

# Configuring the Fast Ethernet Software

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This chapter describes how to configure the Ethernet ports on the supervisor engine module, the 10/100 Fast Ethernet switching module, and the Fast Ethernet 100F switching module using the command line interface.

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**Note** For definitions of all commands discussed in this chapter, refer to the “Command Reference” chapter of the publication *Catalyst 2900 Configuration Guide and Command Reference*.

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## Configuration Task List

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

- Set Port Name
- Set Port Priority Level
- Set Port Transmission Type
- Set Port Speed
- Set Virtual LANs (VLANs)
- Set Trunks

See the end of this chapter for a single switch configuration example.

# Set 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 6-1 shows an example of the <b>set port name</b> command.	<b>set port name</b> <i>mod_num/port_num</i> [ <i>name_string</i> ]
Verify that the port name is correct. Figure 6-2 shows a sample display of the <b>show port</b> command. Port names are listed in the Name column.	<b>show port</b> <i>mod_num/port_num</i>

**Figure 6-1      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.
Console> (enable)
```

Figure 6-2 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 a-100 100 BASE-TX
1/2 Server 1                           ready    1       high  half a-100 100 BASE-TX
2/1                                     ready    10      normal half  10 10 BASE-T
2/2                                     disabled 10      normal half  10 10 BASE-T
2/3                                     connect 10      normal half  10 10 BASE-T
2/4                                     connect 10      normal half  10 10 BASE-T
.
.
.
Port Align-Err  FCS-Err    Xmit-Err  Rcv-Err
-----
1/1             0           0          0         0
1/2             0           0          0         0
2/1             0          14          0         0
2/2             0           0          0         0
2/3             0           0          0         0
2/4             0           0          0         0
.
.
.
Port Single-Col Multi-Coll Late-Coll  Excess-Col Carri-Sens Giants
-----
1/1             0           0          0         0         0         1
1/2             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
.
.
.
Last-Time-Cleared
-----
Thu Mar 8 1996, 07:58:06
Console> (enable)

```

### Set 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 tasks in privileged mode:

Task	Command
Configure the priority level for each port. Figure 6-3 shows an example of the <b>set port level</b> command.	<b>set port level</b> <i>mod_num/port_num</i> <b>normal   high</b>
Verify that the port priority level is correct. Figure 6-2 shows a sample display of the <b>show port</b> command. Port priority levels are listed in the Level column.	<b>show port</b> <i>mod_num/port_num</i>

**Figure 6-3**      **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.
```

### Set 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 tasks in privileged mode:

Task	Command
Set the transmission type of a port. Figure 6-4 shows an example of the <b>set port duplex</b> command.	<b>set port duplex</b> <i>mod num/port num</i> <b>full   half</b>
Verify that the transmission type has been set correctly. Figure 6-2 shows a sample display of the <b>show port</b> command. The transmission type is listed in the Duplex column.	<b>show port</b> <i>mod_num/port_num</i>

Figure 6-4 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.
```

## Set Virtual LANs (VLANs)

VLANs enable ports on the same or different switches to be grouped so that traffic is confined to members of that group only. This feature restricts broadcast, unicast, and multicast traffic to only ports included in a certain VLAN.

The **set vlan** command groups ports. The default configuration has all switched Ethernet ports. However, you can enter groups of ports as individual entries; for example, 1/1,2/1,2/2,2/3. You can also use a hyphenated format such as 1/1,2/1-3.

