

# 19 Managing Ethernet Modules

## Overview of OmniSwitch and Omni Switch/Router Ethernet Modules

This chapter describes User Interface commands for Ethernet, Fast Ethernet, and Gigabit Ethernet modules. Most commands are used with Fast Ethernet, 10/100, and high-density modules. With the release of 3.1 a new generation of Ethernet modules are used in the OmniSwitch. These modules include auto-sensing 10/100 Ethernet and high-density Ethernet modules. With the release of 3.4, Gigabit Ethernet modules are available.

### Port Mirroring and Port Monitoring

Port mirroring and monitoring can be used on all Ethernet modules. Port mirroring and monitoring are described at the end of Chapter 25, “Managing Groups and Ports.”

### Fast Ethernet Backbones

Fast Ethernet ports can be used as backbone links. The switch has two features that can improve the performance and flexibility of Ethernet backbones. OmniChannel aggregates the bandwidth of up to four (4) Fast Ethernet ports. This feature allows you to scale Fast Ethernet links from 100 Mbps to 800 Mbps in 100 Mbps increments. OmniChannel is described in *OmniChannel* on page 19-9. Fast Ethernet ports also support the 802.1Q tagging mechanism, enhancing the compatibility of ports with other vendors’ equipment. 802.1Q is described in Chapter 20, “802.1Q.”

### Gigabit Ethernet Modules

Gigabit Ethernet modules can be used as backbone links and used to support high-speed servers. Most Gigabit Ethernet modules support 802.1Q hardware tagging. In addition, all Gigabit Ethernet modules support an Alcatel version of 802.1Q called X802.1Q. See Chapter 20, “802.1Q,” for more information on 802.1Q and X802.1Q hardware tagging for Gigabit Ethernet Modules.

### Variety of Connector Options

Ethernet and Fast Ethernet modules are available in a variety of connector types. On the OmniSwitch, Fast Ethernet modules use copper RJ-45 and fiber SC connectors. On the Omni Switch/Router, 10/100 Ethernet modules use copper RJ-45 connectors and the ESX-100FM/FS-12W Fast Ethernet module uses fiber MT-RJ connectors.

On the OmniSwitch, Ethernet 10 Mbps modules are available with copper RJ-45, fiber SC, Telco (RJ-21), BNC, and AUI connectors. On the Omni Switch/Router, the 10 Mbps ESX-FM-24W uses fiber VF-45 connectors.

Gigabit Ethernet modules on the OmniSwitch and Omni Switch/Router use fiber SC connectors. Refer to Chapter 7, “Switching Modules,” for more detailed information on OmniSwitch Ethernet hardware and Chapter 3, “Omni Switch/Router Switching Modules,” for information on Omni Switch/Router Ethernet hardware.

### Two Generations of Modules

Ethernet modules in Release 3.1 and later contain advanced chip technology referred to as “Mammoth.” This new technology boosts the port density of modules, increasing the port count available in each chassis. The Mammoth technology also includes ports with 10/100 autosensing capability. This new generation of Ethernet modules also uses a different set of software commands to configure and monitor ports. The tables below and on the following page outline the two generations of Ethernet modules and some of their differences.

### Early Generation OmniSwitch Ethernet Modules

Ethernet Module	Speed Supported (per port)	Software Configurable?	Commands Available
ESM-C-8	10 Mbs	No	n/a
ESM-C-12	10 Mbs	No	n/a
ESM-F-8	10 Mbs	No	n/a
ESM-T-12	10 Mbs	No	n/a
ESM-U	10 Mbs	No	n/a
ESM-100C	100 Mbs	Yes	eth100cfg eth100vc
ESM-100C-FD	100 Mbs	Yes	eth100cfg eth100vc
ESM-100F-FD	100 Mbs	Yes	eth100cfg eth100vc
ESM-100C-5	100 Mbs	Yes	eth100cfg eth100vc
ESM-100CF-5	100 Mbs	Yes	eth100cfg eth100vc

