CHAPTER 4

# Configuring Ethernet and Fast Ethernet Software

This chapter describes the procedure used to configure the Fast Ethernet ports on the supervisor engine module, the Fast Ethernet switching module, and the Ethernet switching module using the command line interface

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

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## Default Configuration

The features you can customize have default values that will most likely suit your environment and probably need not be changed. The default values of these features are set as follows:

- No port name is configured for any port.
- All ports are set to normal priority level.
- All 10/100 Mbps Fast Ethernet Switching Module ports are set to **auto**.
- All 10 Mbps and 100 Mbps Ethernet and Fast Ethernet module ports are set to half duplex.

## Customizing the Configuration

As the default configuration, all Ethernet and Fast Ethernet ports are enabled. To configure these ports, complete the tasks in the following sections:

- Setting the Port Name
- Setting the Port Priority Level
- Setting the Port Speed (for the 10/100 Mbps Fast Ether net Switching module only)
- Setting the Port Transmission Type

Refer to the end of this chapter for switch configuration examples.

# Setting the Port Name

Assign a name to each port. To set a port name, perform the following tasks in privileged mode:

| Task | Command |
|---|---|
| Configure a name for a port. Figure 4-1 shows an example of the **set port name** command. | **set port name** *mod_num/port_num [name_string]* |
| Verify that the port name is correct. Figure 4-2 shows a sample display of the **show port** command. Port names are listed in the Name column. | **show port** *mod_num/port_num* |

Figure 4-1 set port name Command Example

```
Console> (enable) set port name 1/1 Router Connection
Port 1/1 name set.
Console> (enable) set port name 1/2 Server 1
Port 1/2 name set.
```

