show service-module serial through standby port

snmp trap illegal-address

To issue a Simple Network Management Protocol (SNMP) trap when a MAC address violation is detected on an Ethernet hub port of a Cisco 2505, Cisco 2507, or Cisco 2516 router, use the **snmptrapillegal-address** command in hub configuration mode. To disable this function, use the **no** form of this command.

snmp trap illegal-address

no snmp trap illegal-address

Syntax Description

This command has no arguments or keywords.

Command Default

No SNMP trap is issued.

Command Modes

Hub configuration

Command History

Release	Modification
11.1	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

In addition to setting the **snmptrapillegal-address**command on the Ethernet hub, you can set the frequency that the trap is sent to the network management station (NMS). This is done on the NMS via the Cisco Repeater MIB. The frequency of the trap can be configured for once only or at a decaying rate (the default). If the decaying rate is used, the first trap is sent immediately, the second trap is sent after one minute, the third trap is sent after two minutes, and so on until 32 minutes, at which time the trap is sent every 32 minutes. If you use a decaying rate, you can also set the trap acknowledgment so that the trap will be acknowledged after it is received and will no longer be sent to the network management station.

Because traps are not reliable, additional information on a port basis is provided by the Cisco Repeater MIB. The network management function can query the following information: the last illegal MAC source address, the illegal address trap acknowledgment, the illegal address trap enabled, the illegal address first heard (timestamp), the illegal address last heard (timestamp), the last illegal address trap count for the port, and the illegal address trap total count for the port.

In addition to issuing a trap when a MAC address violation is detected, the port is also disabled as long as the MAC address is invalid. The port is enabled and the trap is no longer sent when the MAC address is valid (that is, either the address was configured correctly or learned).

Examples

The following example enables an SNMP trap to be issued when a MAC address violation is detected on hub ports 2, 3, or 4. SNMP support must already be configured on the router.

```
Router(config)#
 hub ethernet 0 2 4
Router(config-hub)#
 snmp trap illegal-address
```

Related Commands

Command	Description
hub	Enables and configures a port on an Ethernet hub of a Cisco 2505 or Cisco 2507 router.

speed

To configure the speed for a Fast Ethernet or Gigabit Ethernet interface, use the **speed** command in interface configuration mode. To return to the default setting, use the **no** form of this command.

speed {**10**| **100**| **1000 [negotiate]**| **auto** [*speed-list*]}

no speed

Syntax Description

10	Configures the interface to transmit at 10 Mbps.
100	Configures the interface to transmit at 100 Mbps.
1000	Configures the interface to transmit at 1000 Mbps. This keyword is valid only for interfaces that support Gigabit Ethernet.
auto	Enables Fast Ethernet autonegotiation. The interface automatically operates at 10 Mbps or 100 Mbps depending on environmental factors, such as the type of media and transmission speeds for the peer routers, hubs, and switches used in the network configuration. Autonegotiation is the default.
nonegotiate	(Optional) Enables or disables the link-negotiation protocol on the Gigabit Ethernet ports.
speed-list	(Optional) Speed autonegotiation capability to a specific speed; see the "Usage Guidelines" section for valid values.

Command Default

auto

Command Modes

Interface configuration

Command History

Release	Modification
11.2(10)P	This command was introduced.
12.1(7)E	The **1000** keyword was added for Gigabit Ethernet interfaces.
12.2S	This command was integrated into Cisco IOS Release 12.2 S.

Release	Modification
12.2(20)S2	This command was implemented on the 4-Port 10/100 Fast Ethernet SPA and the 2-Port 10/100/1000 Gigabit Ethernet SPA on the Cisco 7304 router.
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17a)SX	This command was changed to include the *speed-list* argument.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to the 12.2 SX release.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Use the **speed** [**10** | **100**] command for 10/100 ports, the **speedauto** [**10100** [**1000**]] c ommand for 10/100/1000 ports, and the **speed** [**1000** | **nonegotiate**] command for Gigabit Ethernet ports.