## High-Density, 10/100, and Gigabit Ethernet (Mammoth) Modules

Ethernet Module (Chassis Type)	Speed Supported (per port)	Software Configurable?	Commands Available	OmniChannel Supported?
ESM-C-16 (OmniSwitch)	10 Mbs	Yes	10/100cfg 10/100vc	No
ESM-C-32 (OmniSwitch)	10 Mbs	Yes	10/100cfg 10/100vc	No
ESM-FM-16W (OmniSwitch)	10 Mbs	Yes	10/100cfg 10/100vc	No
ESM-100C-12 (OmniSwitch)	10/100 Mbs	Yes	10/100cfg 10/100vc	Yes (at 100 Mbps)
ESM-100FM-8 (OmniSwitch)	100 Mbs	Yes	10/100cfg 10/100vc	Yes
ESM-100C-32W (OmniSwitch)	10/100 Mbs	Yes	10/100cfg 10/100vc	No
ESM-T-24W (OmniSwitch)	10 Mbs	Yes	10/100cfg 10/100vc	No
ESX-100C-12W (Omni Switch/Router)	10/100 Mbs	Yes	10/100cfg 10/100vc	Yes (at 100 Mbps)
ESX-100C-32W (Omni Switch/Router)	10/100 Mbs	Yes	10/100cfg 10/100vc	No
ESX-100FM/FS-12W (Omni Switch/Router)	100 Mbs	Yes	10/100cfg 10/100vc	Yes
ESX-FM-24W (Omni Switch/Router)	10 Mbs	Yes	10/100cfg 10/100vc	No
GSM-FM/FS/FSH-2W (OmniSwitch)	1000 Mbps	Yes	10/100cfg 10/100vc	No
GSX-FM/FS/FSH-2W (Omni Switch/Router)	1000 Mbps	Yes	10/100cfg 10/100vc	No
GSX-FM/FS-4W (Omni Switch/Router)	1000 Mbps	Yes	10/100cfg 10/100vc	No

When the OmniSwitch modules in this table are used with an MPM-1G, the MPM-1G should be at least revision level A9.

## The Ethernet Management Menus

The **eth100** and **10/100** sub-menus are described in this chapter. These sub-menus are part of the physical interface sub-menu, which displays as shown below:

Command	Physical Interface Menu
slipc	Configure SLIP (Serial Line IP) on a TTY Port
atm	Enter the ATM Management sub-menu
eth100	Enter the 100BaseT sub-menu
10/100	Enter the 10/100BaseT sub-menu
tok	Enter the Token Ring Management sub-menu
fddi	Enter the FDDI Management sub-menu

Main	File	Summary	VLAN	Networking
Interface	Security	System	Services	Help

The **eth100** sub-menu contains commands for early generation fast Ethernet modules. The **10/100** sub-menu has commands for high-density and 10/100 (Mammoth generation) Ethernet modules.

When you enter **eth100** at a system prompt, you enter the early generation Fast Ethernet sub-menu. This sub-menu displays as follows:

Command	100BaseT Menu
eth100vc	View 100BaseT Port Configuration Table
eth100cfg	Configure 100BaseT Port Parameters

Main	File	Summary	VLAN	Networking
Interface	Security	System	Services	Help

Descriptions for these commands begins on page 19-14.

When you enter **10/100** at a system prompt, you enter the High-Density—10/100 Ethernet configuration sub-menu. This sub-menu displays as follows:

Command	10/100 Menu
10/100vc	View 10/100 Port Configuration Table
10/100cfg	Configure 10/100 Port Parameters
crechnl	Create a Fast Ethernet Channel
delechnl	Delete a Fast Ethernet Channel
addprtchnl	Add port/s to a fast Ethernet Channel
delptrchnl	Delete port/s from a fast Ethernet Channel
chnlinfo	Display channel configuration parameters

Main	File	Summary	VLAN	Networking
Interface	Security	System	Services	Help

Descriptions for these commands begins on page 19-5. The commands in this sub-menu below **crechnl** are used to configure OmniChannel; documentation for OmniChannel begins on page 19-9.

## Configuring 10/100 Auto-Sensing Ports (High-Density 10/100 Modules)

The **10/100cfg** command allows you to enable auto-negotiation as well as configure link speed (10 or 100 Mbps) and the link mode (full or half-duplex) on 10/100 Ethernet ports on the ESM-100C-12 and ESM-100C-32W modules on the OmniSwitch and the ESX-100C-12W and ESX-100C-32W modules on the Omni Switch/Router.

