display the port capabilities for switch ports:

```

Console> (enable) show port capabilities 1
Model                WS-X5509
Port                 1/1
Type                 100BaseTX
Speed                100
Duplex                half,full
Trunk encap type     ISL
Trunk mode            on,off,desirable,auto,nonegotiate
Channel              1/1-2
Broadcast suppression percentage(0-100)
Flow control         no
Security              yes
Membership            static,dynamic
Fast start            yes
Rewrite               no
-----
Model                WS-X5509
Port                 1/2
Type                 100BaseTX
Speed                100
Duplex                half,full
Trunk encap type     ISL
Trunk mode            on,off,desirable,auto,nonegotiate
Channel              1/1-2
Broadcast suppression percentage(0-100)
Flow control         no
Security              yes
Membership            static,dynamic
Fast start            yes
Rewrite               no

```

```

Console> (enable) show port capabilities 7/1
Model                WS-X5014
Port                 7/1
Type                 10BaseT
Speed                10
Duplex                half,full
Trunk encap type     no
Trunk mode            off
Channel              no
Broadcast suppression percentage(0-100)
Flow control         no
Security              yes
Membership            static,dynamic
Fast start            yes
Rewrite              no
Console> (enable) show port capabilities 8
Model                WS-X5155
Port                 8/1
Type                 OC3 MMF ATM
Speed                155
Duplex                full
Trunk encap type     LANE
Trunk mode            on
Channel              no
Broadcast suppression no
Flow control         no
Security              no
Membership            static
Fast start            no
Rewrite              no
Console> (enable)

```

Using Telnet

You can access the switch command-line interface (CLI) using Telnet. In addition, you can use Telnet from the switch to access other devices in the network. Up to eight simultaneous Telnet sessions are possible.

Before you can open a Telnet session to the switch, you must first set the IP address (and in some cases the default gateway) for the switch. For information about setting the IP address and default gateway, see Chapter 3, “Configuring the Switch IP Address and Default Gateway.”

To Telnet to another device on the network from the switch, perform this task in privileged mode:

Task	Command
Open a Telnet session with a remote host.	telnet <i>host</i> [<i>port</i>]

This example shows how to Telnet from the switch to a remote host:

```

Console> (enable) telnet labsparc
Trying 172.16.10.3...
Connected to labsparc.
Escape character is '^]'.

UNIX(r) System V Release 4.0 (labsparc)

login:

```

To change the logout timer value (the number of minutes after which an idle session is disconnected), perform this task in privileged mode:

Task	Command
Change the logout timer value (a timeout value of 0 prevents idle sessions from being disconnected automatically).	set logout <i>timeout</i>

This example shows how to set the logout timer value to 10 minutes:

```
Console> (enable) set logout 10
Sessions will be automatically logged out after 10 minutes of idle time.
Console> (enable)
```

This example shows how to set the logout timer value to 0, preventing idle sessions from being disconnected automatically:

```
Console> (enable) set logout 0
Sessions will not be automatically logged out.
Console> (enable)
```

Monitoring User Sessions

You can display the currently active user sessions on the switch using the **show users** command. The command output displays all active console port and Telnet sessions on the switch.

To display the active user sessions on the switch, perform this task in privileged mode:

Task	Command
Display the currently active user sessions on the switch.	show users [noalias]

This example shows the output of the **show users** command when local authentication is enabled for console and Telnet sessions (the asterisk [*] indicates the current session):

```
Console> (enable) show users
  Session  User                Location
  -----  -
  console
  telnet                    sam-pc.bigcorp.com
  * telnet                    jake-mac.bigcorp.com
Console> (enable)
```

This example shows the output of the **show users** command when TACACS+ authentication is enabled for console and Telnet sessions:

```
Console> (enable) show users
  Session  User                Location
  -----  -
  console  sam
  telnet   jake                jake-mac.bigcorp.com
  telnet   tim                 tim-nt.bigcorp.com
  * telnet  suzy                suzy-pc.bigcorp.com
Console> (enable)
```

This example shows how to display information about user sessions using the **noalias** keyword to display the IP addresses of connected hosts:

```
Console> (enable) show users noalias
  Session  User          Location
  -----
  console
  telnet           10.10.10.12
  * telnet         10.10.20.46
Console> (enable)
```

To disconnect an active user session, perform this task in privileged mode:

Task	Command
Disconnect an active user session on the switch.	disconnect { console <i>ip_addr</i> }

This example shows how to disconnect an active console port session and an active Telnet session:

```
Console> (enable) show users
  Session  User          Location
  -----
  console  sam
  telnet   jake          jake-mac.bigcorp.com
  telnet   tim          tim-nt.bigcorp.com
  * telnet  suzy         suzy-pc.bigcorp.com
Console> (enable) disconnect console
Console session disconnected.
Console> (enable) disconnect tim-nt.bigcorp.com
Telnet session from tim-nt.bigcorp.com disconnected. (1)
Console> (enable) show users
  Session  User          Location
  -----
  telnet   jake          jake-mac.bigcorp.com
  * telnet  suzy         suzy-pc.bigcorp.com
Console> (enable)
```

Using Ping

These sections describe how to use IP ping:

- Understanding How Ping Works, page 21-8
- Executing Ping, page 21-9

Understanding How Ping Works

You can use IP ping to test connectivity to remote hosts. If you attempt to ping a host in a different IP subnetwork, you must define a static route to the network or have a router configured to route between those subnets.