Figure 4-2 show port Command Display Example

```
Console> (enable) show port
Port Name                 Status   Vlan     Level  Duplex Speed Type
---- -------------------- -------- -------- ------ ------ ----- -------
1/1  Router Connection    ready    2        high     half   100 100BaseTX
1/2  Server 1             ready    1        high     half   100 100BaseTX
2/1                       ready    10       normal   half    10 10BaseT
2/2                       disabled 10       normal   half    10 10BaseT
2/3                       connect  10       normal   half    10 10BaseT
2/4                       connect  10       normal   half    10 10BaseT
.
.
.
2/23          0          0          0          0          0          0
2/24          0          0          0          0          0          0

Port Align-Err  FCS-Err    Xmit-Err   Rcv-Err
---- ---------- ---------- ---------- ----------
1/1           0          0          0          0
1/2           0          0          0          0
2/1           0          0          0          0
2/2           0          0          0          0
2/3           0          0          0          0
2/4           0          0          0          0
2/5           0          0          0          0
2/6           0          0          0          0
2/7           0          0          0          0
2/8           0          0          0          0
2/9           0          0          0          0
2/10          0          0          0          0
2/11          0          0          0          0
2/12          0          0          0          0
```

```
Port Single-Col Multi-Coll Late-Coll  Excess-Col Carri-Sens Runts     Giants
---- ---------- ---------- ---------- ---------- ---------- --------- ---------
1/1           0          0          0          0          0         0         -
1/2           0          0          0          0          0         0         -
2/1           0          0          0          0          0         0         -
2/2           0          0          0          0          0         0         -
2/3           0          0          0          0          0         0         -
2/4           0          0          0          0          0         0         -
2/5           0          0          0          0          0         0         -
2/6           0          0          0          0          0         0         -
2/7           0          0          0          0          0         0         -
2/8           0          0          0          0          0         0         -
2/9           0          0          0          0          0         0         -
2/10          0          0          0          0          0         0         -
2/11          0          0          0          0          0         0         -
2/12          0          0          0          0          0         0         -

Last-Time-Cleared
--------------------------
Sun Apr 21 1996, 11:51:37
Console>
Port Name                 Status     Vlan       Level  Duplex Speed Type
---- -------------------- ---------- ---------- ------ ------ ----- --------------
1/1  Management Port      notconnect 1          normal   half   100 100 BASE-TX
1/2  InterSwitchLink      connected  trunk      normal   half   100 100 BASE-TX
2/1  Dennis               connected  10         normal a-half  a-10 10/100 BASE-TX
2/2  Luis                 notconnect 10         normal   auto  auto 10/100 BASE-TX
2/3  Iris                 notconnect 10         normal   auto  auto 10/100 BASE-TX
2/4  Nancy                connected  10         normal a-half  a-10 10/100 BASE-TX
2/5  Arthur               notconnect 20         normal   auto  auto 10/100 BASE-TX
2/6  Ron                  notconnect 20         normal   auto  auto 10/100 BASE-TX
2/7  Connie               disabled   20         normal   auto  auto 10/100 BASE-TX
2/8  Bill                 notconnect 20         normal   auto  auto 10/100 BASE-TX
2/9                       notconnect 20         normal   auto  auto 10/100 BASE-TX
2/10                      notconnect 20         normal   auto  auto 10/100 BASE-TX
2/11                      notconnect 20         normal   auto  auto 10/100 BASE-TX
2/12                      notconnect 20         normal   full    10 10 BASE-T

Port Align-Err  FCS-Err    Xmit-Err   Rcv-Err
---- ---------- ---------- ---------- ----------
1/1           0          0          0          0
1/2           1          0          0          0
2/1           0          0          0          0
2/2           0          0          0          0
2/3           0          0          0          0
2/4          30          0          0          0
2/5           0          0          0          0
2/6           0          0          0          0
2/7           0          0          0          0
2/8           0          0          0          0
2/9           0          0          0          0
2/10          0          0          0          0
2/11          0          0          0          0
2/12          0          0          0          0
```

```
Port Single-Col Multi-Coll Late-Coll  Excess-Col Carri-Sens Giants
---- ---------- ---------- ---------- ---------- ---------- ----------
1/1           0          0          0          0          0          0
1/2         680        418          0          1          0          -
2/1         756         99          0          0          0          0
2/2           0          0          0          0          0          0
2/3           0          0          0          0          0          0
2/4         409        403          0         11          0       1256
2/5           0          0          0          0          0          0
2/6           0          0          0          0          0          0
2/7           0          0          0          0          0          0
2/8           0          0          0          0          0          0
2/9           0          0          0          0          0          0
2/10          0          0          0          0          0          0
2/11          0          0          0          0          0          0
2/12          0          0          0          0          0          0

Last-Time-Cleared
--------------------------
Wed Dec 27 1995, 16:09:47
Console> (enable)
```

# Setting the Port Priority Level

Configure the priority level of each port. When ports request simultaneous access to the switching bus, the Catalyst 2900 uses the port priority level to determine the order in which ports have access to the switching bus. To set the priority level, perform the following steps in privileged mode:

| Task | Command |
|---|---|
| Configure the priority level for each port. Figure 4-3 shows an example of the **set port level** command. | **set port level** *mod_num/port_num* **normal** \| **high** |
| Verify that the port priority level is correct. Figure 4-2 shows a sample display of the **show port** command. Port priority levels are listed in the Level column. | **show port** *mod_num/port_num* |

Figure 4-3 set port level Command Example

```
Console> (enable) set port level 1/1 high
Port 1/1 level set to high.
Console> (enable) set port level 1/2 high
Port 1/2 level set to high.
```

# Setting the Port Speed

Configure the port speed for the 100BaseTX ports on the 10/100 Mbps Fast Ethernet Switching module if desired. To set the port speed for a port, perform the following steps in privileged mode:

| Task | Command |
|---|---|
| Set the port speed of a port. Figure 4-4 shows an example of the **set port speed** command**.** | **set port speed** <***mod_num/port_num***> <***10***\|***100***\|***auto***> |
| Verify that the port speed has been set correctly. | **show port** *mod_num/port_num* |

**Note** Interfaces automatically configure themselves to operate at the proper speed and transmission type (simplex or duplex) when you set the port speed of a 10/100 Mbps Fast Ethernet Switching module to **auto**.

