F through H

fddi frames-per-token

To specify the maximum number of frames that the FDDI interface transmits per token capture, use the **fddiframes-per-token** command in interface configuration mode. To revert to the default value, use the **no** form of this command.

fddi frames-per-token *number*

no fddi frames-per-token

Syntax Description

number	Maximum number of frames to transmit per token capture. Valid values are from 1 to 10. The default is 3.

Command Default

3 frames

Command Modes

Interface configuration

Command History

Release	Modification
11.2 P	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Changing the value will increase or decrease the maximum number of frames that the FDDI interface can transmit when it receives a token. Increasing the value does not necessarily mean more frames will be transmitted on each token capture. This is heavily dependent on the traffic load of the specific interface.

When the interface captures a token, it transmits all of the frames that are queued in the interface's transmit ring, up to a maximum value specified by the**fddiframes-per-token** command.

If there are no frames ready for transmission, the token is passed on, and no frames are transmitted. If there are less than the **fddiframes-per-token**valuein the transmit ring, all frames in the transmit ring are transmitted before the token is passed on. If there are more than the **fddiframes-per-token**value in the transmit ring, the specified value is transmitted before the token is passed on. The remaining frames in the transmit ring remain queued until the token is captured again.

Examples

The following example shows how to configure the FDDI interface to transmit four frames per token capture:

```
Router(config-if)# fddi frames-per-token 4
```

flowcontrol

To configure a port to send or receive pause frames, use the **flowcontrol** command in interface configuration mode. To return to the default settings, use the **no** form of this command.

flowcontrol {**send**| **receive**} {**desired**| **off**| **on**}

no flowcontrol {**send**| **receive**} {**desired**| **off**| **on**}

Syntax Description

send	Specifies that a port sends pause frames.
receive	Specifies that a port processes pause frames.
desired	Obtains predictable results regardless of whether a remote port is set to **on**, **off**, or **desired**.
off	Prevents a local port from receiving and processing pause frames from remote ports or from sending pause frames to remote ports.
on	Enables a local port to receive and process pause frames from remote ports or send pause frames to remote ports.

Command Default

Flow control is disabled.

Flow-control defaults depend upon port speed. The defaults are as follows:

- Gigabit Ethernet ports default to **off** for receive and **desired** for send.
- Fast Ethernet ports default to **off** for receive and **on** for send.
- On the 24-port 100BASE-FX and 48-port 10/100 BASE-TX RJ-45 modules, the default is **off** for receive and **off** for send.
- You cannot configure how WS-X6502-10GE 10-Gigabit Ethernet ports respond to pause frames. WS-X6502-10GE 10-Gigabit Ethernet ports are permanently configured to respond to pause frames.

Command Modes

Interface configuration (config-if)

Command History

Release	Modification
12.2(14)SX	This command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	This command was implemented on the Supervisor Engine 2.

Release	Modification
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB.

Usage Guidelines

The **send** and **desired** keywords are supported on Gigabit Ethernet ports only.

Pause frames are special packets that signal a source to stop sending frames for a specific period of time because the buffers are full.

Gigabit Ethernet ports on the Catalyst 6500 series switches and on the Cisco 7600 series routers use flow control to inhibit the transmission of packets to the port for a period of time; other Ethernet ports use flow control to respond to flow-control requests.

If a Gigabit Ethernet port receive buffer becomes full, the port transmits a “pause” packet that tells remote ports to delay sending more packets for a specified period of time. All Ethernet ports (1000 Mbps, 100 Mbps, and 10 Mbps) can receive and act upon “pause” packets from other devices.

You can configure non-Gigabit Ethernet ports to ignore received pause frames (disable) or to react to them (enable).

When used with the **receive**keyword, the **on** and **desired** keywords have the same result.

All the Gigabit Ethernet ports on the Catalyst 6500 series switches and the Cisco 7600 series routers can receive and process pause frames from remote devices.

To obtain predictable results, follow these guidelines:

- Use **sendon** only when remote ports are set to **receiveon** or **receivedesired**.
- Use **sendoff** only when remote ports are set to **receiveoff** or **receivedesired**.
- Use **receiveon** only when remote ports are set to **sendon** or **senddesired**.
- Use **sendoff** only when remote ports are set to **receiveoff** or **receivedesired**.

Examples

These examples show how to configure the local port to not support any level of flow control by the remote port:

```
Router# configure terminal

Router(config)# interface GigabitEthernet1/9 10.4.9.157 255.255.255.0

Router(config-if)# flowcontrol receive off
Router(config-if)# flowcontrol send off
```

Related Commands

Command	Description
show interfaces flowcontrol	Displays flow-control information.

full-duplex

To specify full-duplex mode on full-duplex single-mode and multimode port adapters, use the **full-duplex**command in interface configuration mode. To restore the default half-duplex mode, use the **no** form of this command.

full-duplex

no full-duplex

Syntax Description

This command has no arguments or keywords.

Command Default

Half-duplex; a Fast Ethernet Interface Processor (FEIP), and serial interfaces that are configured for bisynchronous tunneling

Command Default

Autonegotiation

Command Modes

Interface configuration

Command History

Release	Modification
11.1	This command was introduced.
11.3	This command was modified to include information on FDDI full-duplex, single-mode, and multimode port adapters.
12.2(31)SB	This command was integrated into Cisco IOS Release 12.2(31)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

Use this command if the equipment on the other end is capable of full-duplex mode.

