

# Configuring the System

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This chapter discusses the initial configuration of the Catalyst 1200 series switch and describes how you configure such functions as IP addressing and SNMP management. An IP address must be assigned if you need to use Telnet to connect to the switch or use SNMP network management for the switch. This IP address is configured on the SUM port (sc0) or to any of the interfaces (port 1, FDDI or 3 through 10, Ethernet ports). Up to 16 simultaneous Telnet sessions are possible. If your Telnet station or SNMP network management workstation is on a different network from the switch, a static routing table entry must also be added to the routing table.

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**Note** For definitions of all commands discussed in this chapter refer to the appendix “Command Reference.”

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## Initial Configuration

This section describes the steps you need to take to configure the switch. Before you can begin your configuration, you need the following information:

- Interface type:
  - 1, 3 through 10—To manage the box through switched ports, assign an IP address to a specific port. Port 1/2 is the FDDI port. Ports 3 through 10 are Ethernet ports. See the section “Virtual Network Services (VNS)” in the chapter “Feature Configuration” for the detailed IP address assignment description.
  - sc0 (SUM port)—To use this interface type for out-of-band management, assign the Catalyst IP address.

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- `sl0`—Use this interface type when configuring a Serial Line Internet Protocol (SLIP) connection on the switch.

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**Note** After SLIP is enabled on the admin. port, an EIA/TIA-232 terminal cannot access the Catalyst Switch through this port.

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- `lo0`—Use this interface type to configure an internal loopback for the switch.
- IP address(es)
- Netmask address(es)—Must be assigned with IP address
- Broadcast address(es)—Optional

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**Note** Multiple IP addresses are needed if configuring multiple route groups.

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- Route groups needed
- Bridge groups needed

To start up and initially configure the switch, perform the following steps:

**Step 1** Connect the admin. interface to your terminal. (See the section “Connecting to the Admin. Interface” in the chapter, “Connecting to the Network.”)

**Step 2** Plug the power cord into the switch. (See the section “Applying Power” in the chapter “Connecting to the Network.”)

The following information appears on your screen:

```
BOOTROM Version 4.1, Dated Mar 4 1994 15:17:09
Booting on May 18 1994 14:09:06
```

```
NMP Diagnostics Version 4.1, Dated Apr 11 1994 17:43:53
Model WS-C1201, Board Serial# 100847, H/W Rev 4.0
Copyright (C) cisco Systems 1993, 1994
```

DMP Diagnostics Version 4.0, Dated Apr 8 1994 10:07:06  
Model WS-C1201, Board Serial# 100847, H/W Rev 4.0  
Copyright (C) cisco Systems 1993, 1994

cisco Systems Console

```
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
Sending RARP request with address 00:40:0b:a0:05:b8
Sending bootp request with address: 00:40:0b:a0:05:b8
No bootp or rarp response received
Enter password:
```

**Step 3** At the password prompt, press **Return**. To add password protection to your system, refer to the section “set password” in the appendix “Command Reference.” The following console prompt appears:

Console>

**Step 4** Type **enable** and press **Return** to enter privileged mode.

## Initial Configuration

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**Step 5** At the prompt, enter **set interface ?** to see the **set interface** command parameters. The following information appears:

```
Console> (enable) set interface ?  
Usage: set interface <if_name|if_number> <ip_address> <net_mask> [broadcast]  
       set interface <if_name> <slip_address> <dest_address>  
       set interface <if_name|if_number> <up|down>  
Console> (enable)
```

Refer to the section “set interface” in the appendix “Command Reference.”

**Step 6** To configure all port as one route group, enter **set ip vlan group\_number ports IP-address netmask\_address broadcast\_address**, as in the following example:

```
Console> (enable) set ip vlan 1 1-10 198.133.219.223 255.255.255.0 198.133.219.255
```

**Step 7** At the prompt, enter **show interface** to check the status of the configuration of the switch:

```
Console> (enable) show interface  
sl0:  flags=10<DOWN,POINTOPOINT>  
      inet 0.0.0.0 netmask 0.0.0.0 broadcast 0.0.0.0  
sc0:  flags=863<UP,BROADCAST,RUNNING>  
      inet 192.122.174.223 netmask 255.255.255.0 broadcast 192.122.174.255  
1,3-10: flags=863<UP,BROADCAST,RUNNING>  
      inet 198.133.219.223 netmask 255.255.255.0 broadcast 198.133.219.255  
lo0:  flags=808<DOWN,LOOPBACK>  
      inet 0.0.0.0 netmask 0.0.0.0 broadcast 0.0.0.0  
Console> (enable)
```

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**Note** The SC0 port and ports 1 and 3 through 10 are flagged as up. The ports are automatically changed to up when an IP address is assigned. To manually change a port to down, use the **set interface** command. Refer to the section “set interface” in the appendix “Command Reference.”

