



Administering the Switch

This chapter describes how to perform administrative tasks on the Catalyst enterprise LAN switches.



Note

For complete syntax and usage information for the commands used in this chapter, refer to the *Catalyst 4500 Series, Catalyst 2948G, and Catalyst 2980G Switches Command Reference*.

This chapter consists of these major sections:

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Setting the System Name and System Prompt

The system name on the switch is a user-configurable string that identifies the device. The default configuration has no system name configured.

If you do not manually configure a system name, the switch obtains the system name through a Domain Name System (DNS) lookup. To configure the switch manually, complete the following:

- Assign the sc0 interface an IP address that is mapped to the switch name on the DNS server
- Enable DNS on the switch
- Specify at least one valid DNS server on the switch

If the DNS lookup is successful, the DNS host name of the switch is configured as the system name of the switch and is saved in NVRAM (the domain name is removed).

If you have not configured a system prompt, the first 20 characters of the system name are used as the system prompt (a greater-than symbol [>] is appended). The prompt is updated whenever the system name changes, unless you have manually configured the prompt using the **set prompt** command.

The switch performs a DNS lookup for the system name whenever one of the following occurs:

- When the switch is initialized (power on or reset)
- When you configure the IP address on the sc0 interface using the CLI or Simple Network Management Protocol (SNMP)
- When you configure a route using the **set ip route** command
- When you clear the system name using the **set system name** command
- When you enable DNS or specify DNS servers

If you configured the system name, no DNS lookup is performed.

Configuring the System Name and Prompt

The following sections describe how to configure the system name and prompt.

Setting the System Name

To set the system name, perform this task in privileged mode:

Task	Command
Set the system name.	set system name <i>name_string</i>



Note

When you set the system name, the system name is used as the system prompt; you can override this with the **set prompt** command.

This example shows how to set the system name on the switch:

```
Console> (enable) set system name Catalyst 4003
System name set.
Catalyst 4003> (enable)
```

Setting the System Prompt

To set the system prompt, perform this task in privileged mode:

Task	Command
Set the system prompt.	set prompt <i>prompt_string</i>

This example shows how to set the system prompt for the switch:

```
Console> (enable) set prompt Catalyst4012>
Catalyst4012> (enable)
```

Clearing the System Name

To clear the system name, perform this task in privileged mode:

Task	Command
Clear the system name.	set system name

This example shows how to clear the system name:

```
Console> (enable) set system name
System name cleared.
Console> (enable)
```

Setting the System Contact and Location

You can set the contact name and location to help you with resource management tasks. To set the system contact and location, perform this task in privileged mode:

	Task	Command
Step 1	Set the system contact.	set system contact <i>[contact_string]</i>
Step 2	Set the system location.	set system location <i>[location_string]</i>
Step 3	Verify the global system information.	show system

This example shows how to set the system contact to sysadmin@corp.com and location to Sunnyvale, CA:

```
Console> (enable) set system contact sysadmin@corp.com
System contact set.
Console> (enable) set system location Sunnyvale CA
System location set.
```

This example shows how to verify the configuration:

```
Console> (enable) show system
PS1-Status PS2-Status PS3-Status PEM Installed PEM Powered
-----
ok          ok          ok          yes         no

Fan-Status Temp-Alarm Sys-Status Uptime d,h:m:s Logout
-----
ok          off         ok          0,18:24:41 none

PS1-Type          PS2-Type          PS3-Type
-----
WS-X4008-DC-650W WS-X4008          WS-X4008

Modem   Baud   Traffic Peak Peak-Time
-----
```

```

disable 9600 0%      0% Wed Apr 24 2002, 15:46:01

Power Capacity of the Chassis:2 supplies

WARNING:Power supplies of different values have been inserted

System Name          System Location          System Contact          CC
-----
Console> (enable)   Sunnyvale CA             sysadmin@corp.com      4006

```

Setting the System Clock



Note

You can configure the switch to obtain the time and date using the Network Time Protocol (NTP). For information on configuring NTP, see [Chapter 39, “Configuring NTP.”](#)

To set the system clock, perform this task in privileged mode:

	Task	Command
Step 1	Set the system clock.	set time [<i>day_of_week</i>] [<i>mm/dd/yy</i>] [<i>hh:mm:ss</i>]
Step 2	Display the current date and time.	show time

This example shows how to set the system clock and display the current date and time:

```

Console> (enable) set time Fri 06/15/01 12:30:00
Fri Jun 15 2001, 12:30:00
Console> (enable) show time
Fri Jun 15 2001, 12:30:02
Console> (enable)

```

Creating a Login Banner

You can create a single or multiline message-of-the-day (MOTD) banner that appears on the screen when someone logs in to the switch. The first character following the **motd** keyword is used to delimit the beginning and end of the banner text. Characters following the ending delimiter are discarded. After entering the ending delimiter, press **Return**. The banner must be fewer than 3070 characters.

Configuring a Login Banner

To configure a login banner, perform this task in privileged mode:

	Task	Command
Step 1	Set the message of the day.	set banner motd <i>c message_of_the_day c</i>
Step 2	Display the login banner by logging out and logging back in to the switch.	–

This example shows how to set the login banner for the switch. The # symbol indicates the beginning and ending delimiter, but you can use any character for the delimiter.

```
Console> (enable) set banner motd #
Welcome to the Catalyst 4012 Switch!
Unauthorized access prohibited.
Contact sysadmin@corp.com for access.
#
MOTD banner set
Console> (enable)
```

Clearing the Login Banner

To clear the login banner, perform this task in privileged mode:

Task	Command
Clear the message of the day.	set banner motd cc

This example shows how to clear the login banner:

```
Console> (enable) set banner motd ##
MOTD banner cleared
Console> (enable)
```

Enabling or Disabling the “Cisco Systems Console” Telnet Login Banner

By default, the Cisco Systems Console Telnet login banner is enabled.

To enable or disable the “Cisco Systems Console” Telnet login banner, perform this task in privileged mode:

	Task	Command
Step 1	Display or suppress the Cisco Systems Console Telnet login banner.	set banner telnet {enable disable}
Step 2	Display the Cisco Systems Console Telnet login banner setting.	show banner

This example shows how to enable the Cisco Systems Console Telnet login banner:

```
Console> (enable) set banner telnet enable
Cisco Systems Console banner will be printed at telnet.
Console> (enable)
```

This example shows how to disable the Cisco Systems Console Telnet login banner:

```
Console> (enable) set banner telnet disable
Cisco Systems Console banner will not be printed at telnet.
Console> (enable)
```

This example shows how to display the Cisco Systems Console Telnet login banner content:

```
Console> (enable) show banner
MOTD banner:
Welcome to the Catalyst 4012 Switch!
Unauthorized access prohibited.
Contact sysadmin@corp.com for access.
```

LCD config:

```
Telnet Banner:
disabled
Console> (enable)
```

Defining and Using Command Aliases

You can use the **set alias** command to define up to 100 command aliases (short versions of command names) for frequently used or long and complex commands. Using command aliases can save you time and help prevent typing errors when you are configuring or monitoring the switch.

For the *name* argument, specify a name for the command alias. The *parameter* argument is the text the user types at the command line to activate the command.

To define a command alias on the switch, perform this task in privileged mode:

	Task	Command
Step 1	Define a command alias on the switch.	set alias <i>name</i> <i>command</i> [<i>parameter</i>] [<i>parameter</i>]
Step 2	Verify the currently defined command aliases.	show alias [<i>name</i>]

This example shows how to define two command aliases:

- **sm3**, which executes the **show module 3/1** command
- **sp3**, which executes the **show port 3** command.

```
Console> (enable) set alias sm3 show module 3
Command alias added.
Console> (enable) set alias sp3 show port 3/1
Command alias added.
Console> (enable)
```

This example shows how to verify the currently defined command aliases:

```
Console> (enable) show alias
sm8          show module 3
sp8          show port 3
```