Cisco 7600 Series Routers

Cisco 7600 series routers cannot automatically negotiate interface speed and duplex mode if either connecting interface is configured to a value other than **auto**.

Ethernet Interfaces

If you set the Ethernet interface speed to **auto** on a 10/100-Mbps or 10/100/1000-Mbps Ethernet interface, both speed and duplex are autonegotiated.

Gigabit Ethernet Interfaces

The Gigabit Ethernet interfaces are full duplex only. You cannot change the duplex mode on the Gigabit Ethernet interfaces or on a 10/100/1000-Mbps interface that is configured for Gigabit Ethernet.

SPA Interfaces

The **speed** command applies to SPA interfaces that are using RJ-45 media. Gigabit Ethernet interfaces using fiber media support 1000-Mbps speed only, and use the **negotiation** command to enable and disable autonegotiation.

See also Flow Control in this Usage Guidelines section.

Speed Command Syntax Combinations

The table below lists the supported command options by interface.

Table 1: Supported speed Command Options

Interface Type	Supported Syntax	Default Setting	Usage Guidelines
10/100-Mbps module	**speed** [**10** | **100** **speed auto** [**10** | **100**	**auto**	If the speed is set to **auto**, you cannot set **duplex**. If the speed is set to **10** or **100**, and you do not configure the duplex setting, the duplex is set to **half.**

Interface Type	Supported Syntax	Default Setting	Usage Guidelines
10/100/1000-Mbps interface	**speed** auto [{ 10 100} [1000]]	**auto**	If the speed is set to **auto**, you cannot set **duplex**. If the speed is set to **10** or **100**, and you do not configure the duplex setting, the duplex is set to **half** by default . If the speed is set to **10100**, the interface is not forced to half duplex by default.
100-Mbps fiber modules	Factory set	Not applicable.	
Gigabit Ethernet module	**speed** [**1000** | **nonegotiate**	Speed is 1000 or negotiation is enabled.	Speed, duplex, flow control, and clocking negotiations are enabled.
10-Mbps ports	Factory set	Not applicable.	

Autonegotiation

To enable the autonegotiation capability on an RJ-45 interface, you must set either the **speed** command or the **duplex** command to **auto**. The default configuration is that both commands are set to **auto**.

If you need to force an interface port to operate with certain settings and therefore disable autonegotiation, you must be sure that the remote link is configured for compatible link settings for proper transmission. This includes support of flow control on the link.

When you enable link negotiation, the speed, duplex, flow control, and clocking negotiations between two Gigabit Ethernet ports are automatically enabled.

Flow Control

Flow control support is always advertised when autonegotiation is enabled.

Every interface on a 4-Port 10/100 Fast Ethernet SPA supports transmission of pause frames to stop packet flow when the MSC is full. You cannot disable flow control for an interface on the 4-Port 10/100 Fast Ethernet SPA. Therefore, flow control support is not configurable, but it is advertised during autonegotiaton.

If you disable autonegotiation, then you must be sure that the remote device is configured to support flow control because flow control is automatically enabled for all interfaces on the 4-Port 10/100 Fast Ethernet SPA.

Speed Settings

Separate the *speed-list* entries with a space.

When manually configuring the interface speed to either 10 or 100 Mbps, the switch prompts you to configure duplex mode on the interface.

The following *speed-list*configurations are supported:

- **speed auto** --Negotiate all speeds.

- **speed auto 10 100** --Negotiate 10 and 100 speeds only.
- **speed auto 10 100 1000** --Negotiate all speeds.

Speed and Duplex Combinations

The table below describes the interface behavior for various combinations of the **duplex** and **speed** command settings. The specified **duplex** command configured with the specified **speed** command produces the resulting system action.

If you decide to configure the interface speed and duplex commands manually, and enter a value other than **speedauto** (for example, 10 or 100 Mbps), ensure that you configure the connecting interface speed command to a matching speed but do not use the **auto** keyword.