### ◆ Note ◆

The **10/100cfg** command can only be used with newer Ethernet modules included in Release 3.1 and later. It cannot be used with 1 and 2 port Fast Ethernet modules, such as the ESM-100F-2.

Follow these steps to configure a 10/100 port:

1. Enter **10/100cfg** at the system prompt and press <Return>.
2. The system displays a prompt asking for the slot and port number:

#### Enter Slot/Interface :

Enter the slot number, a slash (/), and the port number of the Ethernet port that you want to configure. Press <Return>.

3. The system prompts you to enable or disable auto-sensing:

#### Autonegotiate [y,n, or quit] (Currently enabled (y)) :

Enter **y** to enable auto-negotiation or **n** to disable auto-negotiation. Auto-negotiation can be used to determine the link speed *and* the link mode (full or half) of the connection.

If you choose **y** to enable auto-negotiation, the system will automatically detect whether the connection speed of the attached device is 10 Mbps or 100 Mbps. It can also determine whether the link mode of the connection is half- or full-duplex.

If you enable auto-negotiation, continue with step 6.

If you choose **n** to disable auto-negotiation, then you will be prompted for the Line Speed. Continue on with the next step.

4. If you chose to disable auto-sensing, then the following prompt displays showing the current line speed:

#### Line Speed [100 or 10] (Currently 100) :

Select whether you want the port to operate at 10 Mbps or 100 Mbps. The port will operate at this speed until you change it through the **10/100cfg** command later. Press <Return> after you enter the Line Speed. The new line speed will take effect; no reboot is required. Continue with the next step.

5. The following prompt displays, showing the current link mode:

#### Link Mode [Full, Half] (Currently (H)alf Duplex) :

Enter **F** to set the port to full-duplex mode or **H** to set the port to half-duplex mode. In full-duplex mode, the full 100 or 10 Mbps of bandwidth is used for data traveling on each direction of the cable. Press <Return> after you enter the Mode. The new mode will take effect; no reboot is required. You have completed the configuration of this port.

6. Since you have enabled auto-negotiation, the port will automatically sense the line speed of the connection. You can also further enable auto-negotiation for the link mode. When following prompt displays:

**Link Mode [Half or Auto] (Currently (H)alf Duplex) :**

select whether you want the port to auto-sense the duplex mode (**Auto**) or whether you want the port to default to half-duplex mode (**Half**). Enter an **A** for auto-sensing or enter an **H** for half-duplex.

If you set the mode to half-duplex, then the port will always run in half-duplex. If you set the mode to **Auto**, then the port will automatically detect whether the connection is half- or full-duplex and then operate in that mode. You have completed the configuration of this port.

### Connecting High-Density 10/100 Modules to Non-Auto-Negotiating Links

The ESM-100C-12, ESM-100C-32W, ESX-100C-12W, and ESX-100C-32W can auto-negotiate link speed. However, if you hard-configure (auto-negotiation disabled) a high-density 10/100 module port for 10 Mbps, then you should not connect that port to a non-auto-negotiating 100 Mbps port or device.

## Configuring High-Density Ethernet Ports (10 Mbps and Fast Ethernet Modules)

The **10/100cfg** command allows you to configure the link mode (full or half-duplex) for ports on newer high-density Ethernet modules.

This procedure describes how to configure ports on the ESM-100FM-8, ESM-FM-16W, ESM-C-16, ESM-C-32, and ESM-T-24W modules on the OmniSwitch and Ethernet modules on the Omni Switch/Router.

### ◆ Note ◆

The **10/100cfg** command can only be used with newer Ethernet modules included in Release 3.1 and later. It cannot be used with 1 and 2 port Fast Ethernet modules, such as the ESM-100F-2.

Follow these steps to configure a high-density Ethernet port:

1. Enter **10/100cfg** at the system prompt and press <Return>.
2. The system displays a prompt asking for the slot and port number:

#### Enter Slot/Interface :

Enter the slot number, a slash (/), and the port number of the Ethernet port that you want to configure. Press <Return>.