These examples show what happens when you enter the command aliases at the command line:

```
Console> (enable) sm3
Mod Slot Ports Module-Type          Model          Sub Status
-----
3   3   6   1000BaseX Ethernet      WS-X4306      no  ok

Mod Module-Name          Serial-Num
-----
3                          JAB024000YY

Mod MAC-Address(es)          Hw    Fw    Sw
```

```

-----
3 00-10-7b-f6-b2-1a to 00-10-7b-f6-b2-1f 0.2
Console> (enable) sp3
Port Name Status Vlan Level Duplex Speed Type
-----
3/1 notconnect 1 normal full 1000 1000BaseSX

Port Security Violation Shutdown-Time Age-Time Max-Addr Trap IfIndex
-----
3/1 disabled shutdown 0 0 1 disabled 9

Port Num-Addr Secure-Src-Addr Age-Left Last-Src-Addr Shutdown/Time-Left
-----
3/1 0 - - - - -

Port Send FlowControl Receive FlowControl RxPause TxPause Unsupported
admin oper admin oper opcodes
-----
3/1 desired off off off 0 0 0

Port Status Channel Admin Ch
Mode Group Id
-----
3/1 notconnect auto silent 29 0

Port Align-Err FCS-Err Xmit-Err Rcv-Err UnderSize
-----
3/1 - 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 0

Last-Time-Cleared
-----
Mon Jun 26 2000, 08:53:49
Console> (enable)

```

Defining and Using IP Aliases

You can use the **set ip alias** command to define aliases for IP addresses. IP aliases can make it easier to refer to other network devices when you use **ping**, **telnet**, and other commands, even when DNS is not enabled.

For the *name* argument, specify a name for your IP alias. For the *ip_addr* argument, specify the IP address to which the name refers.

To define an IP alias on the switch, perform this task in privileged mode:

	Task	Command
Step 1	Define an IP alias on the switch.	set ip alias <i>name ip_addr</i>
Step 2	Verify the currently defined IP aliases.	show ip alias [<i>name</i>]

This example shows how to define two IP aliases, **sparc**, which refers to IP address 172.20.52.3, and **cat4003**, which refers to IP address 172.20.52.71. This example also shows how to verify the currently defined IP aliases:

```
Console> (enable) set ip alias sparc 172.20.52.3
IP alias added.
Console> (enable) set ip alias cat4003 172.20.52.71
IP alias added.
```

This example shows what happens when you use the IP aliases with the **ping** command:

```
Console> (enable) show ip alias
default          0.0.0.0
sparc            172.20.52.3
cat5509         172.20.52.71
Console> (enable) ping sparc
sparc is alive
Console> (enable) ping cat4003
cat4003 is alive
Console> (enable)
```

Configuring Permanent and Static ARP Entries

To enable your Catalyst LAN switch to communicate with devices that do not respond to Address Resolution Protocol (ARP) requests, you can configure a static or permanent ARP entry that maps the IP addresses of those devices to their MAC addresses. You can configure an ARP entry so that it does not age out, by configuring it as either static or permanent. When you configure a static ARP entry using the **set arp static** command, the entry is removed from the ARP cache after a system reset. When you configure a permanent ARP by using the **set arp permanent** command, the ARP entry is retained even after a system reset.

Because most hosts support dynamic resolution, you usually do not need to specify static or permanent ARP cache entries. When a device does not respond to ARP requests, you can configure an ARP entry to be statically or permanently entered into the ARP cache so that those devices can still be reached.

To configure a static or permanent ARP entry, perform this task in privileged mode:

	Task	Command
Step 1	Configure a static or permanent ARP entry.	set arp [dynamic permanent static] {ip_addr hw_addr}
Step 2	(Optional) Specify the ARP aging time.	set arp agingtime seconds
Step 3	Verify the ARP configuration.	show arp

This example shows how to define a static ARP entry:

```
Console> (enable) set arp static 20.1.1.1 00-80-1c-93-80-40
Static ARP entry added as 20.1.1.1 at 00-80-1c-93-80-40 on vlan 1
Console> (enable)
```

This example shows how to define a permanent ARP entry:

```
Console> (enable) set arp permanent 10.1.1.1 00-80-1c-93-80-60
Permanent ARP entry added as
10.1.1.1 at 00-80-1c-93-80-60 on vlan 1
Console> (enable)
```