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**Step 8** At the prompt, enter **show ip route** to display the route table entries for the previous configuration.

```
Console> show ip route
Total Route Table Entries: 2
```

DESTINATION	GATEWAY	FLAGS	METRIC	AGE	INTERFACE
199.133.219.128	199.133.219.152	U	0	0	1,3-10
172.20.21.0	172.20.21.2	U	0	0	sc0

**Step 9** At the prompt, enter **show ip vlan** to display the route group configuration.

```
Console> show ip vlan
```

Forwarding	Fragmentation	Redirect	RIP	Unreachable
enabled	enabled	enabled	enabled	enabled

IP-Vlan	Ports	IP-Address	Netmask	Broadcast	Helper-VLANs
1	1,3-10	199.133.219.152	255.255.255.192	199.133.219.191	

```
Console>
```

**Step 10** Read the remaining sections in this chapter to complete the initial configuration of the switch.

## Setting the Serial Port Baud Rate

To set the serial (admin.) port baud rate, use the **set baud** command as in the following example:

```
Console (enable)> set baud
Usage: set baud <baud_rate>
Console> (enable) set baud ?
Usage: set baud <600|1200|2400|9600|19200|138400>
Console> (enable) set baud 9600
System RS-232 baud rate set.
```

## Setting a Password

Password protection is provided in normal mode and privileged mode. To set a password for your switch in normal mode, use the **set password** command. (Refer to the section “set password” in the appendix “Command Reference.”) To set the password protection for your switch in privileged (enable) mode, use the **set enablepass** command. (Refer to the section “set enablepass” in the appendix “Command Reference.”)

## Setting IP Addresses

Network addresses, subnet masks, broadcast addresses, and SLIP addresses are assigned with the **set interface** command. (Refer to the section “set interface” in the appendix “Command Reference.”)

The Catalyst Switch default configuration is set so that all ports are configured as part of one route group. See the section “Virtual IP Services—IP VLAN Configuration” in the chapter “Feature Configuration” for a detailed description of configuring bridge groups. To configure the switch with one route group or a number of route groups with different IP addresses, see the section “Virtual IP Services—IP VLAN Configuration” in the chapter “Feature Configuration.”

## Setting a BOOTP Server

IP address information can be set using BOOTP. You can configure a BOOTP server with the media access control (MAC) and IP addresses of the switch. When the switch boots, it automatically retrieves the IP address from the BOOTP server.

The switch performs a BOOTP request *only* if the current IP address is set to 0.0.0.0. (This is the default for a new switch or a switch that has had its configuration file cleared using the **clear config all** command.)

To configure a workstation as a BOOTP server, you must determine the MAC address of the switch and add that MAC address to the BOOTP configuration file on the server. The following steps provide an example of creating a BOOTP server on a Sun workstation:

**Step 1** Install the BOOTP server code on the workstation, if it is not already installed.

**Step 2** Use the **show module** command to obtain the first address in the MAC address range. Figure 5-1 shows an example of the **show module** command output. Choose the first address in the range on line 1 under the MAC-Address(es) heading. In this example, the correct MAC address is 00-40-0b-90-b8-ff.

**Figure 5-1 Example of show module Command**

```

Console> (enable) show module
Mod Module-Name      Ports Model      Serial-Num Hw      Fw      Sw      Status
-----
1                   2      WS-X5009 000102691  1.40    1.12    1.12    ok
2                   24     WS-X5010 000095702  1.302   1.12    1.12    ok
3                   24     WS-X5010 000124907  1.304   1.12    1.12    ok

Mod MAC-Address(es)
-----
1  00-40-0b-90-b5-00 thru 00-40-0b-90-b8-ff
2  00-40-0b-30-04-f8 thru 00-40-0b-30-05-0f
3  00-40-0b-30-04-08 thru 00-40-0b-30-04-1f
Console> (enable)

```

**Step 3** Add an entry in the BOOTP configuration file (usually */usr/etc/bootptab*) for each Catalyst series switch. Press **Return** after each entry to create a blank line between each entry.