3. The following prompt displays, showing the current link mode:

#### Link Mode [Full, Half] (Currently (H)alf Duplex) :

Enter **F** to set the port to full-duplex mode or **H** to set the port to half-duplex mode. In full-duplex mode, the full 100 or 10 Mbps of bandwidth is used for data traveling on each direction of the cable. Press <Return> after you enter the Mode. The new mode will take effect; no reboot is required.

### High-Density Modules With 10 Mbps Ports

The ESM-FM-16W, ESM-C-16, ESM-C-32, ESM-T-24W, and ESX-FM-24W modules contain only 10 Mbps ports. You should not plug 100 Mbps non-auto-negotiating links into ports on these modules.

## Viewing Configurations for High-Density and 10/100 Ethernet Modules

The **10/100vc** command allows you to view the current status of newer Ethernet modules (see *High-Density, 10/100, and Gigabit Ethernet (Mammoth) Modules* on page 19-3). These modules are part of Release 3.1 or later and they support 10 Mbps, 100 Mbps, or 1000 Mbps Ethernet. Ethernet 10/100 ports (e.g., ESM-100C-12) can auto-sense the connection speed of the attached device.

Entering **10/100vc** displays information similar to the following:

10/100 Configure Values for all slots

Slot/ Intf	Auto- negotiate	DETECTED		SET	
		Line Speed	Duplex Mode	Line Speed	Duplex Mode
5/ 1	enabled	?	?	auto	half-d
5/ 2	enabled	10	HALF-D	auto	half-d
5/ 3	enabled	100	HALF-D	auto	half-d
5/ 4	enabled	100	HALF-D	auto	half-d
5/ 5	enabled	?	?	auto	half-d
5/ 6	enabled	10	HALF-D	auto	half-d
5/ 7	enabled	100	HALF-D	auto	half-d
5/ 8	enabled	?	?	auto	half-d

**Slot/Intf.** The slot and port number (Intf) where this Ethernet port is located.

**Auto-negotiate.** Indicates whether auto-negotiation is enabled on a 10/100 port. If enabled, the port will automatically sense whether the attached device operates at 10 Mbps or 100 Mbps and adjust accordingly. If disabled, the port does not automatically detect the connection speed and instead uses the line speed you configure through the **10/100cfg** command. You enable or disable auto-negotiation through **10/100cfg**. A value of **n/a** in this column means the port does not support auto-sensing and the line speed defaults to either 10 or 100 Mbps.

The next set of columns are divided into DETECTED and SET. The columns under DETECTED are the current operational **Line Speed** or **Duplex Mode**. The columns under SET are the configured values; these configured values will either be defaults or the values configured through **10/100cfg**.

**Line Speed.** Indicates the speed (in Mbps) at which the port is currently operating (DETECTED) or configured to operate (SET).

DETECTED values will be **10** (Mbps), **100** (Mbps), or a question mark (?). A question mark (?) in this column indicates the port is not connected to a device.

SET values will be **auto**, **10** (Mbps), or **100** (Mbps). The **auto** setting means auto-sensing is enabled and the Line Speed will equal the speed for which the attached device is configured.