To stop a ping in progress, press **Ctrl-C**.

Ping will return one of the following responses:

- Normal response—The normal response (*hostname is alive*) occurs in 1 to 10 seconds, depending on network traffic.

- Destination does not respond—If the host does not respond, a no answer message is returned.
- Unknown host—If the host does not exist, an unknown host message is returned.
- Destination unreachable—If the default gateway cannot reach the specified network, a destination unreachable message is returned.
- Network or host unreachable—If there is no entry in the route table for the host or network, a network or host unreachable message is returned.

Executing Ping

To ping another device on the network from the switch, perform one of these tasks in privileged mode:

Task	Command
<ul style="list-style-type: none"> • Ping a remote host. 	ping <i>host</i>
<ul style="list-style-type: none"> • Ping a remote host using ping options. 	ping -s <i>host</i> [<i>packet_size</i>] [<i>packet_count</i>]

This example shows how to ping a remote host:

```
Console> (enable) ping labsparc
labsparc is alive
Console> (enable) ping 172.16.10.3
172.16.10.3 is alive
Console> (enable)
```

This example shows how to ping a remote host using the ping options:

```
Console> (enable) ping -s 172.16.10.3 1000 8
PING 172.20.52.3: 1000 data bytes
1008 bytes from 172.16.10.3: icmp_seq=0. time=6 ms
1008 bytes from 172.16.10.3: icmp_seq=1. time=5 ms
1008 bytes from 172.16.10.3: icmp_seq=2. time=6 ms
1008 bytes from 172.16.10.3: icmp_seq=3. time=6 ms
1008 bytes from 172.16.10.3: icmp_seq=4. time=6 ms
1008 bytes from 172.16.10.3: icmp_seq=5. time=5 ms
1008 bytes from 172.16.10.3: icmp_seq=6. time=6 ms
1008 bytes from 172.16.10.3: icmp_seq=7. time=5 ms

----172.16.10.3 PING Statistics----
8 packets transmitted, 8 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 5/5/6
Console> (enable)
```

Using IP Traceroute

These sections describe how to use IP traceroute:

- Understanding How IP Traceroute Works, page 21-10
- Executing IP Traceroute, page 21-10

Understanding How IP Traceroute Works

You can use IP traceroute to identify the path that packets take through the network on a hop-by-hop basis. The command output displays all network layer (Layer 3) devices, such as routers, that the traffic passes through on the way to the destination.

Switches can participate as the source or destination of the **traceroute** command but will not appear as a hop in the **traceroute** command output.

The **traceroute** command uses the Time To Live (TTL) field in the IP header to cause routers and servers to generate specific return messages. Traceroute starts by sending a User Datagram Protocol (UDP) datagram to the destination host with the TTL field set to 1. If a router finds a TTL value of 1 or 0, it drops the datagram and sends back an Internet Control Message Protocol (ICMP) time-exceeded message to the sender. The traceroute facility determines the address of the first hop by examining the source address field of the ICMP time-exceeded message.

To identify the next hop, traceroute sends a UDP packet with a TTL value of 2. The first router decrements the TTL field by 1 and sends the datagram to the next router. The second router sees a TTL value of 1, discards the datagram, and returns the time-exceeded message to the source. This process continues until the TTL is incremented to a value large enough for the datagram to reach the destination host (or until the maximum TTL is reached).

To determine when a datagram reaches its destination, traceroute sets the UDP destination port in the datagram to a very large value that the destination host is unlikely to be using. When a host receives a datagram with an unrecognized port number, it sends an ICMP port unreachable error to the source. This message indicates to the traceroute facility that it has reached the destination.

Executing IP Traceroute

To trace the path that packets take through the network, perform this task in privileged mode:

Task	Command
Execute IP traceroute to trace the path packets take through the network.	traceroute [-n] [-w <i>wait_time</i>] [-i <i>initial_ttl</i>] [-m <i>max_ttl</i>] [-p <i>dest_port</i>] [-q <i>nqueries</i>] [-t <i>tos</i>] <i>host</i> [<i>data_size</i>]

This example shows the basic usage of the **traceroute** command:

```
Console> (enable) traceroute 10.1.1.100
traceroute to 10.1.1.100 (10.1.1.100), 30 hops max, 40 byte packets
 1 10.1.1.1 (10.1.1.1)  1 ms  2 ms  1 ms
 2 10.1.1.100 (10.1.1.100)  2 ms  2 ms  2 ms
Console> (enable)
```

This example shows how to perform a **traceroute** with six queries to each hop with packets of 1400 bytes each:

```
Console> (enable) traceroute -q 6 10.1.1.100 1400
traceroute to 10.1.1.100 (10.1.1.100), 30 hops max, 1440 byte packets
 1 10.1.1.1 (10.1.1.1)  2 ms  2 ms  2 ms  1 ms  2 ms  2 ms
 2 10.1.1.100 (10.1.1.100)  2 ms  4 ms  3 ms  3 ms  3 ms  3 ms
Console> (enable)
```