If you specify both a **duplex** and **speed** setting other than **auto**on an RJ-45 interface, then autonegotiation is disabled for the interface.

You cannot set the duplex mode to **half** when the port speed is set at 1000 and similarly, you cannot set the port speed to **1000** when the mode is set to half duplex. In addition, if the port speed is set to **auto**, the **duplex** command is rejected.

Caution Changing the interface speed and duplex mode might shut down and reenable the interface during the reconfiguration.

Table 2: Relationship Between duplex and speed Commands

duplex Command	speed Command	Resulting System Action
duplex auto	**speed auto**	Autonegotiates both speed and duplex mode. The interface advertises capability for the following link settings: • 10 Mbps and half duplex • 10 Mbps and full duplex • 100 Mbps and half duplex • 100 Mbps and full duplex • 1000 Mbps and half duplex (Gigabit Ethernet only) • 1000 Mbps and full duplex (Gigabit Ethernet only)

duplex Command	speed Command	Resulting System Action
duplex auto	**speed 10** or**speed100**or**speed1000**	Autonegotiates the duplex mode. The interface advertises capability for the configured speed with capability for both half-duplex or full-duplex mode. For example, if the **speed100**command is configured with **duplexauto**, then the interface advertises the following capability: • 100 Mbps and half duplex • 100 Mbps and full duplex
duplex half or**duplexfull**	**speed auto**	Autonegotiates the speed. The interface advertises capability for the configured duplex mode with capability for both 10-Mbps or 100-Mbps operation for Fast Ethernet interfaces, and 10-Mbps, 100-Mbps, and 1000-Mbps for Gigabit Ethernet interfaces. For example, if the **duplexfull**command is configured with the **speedauto** command, then the interface advertises the following capability: • 10 Mbps and full duplex • 100 Mbps and full duplex • 1000 Mbps and full duplex (Gigabit Ethernet interfaces only)
duplex half	**speed 10**	Forces 10-Mbps and half-duplex operation, and disables autonegotiation on the interface.
duplex full	**speed 10**	Forces 10-Mbps and full-duplex operation, and disables autonegotiation on the interface.
duplex half	**speed 100**	Forces 100-Mbps and half-duplex operation, and disables autonegotiation on the interface.

duplex Command	speed Command	Resulting System Action
duplex full	**speed 100**	Forces 100-Mbps and full-duplex operation, and disables autonegotiation on the interface.
duplex half	**speed 1000**	Forces 1000-Mbps and half-duplex operation, and disables autonegotiation on the interface (Gigabit Ethernet only).
duplex full	**speed 1000**	Forces 1000-Mbps and full-duplex operation, and disables autonegotiation on the interface (Gigabit Ethernet only).

Examples

The following example specifies advertisement of 10 Mbps operation only, and either full-duplex or half-duplex capability during autonegotiation for the second interface (port 1) on the SPA located in the bottom subslot (1) of the MSC that is installed in slot 2 of the Cisco 7304 router:

```
Router# configure terminal
Router(config)# interface fastethernet 2/1/1
Router(config-if)# speed 10
Router(config-if)# duplex auto
```

With this configuration, the interface advertises the following capabilities during autonegotiation:

- 10 Mbps and half duplex
- 10 Mbps and full duplex

Related Commands

Command	Description
duplex	Configures the duplex operation on an interface.
interface fastethernet	Selects a particular Fast Ethernet interface for configuration.
interface gigabitethernet	Selects a particular Gigabit Ethernet interface for configuration.
show controllers fastethernet	Displays Fast Ethernet interface information, transmission statistics and errors, and applicable MAC destination address and VLAN filtering tables.
show controllers gigabitethernet	Displays Gigabit Ethernet interface information, transmission statistics and errors, and applicable MAC destination address and VLAN filtering tables.

Command	Description
show interfaces fastethernet	Displays information about the Fast Ethernet interfaces.
show interfaces gigabitethernet	Displays information about the Gigabit Ethernet interfaces.