



Administering the Switch

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



Note

For complete syntax and usage information for the commands used in this chapter, refer to the *Catalyst 5000 Family Command Reference*.

This chapter consists of these sections:

- [Setting the System Name and System Prompt, page 29-1](#)
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Setting the System Name and System Prompt

The system name on the switch is a user-configurable string used to identify the device. The default configuration has no system name configured.

If you do not manually configure a system name, the system name is obtained through the Domain Name System (DNS) if you configure the switch as follows:

- 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 the prompt is manually configured using the **set prompt** command.

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

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

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

Configuring a Static System Name and Prompt

These sections describe how to statically configure the system name and prompt:

- [Configuring a Static System Name, page 29-2](#)
- [Configuring a Static System Prompt, page 29-2](#)
- [Clearing the System Name, page 29-3](#)

Configuring a Static System Name

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

Task	Command
Statically 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 the prompt string with the **set prompt** command.

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

```
Console> (enable) set system name Catalyst 5000
System name set.
Catalyst 5000> (enable)
```

Configuring a Static System Prompt

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

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

This example shows how to statically configure the system prompt on the switch:

```
Console> (enable) set prompt Catalyst5500>
Catalyst5500> (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 specify the system contact and location to help you with resource management tasks.

To specify 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 specify the system contact and location and verify the configuration:

```
Catalyst 5000> (enable) set system contact sysadmin@corp.com
System contact set.
Catalyst 5000> (enable) set system location Sunnyvale CA
System location set.
Catalyst 5000> (enable) show system
PS1-Status PS2-Status Fan-Status Temp-Alarm Sys-Status Uptime d,h:m:s Logout
-----
ok          none         ok          off         ok          0,04:04:07  20 min

PS1-Type   PS2-Type   Modem   Baud   Traffic Peak Peak-Time
-----
other     none     disable 9600   0%     0% Tue Jun 23 1998, 16:51:36

System Name           System Location           System Contact
-----
Catalyst 5000         Sunnyvale CA              sysadmin@corp.com
Catalyst 5000> (enable)
```

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 37, “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] [mm/dd/yy] [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 Mon 06/15/98 12:30:00
Mon Jun 15 1998, 12:30:00
Console> (enable) show time
Mon Jun 15 1998, 12:30:02
Console> (enable)
```

Creating a Login Banner

You can create a single or multiline message 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	Enter 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 into the switch.	—

This example shows how to set the login banner on the switch using the # symbol as the beginning and ending delimiter:

```
Console> (enable) set banner motd #
Welcome to the Catalyst 5000 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)
```

Creating and Using Command Aliases

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

The *name* argument defines the command alias. The *command* and *parameter* arguments define the command to enter when the command alias is entered at the command line.

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 name command [parameter] [parameter]
Step 2	Verify the currently defined command aliases.	show alias [name]

This example shows how to define two command aliases, **sm8**, which enters the **show module 8** command, and **sp8**, which enters the **show port 8** command. This example also shows how to verify the currently defined command aliases and what happens when you enter the command aliases at the command line:

```
Console> (enable) set alias sm8 show module 8
Command alias added.
Console> (enable) set alias sp8 show port 8
Command alias added.
Console> (enable) show alias
sm8          show module 8
sp8          show port 8
Console> (enable) sm8
Mod Module-Name      Ports Module-Type      Model      Serial-Num Status
-----
8                    2    DS3 Dual PHY ATM      WS-X5166   007243262 ok

Mod MAC-Address(es)      Hw      Fw      Sw
-----
8  00-60-2f-45-26-2f      2.0     1.3     51.1(103)
Console> (enable) sp8
Port Name              Status      Vlan      Level Duplex Speed Type
-----
8/1                    notconnect trunk      normal full   45 DS3 ATM
8/2                    notconnect trunk      normal full   45 DS3 ATM
```

```

Port    ifIndex
-----  -
8/1     285
8/2     286

```

Use 'session' command to see ATM counters.

```

Last-Time-Cleared
-----
Thu Sep 10 1998, 16:56:08
Console> (enable)

```

Creating and Using IP Aliases

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

The *name* argument defines the IP alias. The *ip_addr* argument defines 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 name ip_addr
Step 2	Verify the currently defined IP aliases.	show ip alias [name]