Figure 4-4 set port speed Command Example

```
Console> (enable) set port speed
Usage: set port speed <mod_num/port_num> <10|100|auto>
Console> (enable) set port speed 2/1 auto
Port 2/1 speed set to auto-sensing mode.
Console> (enable) set port speed 2/2 10
Port 2/2 speed set to 10 Mbps.
Console> (enable) set port speed 2/3 100
Port 2/3 speed set to 100 Mbps.
```

# Setting the Port Transmission Type

Set the transmission type to full or half duplex for the ports that will be used. To set the transmission type of a port, perform the following steps in privileged mode:

| Task | Command |
|---|---|
| Set the transmission type of a port. Figure 4-5 shows an example of the **set port duplex** command**.** | **set port duplex** *mod num/port num* **full** \| **half** |
| Verify that the transmission type has been set correctly. Figure 4-2 shows a sample display of the **show port** command. The transmission type is listed in the Duplex column. | **show port** *mod_num/port_num* |

**Note** When a port is in auto-sensing mode, both its speed and duplex are determined by auto-sensing. An error message is generated if you attempt to set the transmission type of auto-sensing ports. On a 10/100 module, if a port speed is set to **auto**, its transmission type (duplex) will also set to **auto** automatically, i.e., the duplex of an auto-speed port is not settable.

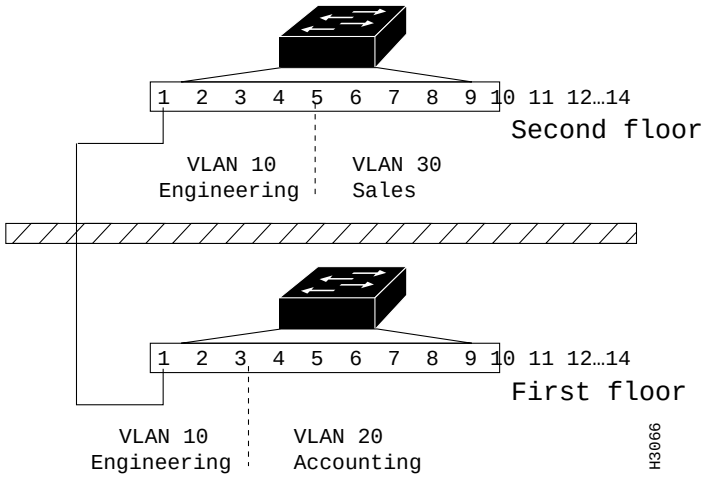
Figure 4-5 set port duplex Command Example

```
Console> (enable) set port duplex 2/1 half
Port 2/1 set to half-duplex.
Console> (enable) set port duplex 2/2 half
Port 2/2 set to half-duplex.
```

# Multiple Switch VLAN Configuration Example

VLAN groups can be set up across multiple Catalyst 2900 if the switches have any two ports of the same VLAN connected, as shown in the example in Figure 4-7. You need to configure the VLANs individually for both switches using the **set vlan** command.

Figure 4-6 Multiple Catalyst 2900 VLAN Configuration




The VLANs for the Catalyst 2900 on the first floor were configured as follows:

```
system1> (enable) set vlan 10 2/1-4
VLAN 10 modified.
VLAN 1 modified.
VLAN    Mod/Ports
10      2/1-4
system1> (enable) set vlan 20 2/5-14
VLAN 20 modified.
VLAN 1 modified.
VLAN    Mod/Ports
20      2/5-14
```

VLANs for the Catalyst 2900 on the second floor were configured as follows:

```
system2> (enable) set vlan 10 2/1-7
VLAN 10 modified.
VLAN 1 modified.
VLAN    Mod/Ports
10      2/1-7
system2> (enable) set vlan 30 2/8-14
VLAN 30 modified.
VLAN 1 modified.
VLAN    Mod/Ports
30      2/8-14
```