This command specifies full-duplex mode on full-duplex single-mode and multimode port adapters available on the following networking devices:

- Cisco 7200 series routers
- Second-generation Versatile Interface Processors (VIP2s) in Cisco 7500 series routers
- FEIP ports

- Serial interface ports that uses bisynchronous tunneling

Refer to the *CiscoProductCatalog* for hardware compatibility information and for specific model numbers of port adapters.

To enable half-duplex mode, use the **nofull-duplex** or **half-duplex** command.

Note For the Cisco AS5300, the **duplexfull**| **halfauto**} command replaces the **full-duplex** and **half-duplex** commands. You will get the following error messages if you try to use the **full-duplex** and **half-duplex** commands on a Cisco AS5300: Router(config)# **interfacefastethernet0** Router(config-if)# **full-duplex** Please use duplex command to configure duplex mode Router(config-if)# Router(config-if)# **half-duplex** Please use duplex command to configure duplex mode

Support for This Command

Use the question mark (?) command to find out which port adapters support this command. If the interface does not support full-duplex, an informational message displayed, and no changes are made to the interface. To determine if the interface supports full-duplex, use the **showinterfaces**command. For example, the following message is displayed if the interface does not support full-duplex:

```
% interface does not support full-duplex.
```

Use on FDDI

Full-duplex on the FDDI full-duplex port adapters allows an FDDI ring with exactly two stations to transform the ring into a full-duplex, point-to-point topology. For the interface to operate in full-duplex mode, there must be only two stations on the ring, the two stations must be capable of operating in full-duplex mode, and both stations must complete a full-duplex autoconfiguration protocol. There is no FDDI token in full-duplex mode. Refer to the *CiscoProductCatalog* for specific model numbers of port adapters.

Full-duplex autoconfiguration protocol allows an FDDI station to dynamically and automatically operate in either half-duplex (or ring) or full-duplex mode, and ensures that the stations fall back to ring mode when a configuration change occurs, such as a third station joining the ring.

After booting the router, the FDDI stations begin operation in half-duplex mode. While the station performs the full-duplex autoconfiguration protocol, the station continues to provide data-link services to its users. Under normal conditions, the transition between half-duplex mode and full-duplex mode is transparent to the data-link users. The data-link services provided by full-duplex mode are functionally the same as the services provided by half-duplex mode.

If you change the full-duplex configuration (for example, from disabled to enabled) on supported interfaces, the interface resets.

Cisco 10000 Series Router

The Fast Ethernet line card responds only to 802.3x pause frames from another device when it autonegotiates the duplex mode (the default). The line card does not support 802.3x flow control when you manually set half-duplex or full-duplex mode.

Examples

Examples

The following example configures full-duplex mode on the Cisco 7200 series routers:

```
Router(config)# interface fastethernet 0/1
Router(config-if)# full-duplex
```

Examples

The following example specifies full-duplex binary synchronous communications (Bisync) mode:

```
Router(config)# interface serial 0
Router(config-if)# encapsulation bstun
Router(config-if)# full-duplex
```

Examples

The following example enables full-duplex mode on FDDI interface 0:

```
Router(config)# interface fddi 0/1/0
Router(config-if)# full-duplex
```

Related Commands

Command	Description
half-duplex	Specifies half-duplex mode on an SDLC interface or on the FDDI full-duplex, single-mode port adapter and FDDI full-duplex, multimode port adapter on the Cisco 7200 series and Cisco 7500 series routers.
interface	Configures an interface type and enters interface configuration mode.
interface fastethernet	Selects a particular Fast Ethernet interface for configuration.
interface serial	Specifies a serial interface created on a channelized E1 or channelized T1 controller (for ISDN PRI, CAS, or robbed-bit signaling).
show interfaces	Displays statistics for all interfaces configured on the router or access server.
show interfaces fddi	Displays information about the FDDI interface.

hub

To enable and configure a port on an Ethernet hub of a Cisco 2505 or Cisco 2507 router, use the **hub** command in global configuration mode.

hub ethernet *number port* [*end-port*]

Syntax Description

ethernet	Indicates that the hub is in front of an Ethernet interface.
number	Hub number, starting with 0. Because there is only one hub, this number is 0.
port	Port number on the hub. On the Cisco 2505 router, port numbers range from 1 to 8. On the Cisco 2507 router, port numbers range from 1 to 16. If a second port number follows, then this port number indicates the beginning of a port range.
end-port	(Optional) Last port number of a range.

Command Default

No hub ports are configured.

Command Modes

Global configuration

Command History

Release	Modification
10.3	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

This command does not have a **no** form.

Examples

The following example enables port 1 on hub 0:

```
Router# hub ethernet 0 1
Router(config-hub)# no shutdown
```

The following example enables ports 1 through 8 on hub 0:

```
Router# hub ethernet 0 1 8
Router(config-hub)# no shutdown
```

Related Commands

Command	Description
shutdown (hub)	Shuts down a port on an Ethernet hub of a Cisco 2505 or Cisco 2507 router.