This example shows how to define two IP aliases, **sparc**, which refers to IP address 172.20.52.3, and **cat5509**, which refers to IP address 172.20.52.71. This example also shows how to verify the currently defined IP aliases and what happens when you use the IP aliases with the **ping** command:

```

Console> (enable) set ip alias sparc 172.20.52.3
IP alias added.
Console> (enable) set ip alias cat5509 172.20.52.71
IP alias added.
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 cat5509
cat5509 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
+ 10.1.1.1 at 00-80-1c-93-80-60 on vlan 1
172.20.52.1 at 00-60-5c-86-5b-28 port 8/1 on vlan 1
* 20.1.1.1 at 00-80-1c-93-80-40 port 8/1 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] { <i>ip_addr hw_addr</i> }
Step 2	Verify the ARP configuration.	show arp

This example clears all permanent ARP entries and verifies the configuration:

```

Console> (enable) clear arp permanent
Permanent ARP entries cleared.
Console> (enable)
Console> (enable) show arp
ARP Aging time = 300 sec
+ - Permanent Arp Entries
* - Static Arp Entries
172.20.52.1 at 00-60-5c-86-5b-28 port 8/1 on vlan 1
* 20.1.1.1 at 00-80-1c-93-80-40 port 8/1 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 3-5.

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, you can configure Classless InterDomain Routing (CIDR) routes, such as IP supernets, in the switch IP routing table. You can specify the subnet mask (*netmask*) 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 release 5.1, the switch always uses the classful subnet mask for IP routing table entries.

The switch forwards IP traffic 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, only IP traffic generated by the switch itself (for example, Telnet, TFTP, and ping).

In software releases prior to 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  0xffffffff8   U      1        sc0
default         default         0xff000000    UH     0        sl0
Console> (enable)

```

Scheduling a System Reset

These sections describe how to schedule a system reset:

- [Scheduling a Reset at a Specific Time, page 29-9](#)
- [Scheduling a Reset Within a Specified Amount of Time, page 29-10](#)

You can use the **schedule reset** 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 should take place, using the **reset at** command. Entering the month and day argument with this command is optional. If you do not specify the month and day, the reset will take place on the current day if the time specified is later than the current time. If the time 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



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

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

```
Console> (enable) reset at 20:00
Reset scheduled at 20:00:00, Wed Aug 18 1999.
Proceed with scheduled reset? (y/n) [n]? y
Reset scheduled for 20:00:00, Wed Aug 18 1999 (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 8/18 Software upgrade to 5.3(1).
Reset scheduled at 23:00:00, Wed Aug 18 1999.
Reset reason: Software upgrade to 5.3(1).
Proceed with scheduled reset? (y/n) [n]? y
Reset scheduled for 23:00:00, Wed Aug 18 1999 (in 0 day 8 hours 39 minutes).
Console> (enable)
```

This example shows how to schedule a reset with a minimum down time:

```
Console> (enable) reset mindown at 23:00 8/18 Software upgrade to 5.3(1).
Reset scheduled at 23:00:00, Wed Aug 18 1999.
Reset reason: Software upgrade to 5.3(1).
Proceed with scheduled reset? (y/n) [n]? y
Reset mindown scheduled for 23:00:00, Wed Aug 18 1999 (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 reset is scheduled 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 current time.

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 the scheduled reset.	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 Information for Technical Support

Using a single command, you can generate a report that contains status information about your switch. The information generated is useful when reporting a problem to Cisco Technical Assistance Center (TAC). This command is a combination of several **show system status** commands. You can upload the output of the command to a TFTP server, where you can send it to TAC.

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

To generate a report and upload the report to a TFTP server, perform this task in privileged mode:

Task	Command
Generate a system status report to report a problem to TAC.	write tech-support {host} {filename} [module mod_num] [port mod/port] [vlan vlan_num] [memory] [config]

This example shows a report sent to host 172.20.32.10 to a filename you supply. No keywords are specified, so the complete status of the switch will be included in the report.

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

Using System Dump Files

The core dump and the stack dump features generate reports that contain status information about your switch. Send images captured by the core dump or the stack dump to the Cisco TAC for analysis.