An example entry follows:

```

catalyst-1:\
ht=ether:\
ha=00400BA00023:\
sm=255.255.255.0:\
ip=192.122.174.224

```

In this example, ht is the hardware type, ha is the hardware address (use the last address in the MAC-address range), sm is the network subnet mask, and ip is the IP address.

## Enabling SNMP Management

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**Note** There must be a blank line between each entry in the BOOTP configuration file.

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To configure a BootP server on a different network from its BOOTP clients, refer to the “BOOTP Support” section in the “Feature Configuration” chapter.

## Enabling SNMP Management

To manage the switch using an SNMP network management workstation you must do the following:

- Configure the switch with an IP address, as described in the preceding section “Setting IP Addresses”
- Configure the SNMP community strings
- Use the Catalyst Switch **set snmp trap** command to assign the trap receiver address and receiver community

To set up SNMP community strings, use the **set snmp community** command as in the following example:

```
Console> (enable) set snmp community
Usage: set snmp community <access_type> [community_string]
      (access_type = read-only|read-write|read-write-all)
Console> (enable) set snmp community read-write hocuspocus
SNMP community string set.
Console> (enable)
```

SNMP community strings authenticate access to the Management Information Base (MIB) and function as embedded “passwords.” For an SNMP message to be processed, the community string must match one of following four community-string modes configured in the switch:

- None—Prohibits all access to the MIB.
- Read-only—Gives read access to all objects in the MIB except the community strings, but does not allow write access.



- Read-write—Gives read and write access to all objects in the MIB, but no access to the community strings.
- Read-write all—Gives read and write access to all objects in the MIB, including the community strings.

Refer to the section “set snmp community” in the appendix “Command Reference.”

When the switch resets or detects an incorrect community string, it sends a trap (or notification message) to a station. The **set snmp trap** command enters the IP address of the receiving station into the switch’s trap receiver table, which can hold up to ten addresses. When you enter addresses in the table, you must specify the community string that appears in the trap message. You can control whether SNMP trap support is in use by using the **set snmp trap enable** or **set snmp trap disable** command. (Refer to the section “set snmp rmon” in the appendix “Command Reference.”)

The command **clear snmp trap** clears an entry from the trap receiver table. (Refer to the section “clear snmp trap” in the appendix “Command Reference.”)

## Configuring SLIP on the Admin. Port

To configure the admin. port for SLIP, refer to the following sections in the appendix “Command Reference”: “set interface” command and the “slip Command.”

To configure SLIP, perform the following steps:

**Step 1** Telnet into the switch.

**Step 2** Enter the following commands:

```
Console> (enable) set interface sl0 <src_ip_addr> <remote_ip_addr>.
Console> (enable) slip attach.
```



**Caution** The SLIP connection *must* use the serial line (admin. port), and this connection causes you to lose your serial connection while the SLIP connection is active.

# Testing the Configuration

After you complete the installation and configure the IP address(es), use the **ping** command to test for connectivity between the switch and a host. The host can reside anywhere in your network. The **ping** command sends an echo request to the host specified in the command line.

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**Note** The host must be connected to a port with the same IP network address.

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For example, to test connectivity from the switch to a workstation with an IP address of 192.34.56.5, enter the command **ping 192.34.56.5**. If the switch receives a response, the following message is displayed:

```
192.34.56.5 is alive
```

For more information on the **ping** command, its available options, and what to expect when there is no response, refer to the section “ping Command” in the appendix “Command Reference.”

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**Note** Parameters set through the admin. interface remain set even if you disconnect power to the switch. The **clear config** command returns all parameters to their default values. (Refer to the section “clear config” in the appendix “Command Reference.”)

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In general, to verify proper operation of the switch, refer to the appropriate LED descriptions in the chapter “Product Overview.”