This example sets the ARP aging time:

```
Console> (enable) set arp agingtime 300
ARP aging time set to 300 seconds.
Console> (enable)
```

This example shows how to display the ARP cache:

```
Console> (enable) show arp
ARP Aging time = 300 sec
+ - Permanent Arp Entries
* - Static Arp Entries
* 20.1.1.1 at 00-80-1c-93-80-40 on vlan 1
172.20.52.35 at 00-80-1c-93-80-40 on vlan 1
172.20.52.35 at 00-80-1c-93-80-40 on vlan 1
Console> (enable)
```

To clear ARP entries, perform this task in privileged mode:

	Task	Command
Step 1	Clear a dynamic, static, or permanent ARP entry.	clear arp [dynamic permanent static] {ip_addr hw_addr}
Step 2	Verify the ARP configuration.	show arp

This example shows how to clear all permanent ARP entries and verify the configuration:

```
Console> (enable) clear arp permanent
Permanent ARP entries cleared.

Console> (enable) show arp
ARP Aging time = 300 sec
+ - Permanent Arp Entries
* - Static Arp Entries
+ 10.1.1.1 at 00-80-1c-93-80-60 on vlan 1
* 20.1.1.1 at 00-80-1c-93-80-40 on vlan 1
Console> (enable)
```

Configuring Static Routes



Note

For information on configuring a default gateway (default route), see the [“Configuring Default Gateways”](#) section on page 3-6.

In some situations, you might need to add a static routing table entry for one or more destination networks. Static route entries consist of the destination IP network address, the IP address of the next-hop router, and the metric (hop count) for the route.

In software release 5.1 and later releases, you can configure Classless InterDomain Routing (CIDR) routes, such as IP supernets, in the switch IP routing table. You can specify the subnet mask for a destination network using the number of subnet bits or using the subnet mask in dotted decimal format. If no subnet mask is specified, the default (classful) mask is used.

The switch uses the longest-match network address in the IP routing table to determine which gateway to use to forward IP traffic. In releases prior to software release 5.1, the switch always uses the classful subnet mask for IP routing table entries.

The switch forwards IP traffic that is generated by the switch using the longest address match in the IP routing table. The switch does not use the IP routing table to forward traffic from connected devices. The IP routing table is used by the switch only to forward IP traffic that is generated by the switch itself (for example, Telnet, TFTP, and ping).

In software releases prior to software release 5.1, the classful subnet mask is always used (you cannot specify the subnet mask for the destination network).

To configure a static route, perform this task in privileged mode:

	Task	Command
Step 1	Configure a static route to the remote network.	set ip route <i>destination</i> [<i>/netmask</i>] <i>gateway</i> [<i>metric</i>]
Step 2	Verify that the static route appears correctly in the IP routing table.	show ip route

This example shows how to configure a static route on the switch and how to verify that the route is configured properly in the routing table:

```

Console> (enable) set ip route 172.16.16.0/20 172.20.52.127
Route added.
Console> (enable) show ip route
Fragmentation    Redirect    Unreachable
-----
enabled          enabled     enabled

The primary gateway: 172.20.52.121
Destination      Gateway      RouteMask     Flags    Use      Interface
-----
172.16.16.0      172.20.52.127  0xfffff000    UG       0        sc0
default          172.20.52.121  0x0           UG       0        sc0
172.20.52.120    172.20.52.124  0xfffffffff8  U        1        sc0
default          default       0xff000000    UH       0        s10
Console> (enable)

```

Scheduling a System Reset

You can use the **reset at** command to schedule a system to reset at a future time. This feature allows you to upgrade software during business hours and schedule the system upgrade after business hours to avoid a major impact on users.

You can also use the schedule reset feature when trying out new features on a switch. To avoid misconfiguration or the possibility of losing network connectivity to the device, you can set up the startup configuration feature and schedule a reset to occur in 30 minutes. You can then change the configuration, and if connectivity is lost, the system will reset in 30 minutes and return to the previous configuration.