**Duplex Mode.** Indicates whether the port is operating (DETECTED) or configured (SET) for half- or full-duplex mode.

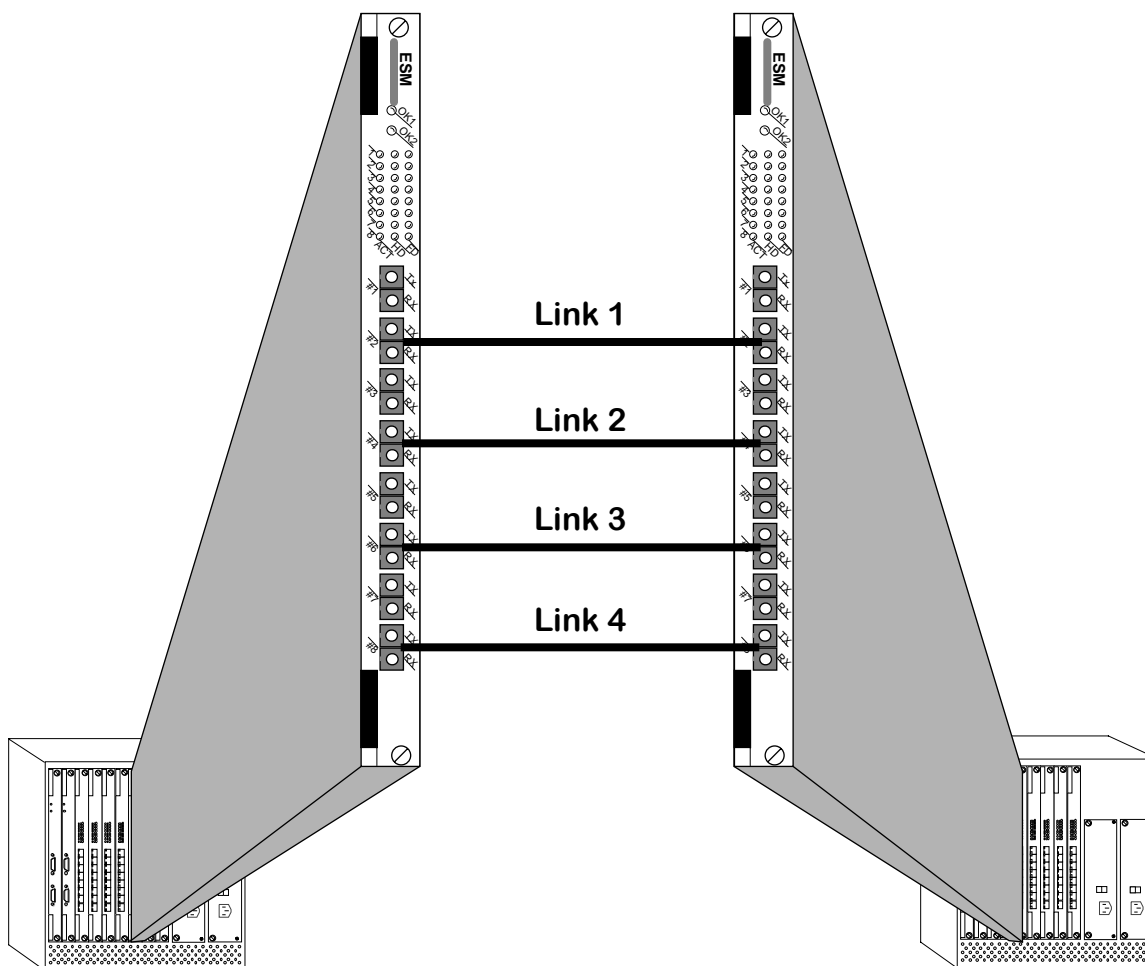
DETECTED values will be half-duplex (**HALF-D**), full-duplex (**FULL-D**), or a question mark (?). A question mark (?) in this column indicates the port is not connected to a device.

SET values will be auto-sensing (**auto**), half-duplex (**half-d**), or full-duplex (**full-d**). If this value is **auto**, then the switch automatically sets the duplex mode to the network device's setting. If this value is **half-d**, then the port will always run in half-duplex mode. If this value is **full-d**, then the port will always run in full-duplex mode. You configure the duplex mode through the **10/100cfg** command. Note that you can only configure a 10/100 port for full-duplex if you disable auto-sensing.

## OmniChannel

OmniChannel allows you to increase the bandwidth of Fast backbones by combining the capacity of up four (4) Fast Ethernet ports into one channel. The combined channel operates within Spanning Tree as one virtual port, and can provide up to 800 Mbps (in full-duplex mode) of bandwidth. (In full-duplex mode, 400 Mbps is supported in each direction of the OmniChannel.) This feature is useful for Ethernet-intensive networks that need to increase bandwidth capacity without setting up ATM backbones using OC-3 or OC-12 connections.

The OmniChannel feature operates only on 10/100 and Fast Ethernet ports employing Mammoth chip technology, such as those modules listed in the table, *High-Density, 10/100, and Gigabit Ethernet (Mammoth) Modules* on page 19-3. It does not operate on 10 Mbps ports and it doesn't operate on early-generation Fast Ethernet ports, such as those on a listed in the table, *Early Generation OmniSwitch Ethernet Modules* on page 19-2.