To create a VLAN, perform the following tasks in privileged mode:

Task	Command
Define the VLAN and indicate the included ports. Figure 6-5 shows an example of the <b>set vlan</b> command. Figure 6-6 shows a diagram of the established VLANs. In the example in Figure 6-5, VLAN 10, the engineering department, includes module 2, Ethernet ports 1 through 4. VLAN 20, the accounting department, includes module 2, Ethernet ports 5 through 12. The accounting and engineering departments are totally isolated from each other in this configuration.	<b>set vlan</b> <i>vlan_num</i> <i>mod/ports</i>
Verify that the VLAN configuration is correct. Figure 6-7 shows a sample display of the <b>show vlan</b> command.	<b>show vlan</b>

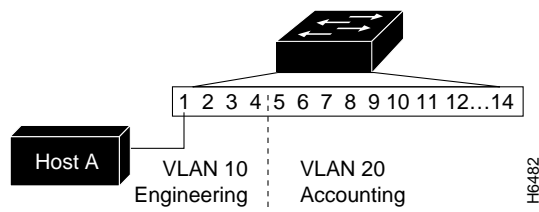
## Set Virtual LANs (VLANs)

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**Figure 6-5** set vlan Command Example

```
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 2/5-12
VLAN 20 modified.
VLAN 1 modified.
VLAN    Mod/Ports
20 2/5-12
```

**Figure 6-6** VLAN Configuration



**Figure 6-7** show vlan Command Example

```
system1> (enable) show vlan
VLAN    Mod/Ports
-----
1       1/1-2
10      2/1-4
20      2/5-12
system1> (enable)
```

## Set Trunks

Use the **set trunk** command to configure trunks on ports. To establish a trunk, the port on each Catalyst 2900 must be configured as a trunk port. To establish trunks, perform the following tasks in privileged mode:

Task	Command
Establish trunks on specific ports. Figure 6-8 shows an example of the <b>set trunk</b> command. Port 1 on module 1 is configured as a trunk.	<b>set trunk</b> <i>mod_num/port_num vlans...</i>
Verify that the trunk configuration is correct. Figure 6-9 shows a sample display of the <b>show trunk</b> command.	<b>show trunk</b>

**Figure 6-8 set trunk Command Example**

```
Console> (enable) set trunk 1/1 10,20,30
Trunk Port 1/1 created.
Port    VLANs allowed
1/1     10,20,30
```

**Figure 6-9 show trunk Command Example**

```
Console> show trunk
Port    VLANs allowed
-----
1/1     10,20,30
Console>
```

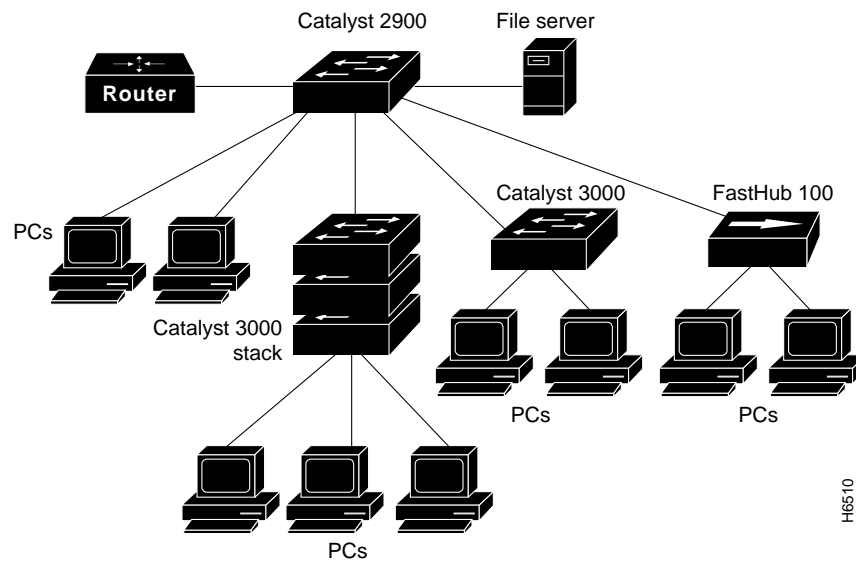
## Catalyst 2900 Configuration Example

A Catalyst 2900 configuration example is shown in Figure 6-10. The configuration shows a network with the following elements:

- 1 full-duplex Fast Ethernet connection to a router
- 1 full-duplex Fast Ethernet connection to a server
- 9 half-duplex Fast Ethernet connections to servers and other PCs
- 1 half-duplex connection to a FastHub 100 repeater
- 1 full-duplex connection to a Catalyst 3000 stack
- 1 full-duplex connection to a Catalyst 3000 switch

Although some Fast Ethernet connections are half-duplex, each port on each module can be independently configured for either full- or half-duplex operation. All ports are in VLAN 1 as a default setting, and no VLAN customization is necessary.