Core Dump

A core dump produces a comprehensive report of images when your system fails due to a software error. This report contains system memory content, including text, code, and stack segments. The core image is produced in Cisco core file format and is stored in the file system. By examining the core dump file, TAC can analyze the error condition of a terminated process.

Use the **set system core-dump** command to enable or disable the core dump feature. If the switch has a redundant supervisor engine, the standby supervisor engine takes over automatically before the core dump occurs. The previously active supervisor engine resets itself after the core dump is complete.

To enable or disable the core dump feature, perform this task in privileged mode:

Task	Command
Enable or disable the core dump feature.	set system core-dump {enable disable}

This example shows how to enable the core dump feature:

```
Console> (enable) set system core-dump enable
(1) In the event of a system crash, this feature will
    cause a core file to be written out.
(2) Core file generation may take up to 20 minutes.
(3) Selected core file is slot0:crash.hz
(4) Please make sure the above device has been installed,
    and ready to use
Core-dump enabled
Console> (enable)
```

This example shows how to disable the core dump feature:

```
Console> (enable) set system core-dump disable
Core-dump disabled
Console> (enable)
```

The size of the file system depends on the size of your memory card. An error process will generate a core image that is proportional to the size of the system DRAM. Make sure that you have enough memory available to store the core dump file.

Use the **set system core-file** command to specify the core image filename. The default filename is “slot0:crash.hz.” This command automatically checks the validity of the device name that you input.

To specify the core image filename, perform this task in privileged mode:

Task	Command
Specify the core image filename.	set system core-file { <i>device:filename</i> }

This example shows how to set the core image filename:

```
Console> (enable) set system core-file slot0:core.hz
System core-file set.
Console> (enable)
```

Stack Dump

A stack dump provides only the images related to a particular process that has caused the system to fail. This image stack is displayed on the console and is also saved in the log area. The stack dump is automatic and becomes available when you enter the **show log** command after you reboot your system.

To display dump log information, perform this task in normal mode:

Task	Command
Display log information.	show log

This example shows an image stack that is displayed after the **show log** command is entered:

```
Breakpoint Exception occurred.
Software version = 6.2(0.83)
Process ID #52, Name
= Console
EPC: 807523F4
  Stack content:
  sp+00: 00000000 80A75698 00000005 00000005
  sp+10: BE000A00 00000000 83F84150 801194B8
  sp+20: 80A75698 80A74BC8 80C8DBDC 000006E8
  sp+30: 8006AF30 8006AE98 82040664 00000630
  sp+40: 801AC744 801AC734 80A32488 80A32484
  sp+50: 80A3249C 00000000 00000002 000009E4
  sp+60: 8204067B 82040670 8011812C 81CAF9C98
  sp+70: 8011814C 82040670 8011812C 81CAF9C98
  sp+80: 00000002 000009E4 80110160 80110088
  sp+90: 82040670 80A71EB4 81F1E9F8 00000004
  sp+A0: 00000000 81F25EAC 81FF5750 00000000
  sp+B0: 00000000 00000000 81F1E314 800840BC
  sp+C0: 0000000B 80084EB0 00000001 8073A358
  sp+D0: 00000003 0000000D 00000000 0000000A
  sp+E0: 00000020 00000000 800831B4 0000001A
  sp+F0: 00000000 00000000 00000000 000D84F0
  Register content:
  Status: 3401FC23      Cause: 00000024
AT: 81640000
  V0: 00000007      V1: 00000007
  A0: 00000000      A1: 80A756A6
  A2: 00000011      A3: BE000BD0
  T0: BFFFFFFE      T1: 80000000
  T2: 00000000      T3: 00000001
  T4: 00000000      T5: 00000007
  T6: 00000000      T7: 00000000
```

```
S0: 00000001      S1: 00000032
S2: 81F1E9F8      S3: 80A74BC8
S4: 80C8DBDC      S5: 000006E8
S6: 00000000      S7: 00000000
T8: F0D09E3A      T9: 82940828
K0: 3041C001      K1: 80C73038
GP: 811F39C0      SP: 83F84010
S8: 83F84010      RA: 807523F4
HIGH: 00000001    LOW: D5555559
BADVADDR: 7DFF7FFF ERR EPC: 58982466
GDB: Breakpoint Exception
GDB: The system has trapped into the debugger.
GDB: It will hang until examined with gdb.
```