**Up to Four 100 Mbps Links May Comprise an OmniChannel Backbone**

OmniChannel balances the traffic load among links by MAC address. MAC addresses are assigned to physical links in the OmniChannel in a round-robin fashion. The first MAC address learned will transmit and receive data on the first link. The second MAC address learned will transmit and receive over the second link, and so on regardless of the bandwidth requirements of each MAC address.

## Creating an OmniChannel

You use the **crechnl** command to create an OmniChannel. Follow these steps:

1. Enter **crechnl**.
2. The following prompt displays:

**Channel Number ( 2):**

Enter the identification number you want to assign to this OmniChannel. By default, the software lists the next available channel number in parentheses. In this example, the next available channel number is **2**. If you want to select the default, simply press <Return>. Otherwise, enter the channel number and press <Return>.

3. The following prompt displays:

**To select a port, use the convention - Slot/Physical Port.**

**For eg. 2/1 is used to select Physical Port 1 on Slot 2**

**Primary Slot/Port:**

Enter the slot and port that the switch will initially use as the Spanning Tree virtual port for this channel. Each OmniChannel is considered a single virtual port within the network, so only one physical port will participate in Spanning Tree.

**◆ Note ◆**

After a reboot or after a loss of a connection, the first port in an OmniChannel that the switch brings up will become the primary port. Therefore, one of the ports you choose as the secondary port (explained in Step 4 below) could become the primary port and thus participate in Spanning Tree.

If the port you enter is already part of another OmniChannel, then it cannot be used in a second OmniChannel. The following message displays for those ports that are already part of another OmniChannel:

**Primary port in use**

4. The following prompt displays:

**To select a port, use the convention - Slot/Physical Port.**

**For eg. 2/1 is used to select Physical Port 1 on Slot 2**

**Secondary Slot/Port:**

Enter the other ports that will be used in this OmniChannel. Up to four (4) Fast Ethernet Ports may participate in an OmniChannel. Therefore you can specify up to three (3) additional ports which will initially become secondary ports. These secondary ports must be on the same module as the primary port. Secondary ports do not participate in the Spanning Tree algorithm; they are used for data transmission only.

**◆ Note ◆**

As explained in Step 3 above, a port that you initially configure as a secondary port can become a primary port.

**Specifying a Range of Ports.** To specify a range of ports, enter the slot number, a slash (/), the port number for the first secondary port, a dash (-), and then the port number for the last secondary port. For example, to specify ports 3, 4, and 5 on the Fast Ethernet module in slot 2 as secondary ports in an OmniChannel, you would enter:

**2/3-5**

**Specifying Multiple Ports.** To specify multiple ports (on the same module) that are not physically contiguous, enter the slot number, a slash (/), the port number for the first secondary port, a comma (,), and then the slot and port for the next secondary port. For example, to specify ports 3 and 5 on the Fast Ethernet module in slot 2, you would enter:

**2/3, 2/5**

The order that you specify secondary ports is important. In the event of a failure on the primary port, the first secondary port specified will become the primary port in the OmniChannel and participate in Spanning Tree.

Messages will display informing you that secondary ports were saved in flash memory:

**Successfully saved sec port in flash**  
**Successfully saved sec port in flash**

## Adding Ports to an OmniChannel

After you create an OmniChannel through the **crechnl** command, you can add more secondary ports to the same channel as long as the channel contains less than 4 ports. You use the **addprtchnl** command to add ports to an OmniChannel. Follow these steps:

1. Enter **addprtchnl**.
2. The following prompt displays:

**Channel Number :**

Enter the channel number to which you want to add secondary ports. You can check the current port assignments for a given OmniChannel by using the **chnlinfo** command, which is described in *Viewing OmniChannel Parameters* on page 19-13.

