Configuring Auto Media Sense

Cisco ASR 920 Series (ASR-920-12CZ-A and ASR-920-12CZ-D) supports eight dual media ports. The dual media ports can operate either in RJ45 mode or in SFP (fiber) mode. The AMS detects the presence of a link activity on any of the media dual ports, and enables the link for communication. By default, if there is no link connection, the link state goes down. When media is connected, the AMS detects the connection, establishes the link, and brings the link state to UP. When for the same port, both RJ45 and fiber links are connected, the port goes UP in the fiber mode.

Restrictions for Configuring Auto Media Sense

- When the media-type is changed from RJ45 to SFP or vice versa with 100% line rate, the port goes DOWN. The workaround is to stop the traffic, and to perform shut/no shut operation on the port.
- By default, the auto negotiation is always enabled when the media-type is selected as auto-select.
- For ports 4 to 11, the same port cannot be used as RJ45 or SFP at the same time.

Information About Auto Media Sense

Dual-media is the support given at the PHY level. The Cisco ASR 920 Series (ASR-920-12CZ-A and ASR-920-12CZ-D) supports eight dual media ports. All the media type modes are driven through IOS Interface configuration command:

- Media-type 'auto' is for auto-media sense
- Media-type 'rj45' is for rj45 mode
- Media-type 'sfp' is for SFP mode.

Port numbers from 4 - 11 can operate either in RJ45 or in Fiber mode.

Table 1: Cisco ASR 920 Series Front Panel Port mapping

1G SFP Only	1G AMS Ports	10G SFP+

1	3	5	7	9	11	5x	7x	9x	11x	13
0	2	4	6	8	10	4x	6x	8x	10x	12

How to Configure Auto Media Sense

Configuring Media-Type

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *interface-id*
4. **media-type** {**auto-select** | **rj45** | **sfp**}
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**interface** *interface-id* **Example:** `Router(config)# interface gigabitEthernet 0/0/5`	Specify the dual-media port to be configured, and enter interface configuration mode.
Step 4	**media-type** {**auto-select**	**rj45**	**sfp**} **Example:** `Router (config-if)# media-type sfp`	Select the interface and type of a dual-media uplink port. The keywords mean the following: • **auto-select**—The switch dynamically selects the type. When both RJ-45 and SFP modules are up, port goes UP in SFP mode. The port switches over to RJ-45 mode, when the link in SFP module goes down. When the SFP module link is up, the mode is switched back from RJ-45 to SFP. In auto-select mode, the switch configures both types with autonegotiation of speed and duplex (the default).This is the default media-type configured on the AMS port. • **rj45**—The switch disables the SFP module interface. If you connect an SFP module to this port, it cannot attain a link even if the RJ-45 side is down or is not

	Command or Action	Purpose
		connected. In this mode, the dual-purpose port behaves like a 10/100/1000BASE-TX interface. You can configure the speed and duplex settings consistent with this interface type. • **sfp**—The switch disables the RJ-45 interface. If you connect a cable to the RJ-45 port, it cannot attain a link even if the SFP module side is down or if the SFP module is not present. Based on the type of installed SFP module, you can configure the speed and duplex settings consistent with this interface type.
Step 5	**end** **Example:** `Router(config-if)# end`	Return to privileged EXEC mode.

Configuration Example

```
Router> enable
Router# configure terminal
Router(config)# interface gigabitEthernet 0/0/5
Router (config-if)# media-type sfp
Router(config-if)# end
```

Verifying Media-Type

SUMMARY STEPS

1. **enable**
2. **show running-config interface** *interface-id*
3. **show interface** *interface-id*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**show running-config interface** *interface-id* **Example:** `Router> show running-config interface gigabitEthernet 0/0/6`	This displays the media-type configured on the port.

	Command or Action	Purpose
Step 3	**show interface** *interface-id* **Example:** `Router> show interface gigabitEthernet 0/0/6`	This displays the media-type in which the port is operating.

Example for Verifying Media-Type Configuration

This example shows how to verify the media-type configuration

```
 Part I

Router> enable
Router>show running-config interface gigabitEthernet 0/0/5
Building configuration...

Current configuration : 95 bytes
!
interface GigabitEthernet0/0/5
 no ip address
 media-type auto-select
 negotiation auto
Router> end



Part II

Router> enable
Router> show interfaces gigabitEthernet 0/0/5
GigabitEthernet0/0/5 is up, line protocol is up
  Hardware is 12xGE-2x10GE-FIXED, address is badb.adba.de85 (bia badb.adba.de85)
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full Duplex, 1000Mbps, link type is auto, media type is SX
  output flow-control is off, input flow-control is on
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/375/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo.

Router> end
```

Note The media type is:

- SX—when GLC-SX-SMD is connected.
- ZX—when GLC-ZX-SMD is connected.
- RJ45—when copper mode is connected.

Troubleshooting Media-Type Configuration

The **show platform software agent iomd 0/0 phy <port_num> 1 14** command is used to determine the media-type at the PHY level for a specific port.

```
Router> enable
Router# show platform software agent iomd 0/0 phy 5 1 14

Port Number: 5
Device/Page: 0x1
Register   : 0x14
Value      : 0xa084
```

Note The value of the register determines the media-type configuration:

- 0xa084—then port is operating in SFP mode.
- 0xa045—then the port is operating in RJ45 mode.