Scheduling a Reset at a Specific Time

You can specify an absolute time and date at which the reset will take place, using the **reset at** command. The month and day argument is optional. If you do not specify a month and day, the reset will take place on the current day if the time that is specified is later than the current time. If the time that is scheduled for reset is earlier than the current time, the reset will take place on the following day.



Note The maximum scheduled reset time is 24 days.

To schedule a reset at a specific time, perform this task in privileged mode:

	Task	Command
Step 1	Schedule the reset time at a specific time.	reset [mindown] at {hh:mm} [mm/dd] [reason]
Step 2	Verify the scheduled reset.	show reset

This example shows how to schedule a reset at a specific time:

```
Console> (enable) reset at 20:00
Reset scheduled at 20:00:00, Sat Aug 18 2001.
Proceed with scheduled reset? (y/n) [n]? y
Reset scheduled for 20:00:00, Sat Aug 18 2001 (in 0 day 5 hours 40 minutes).
Console> (enable)
```

This example shows how to schedule a reset at a specific time and include a reason for the reset:

```
Console> (enable) reset at 23:00 08/18 Software upgrade to 5.3(1)
Reset scheduled at 23:00:00, Sat Aug 18 2001.
Reset reason: Software upgrade to 6.3(1).
Proceed with scheduled reset? (y/n) [n]? y
Reset scheduled for 23:00:00, Sat Aug 18 2001 (in 0 day 8 hours 39 minutes).
Console> (enable)
```

This example shows how to schedule a reset with a minimum of downtime:

```
Console> (enable) reset mindown at 23:00 08/18 Software upgrade to 6.3(1)
Reset scheduled at 23:00:00, Sat Aug 18 2001.
Reset reason: Software upgrade to 6.3(1).
Proceed with scheduled reset? (y/n) [n]? y
Reset mindown scheduled for 23:00:00, Sat Aug 18 2001 (in 0 day 8 hours 39 minutes).
Console> (enable)
```

Scheduling a Reset Within a Specified Amount of Time

You can schedule a reset within a specified time with the **reset in** command. For instance, if the current system time is 9:00 a.m. and the reset is scheduled to take place in one hour, the scheduled reset will take place at 10:00 a.m. If you or NTP advances the system clock to 10:00 a.m., the reset will take place at 11:00 a.m. If the clock is advanced ahead of the scheduled reset time, the reset will take place 5 minutes after the command is issued.

To schedule a reset within a specified time, perform this task in privileged mode:

	Task	Command
Step 1	Schedule the reset time within a specific amount of time.	reset [mindown] in [hh] {mm} [reason]
Step 2	Verify that the scheduled reset time is correct.	show reset



Note The minimum downtime argument is valid only if the system has a redundant supervisor engine.

This example shows how to schedule a reset in a specified time:

```
Console> (enable) reset in 5:20 Configuration update
Reset scheduled in 5 hours 20 minutes.
Reset reason: Configuration update
Proceed with scheduled reset? (y/n) [n]? y
Reset scheduled for 19:56:01, Wed Aug 18 1999 (in 5 hours 20 minutes).
Reset reason: Configuration update
Console> (enable)
```

Generating System Status Reports for Tech Support

Using a single command, you can generate a report that contains status information about your switch. This command is a combination of several **show system status** commands. (Refer to the *Catalyst 4500 Series, Catalyst 2948G, and Catalyst 2980G Switches Command Reference* for these commands.) You can upload the report to a TFTP server and send it to the Cisco Technical Assistance Center (TAC).

You can use keywords to limit the report, such as for specific modules, VLANs, and ports. If you do not specify any keywords, a report for the entire system is generated.

To write and send a report for TAC, perform this task in privileged mode:

Task	Command
Generate a system status report for TAC.	<code>write tech-support {host} {file} [module mod_num] [port mod_num/port_num] [vlan vlan_num] [memory] [config]</code>

This example shows a report sent to host 172.20.32.10 and to a filename **techsupport.txt**. No keywords are specified, so the complete status of the switch is included in the report.

```
Console> (enable) write tech-support 172.20.32.10 techsupport.txt
Upload tech-report to techsupport.txt on 172.20.32.10 (y/n) [n]? y
/
Finished network upload. (67784 bytes)
Console> (enable)
```