3. The following prompt displays:

**To select a port, the convention - Slot/Physical Port or Slot/Phy.  
 Port Range. For eg. 2/1 is used to select Physical Port 1 on Slot  
 2 and 2/2-4 selects physical ports 2,3 and 4 on Slot 2  
 Slot/Port(s):**

Enter the additional ports that will be part of this OmniChannel. All the ports you enter will initially be secondary ports (i.e., they do not participate in the Spanning Tree algorithm and are used for data transmission only). You can specify up to 4 ports on an OmniChannel; only 3 of the ports can be secondary ports.

**Specifying a Range of Ports.** To specify a range of ports, enter the slot number, a slash (/), the port number for the first secondary port, a dash (-), and then the port number for the last secondary port. For example, to specify ports 3, 4, and 5 on the Fast Ethernet module in slot 2 as secondary ports in an OmniChannel, you would enter:

**2/3-5**

**Specifying Multiple Ports.** To specify multiple ports (on the same module) that are not physically contiguous, enter the slot number, a slash (/), the port number for the first secondary port, a comma (,), and then the slot and port for the next secondary port. For example, to specify ports 3 and 5 on the Fast Ethernet module in slot 2, you would enter:

**2/3, 2/5**

Messages will display informing you that secondary ports were saved in flash memory:

**Successfully saved sec port in flash**  
**Successfully saved sec port in flash**

## Deleting an OmniChannel

You can delete any existing OmniChannel through the **delchnl** command. Follow these steps:

1. Enter **delechnl**.
2. The following prompt displays:

**Channel to be deleted:**

Enter the channel number that you want to delete. You can obtain information on a channel through the **chnlinfo** command, which is described in *Viewing OmniChannel Parameters* on page 19-13. Press <Return> and the channel, along with all port assignments, will be deleted.

## Deleting Ports from an OmniChannel

You can delete ports from an OmniChannel using the **delprtchnl** command. Follow these steps:

1. Enter **delprtchnl**.
2. The following prompt displays:

**Channel Number :**

Enter the channel number on which you want to delete ports. You can check the current port assignments for a given OmniChannel by using the **chnlinfo** command, which is described in *Viewing OmniChannel Parameters* on page 19-13.

3. The following prompt displays:

**To select a port, the convention - Slot/Physical Port or Slot/Phy.  
Port Range. For eg. 2/1 is used to select Physical Port 1 on Slot  
2 and 2/2-4 selects physical ports 2,3 and 4 on Slot 2**  
**Slot/Port(s):**

Enter the port(s) that you want to delete from this OmniChannel.

### Important Note

If you delete the primary port a secondary port will become the new primary port. The secondary port that will take over this role is the first secondary port specified through the **crechnl** command.

**Deleting a Range of Ports.** To delete a range of ports, enter the slot number, a slash (/), the port number for the first port, a dash (-), and then the port number for the last port. For example, to delete ports 3, 4, and 5 on the Fast Ethernet module in slot 2, you would enter:

**2/3-5**

**Deleting Multiple Ports.** To delete multiple ports (on the same module) that are not physically contiguous, enter the slot number, a slash (/), the port number for the first port, a comma (,), and then the slot and port for the next port. For example, to delete ports 3 and 5 on the Fast Ethernet module in slot 2, you would enter:

2/3, 2/5

## Viewing OmniChannel Parameters

You can view the current configuration parameters and port assignments for an OmniChannel by using the **chnlinfo** command. Follow these steps:

1. Enter **chnlinfo**.
2. The following prompt displays:

**Enter channel number for which information is required:**

Enter the channel number for which you want to view information. If you want to view information on all OmniChannels in the switch, then simply press <Enter>.

3. A screen similar to the following displays:

Displaying channel 2			
Channel Id	Phy. Port	Port Status	Mac Count
=====			
2	5/6	Inactive	0
	5/7	Inactive	0
3	5/3	Active	35
	5/4	Active	34
	5/5	Active	34

The following sections describe the variables in this table.

**Channel Id.** The identification number assigned to this OmniChannel during the **crechnl** configuration procedure.

**Phy. Port.** The physical slot and port number for all ports included in the OmniChannel. The slot number is listed first, then a slash (/), and then the port number on the Ethernet module.

**Port Status.** The current operational status of this physical port. If the port is **Active**, then a cable is connected and data is capable of passing to and from the port. If the port is **Inactive**, then a cable may not be attached or the port is inoperational for hardware or software reasons.