**Figure 6-10**     **Single Catalyst 2900 Configuration**





## Port Name Examples

The following example illustrates how to establish the port name for the Catalyst 2900 provided in the single switch configuration example and shown in Figure 6-10:

```
system1 (enable) set port name 1/1 Router Connection
Port 1/1 name set.
system1 (enable) set port name 1/2 Server 1
Port 1/2 name set.
system1 (enable) set port name 2/1 PC 1
Port 2/1 name set.
system1 (enable) set port name 2/2 PC 2
Port 2/2 name set.
.
.
.
```

## Port Priority Level Example

The following example illustrates how to establish the port priority level for the Catalyst 2900 in the configuration example shown in Figure 6-10:

```
system1 (enable) set port level 1/1 high
Port 1/1 level set to high.
system1 (enable) set port level 1/2 high
Port 1/2 level set to high.
system1 (enable) set port level 2/1 high
Port 2/1 level set to high.
system1 (enable) set port level 2/2 high
Port 2/2 level set to high.
system1 (enable) set port level 2/3 high
Port 2/3 level set to high.
.
.
.
system1 (enable) set port level 2/12 high
Port 2/12 level set to high.
```

## Multiple Switch VLAN Configuration Example

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### Port Transmission Type Example

The following example illustrates how to set the port transmission type (half- or full-duplex) for the Catalyst 2900 provided in the configuration example shown in Figure 6-10:

```
system1 (enable) set port duplex 1/1 full
Port 1/1 set to full-duplex.
system1 (enable) set port duplex 1/2 full
Port 1/2 set to half-duplex.
system1 (enable) set port duplex 2/1 half
Port 2/1 set to half-duplex.
system1 (enable) set port duplex 2/2 half
Port 2/2 set to half-duplex.
system1 (enable) set port duplex 2/3 half
Port 2/3 set to half-duplex.
.
.
.
system1 (enable) set port duplex 2/12 half
Port 2/12 set to half-duplex.
```

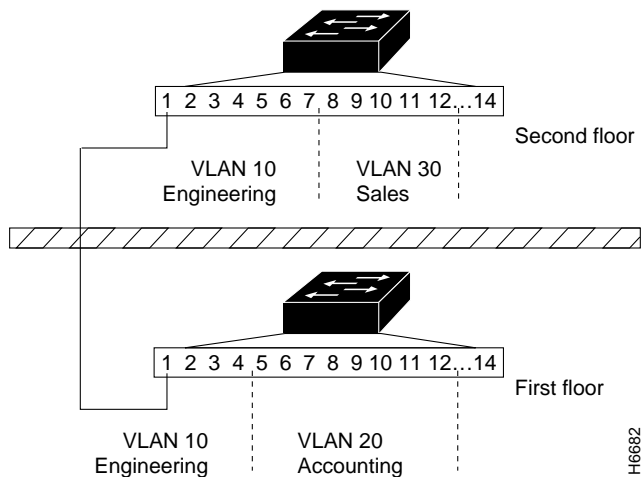
## Multiple Switch VLAN Configuration Example

VLAN groups can be set up across multiple Catalyst 2900s if the switches have any two ports of the same VLAN connected, as shown in the example in Figure 6-11. You need to configure the VLANs individually for both switches using the **set vlan** command.

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 2/5-12
VLAN 20 modified.
VLAN 1 modified.
VLAN    Mod/Ports
20      2/5-12
```

Figure 6-11 Multiple Catalyst 2900 VLAN Configuration



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 2/8-12
VLAN 30 modified.
VLAN 1 modified.
VLAN    Mod/Ports
30      2/8-12
```

## Multiple Switch VLAN Configuration Example

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