**Mac Count.** The current number of MAC addresses that have been learned on this port. A separate MAC count is given for each physical port in the OmniChannel.

# Configuring Older Fast Ethernet Ports

The **eth100cfg** command allows you to alter the Link Mode of some Fast Ethernet modules. The Link Mode may be set to half-duplex or full-duplex. The **eth100cfg** command can only be used with the following modules:

- ESM-100C-FD
- ESM-100FM-FD
- ESM-100FS-FD
- ESM-100C-5
- ESM-100FM-5
- ESM-100FS-5

It cannot be used with the ESM-100C shared-port module or the high-density and 10/100 Ethernet modules.

Follow these steps to configure the Link Mode on a Fast Ethernet port:

1. Enter **eth100cfg** at the system prompt and press <Return>.
2. The system displays a prompt asking for the slot and port number:

**Enter Slot/Interface :**

Enter the slot number, a slash (/), and the port number of the Fast Ethernet port that you want to configure. Press <Return>.

3. The system displays the current Link Mode and prompts you for the mode to which you want to configure this port:

**Link Mode [F or H] (Current Mode is Full Duplex (F)) :**

Enter **F** to set the port to full-duplex mode or **H** to set the port to half-duplex mode. In full-duplex mode, the full 100 Mbps of bandwidth is used for data traveling on each direction of the cable. Press <Return> after you enter the Mode. The new mode will take effect; no reset is required.

## Viewing Fast Ethernet Configurations

The **eth100vc** command allows you to view the current status of Fast Ethernet ports in the switch. Entering **eth100vc** displays information similar to the following:

**100BaseT Port Status Table for all slots**

Slot/ Intf	Port Type	Link Mode	Link Type
2/ 1	100BaseTx (4 port)	Half Duplex	Copper
3/ 1	100BaseTx	Full Duplex	Copper
3/ 2	100BaseTx	Full Duplex	Copper
4/ 1	100BaseFx	Full Duplex	Single Mode Fiber
4/ 2	100BaseFx	Full Duplex	Multi Mode Fiber

**Slot/Intf.** The slot and port number (Intf) where this Fast Ethernet port is located.

**Port Type.** Indicates whether this is a 100BaseTx port or a 100BaseFx (fiber) port. Some 100BaseTx ports are actually shared among four RJ-45 connectors. In such cases these ports are identified as **100BaseTx (4 port)** in the table. An example of such a port is shown in the first row of the table above.

**Link Mode.** Indicates whether the port is currently operating in half-duplex or full-duplex mode. The 4-port shared 100BaseTx modules operate only in half-duplex mode. However, other Fast Ethernet modules may be configured to operate in either half- or full-duplex mode. You can configure the mode through the **eth100cfg** command, which is described in the next section.

**Link Type.** Describe the physical interface of the port. The ports will either be copper (100BaseTx) or fiber (100BaseFx). In addition, fiber ports may be either single-mode or multi-mode—this column also indicates the mode of the fiber.

# Selecting the Aggressive Ethernet Back-Off Algorithm

The OmniSwitch supports two Ethernet back-off algorithms. The default is the standard back-off algorithm that complies with IEEE 802.3. The second algorithm is more aggressive. It gives the OmniSwitch priority to transmit onto Ethernet media and lessen the possibility that the switch will drop a packet when the Ethernet media experiences high traffic.

### ◆ Note ◆

This algorithm selection feature is not available on high-density and 10/100 (Mammoth) Ethernet ports.

You can select the aggressive back-off algorithm through a command line within the **mpm.cmd** initialization file. To use the aggressive algorithm, edit the **mpm.cmd** file to add the following line:

```
esmDoMBA=1
```

Make sure you enter this line before the line, **cmlnit**. (Refer to Chapter 11, “Managing Files,” for instructions on how to edit the **mpm.cmd** file.) After adding this line, you must reboot the switch for the change to take effect.

You can also go back to the default IEEE 802.3 back-off algorithm by deleting the **esmDoMBA** line, or by changing the line’s value to **0**, as follows:

```
esmDoMBA=0
```