Advanced Configuration and Modification of the Management Ethernet Interface

This module describes the configuration of Management Ethernet interfaces.

Before you can use Telnet to access the router through the LAN IP address, you must set up a Management Ethernet interface and enable Telnet servers, as described in the *Configuring General Router Features* module of the *Cisco ASR 9000 Series Router Getting Started Guide*. This module describes how to modify the default configuration of the Management Ethernet interface after it has been configured, as described in the *Cisco ASR 9000 Series Router*

Note In 32-bit IOS XR OS, the management interfaces are available from XR VM. In 64-bit IOS XR OS, the Management ports on the RP/RSP are available as follows:

- MGT LAN 0 is available in XR VM.

- MGT LAN 1 is available in Admin VM.

Note Forwarding between physical layer interface modules (PLIM) ports and Management Ethernet interface ports is disabled by default. To enable forwarding between PLIM ports and Management Ethernet interface ports, use the **rp mgmtethernet forwarding** command.

Note Although the Management Ethernet interfaces on the system are present by default, the user must configure these interfaces to use them for accessing the router, using protocols and applications such as Simple Network Management Protocol (SNMP), Common Object Request Broker Architecture (CORBA), HTTP, extensible markup language (XML), TFTP, Telnet, and command-line interface (CLI).

Feature History for Configuring Management Ethernet Interfaces

Release	Modification
Release 2.0	This feature was introduced on theCisco CRS-1 Router.

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| Release 3.7.2 | This feature was introduced. |

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Prerequisites for Configuring Management Ethernet Interfaces

You must be in a user group associated with a task group that includes the proper task IDs. The command reference guides include the task IDs required for each command. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Before performing the Management Ethernet interface configuration procedures that are described in this chapter, be sure that the following tasks and conditions are met:

- You have performed the initial configuration of the Management Ethernet interface, as described in the *Configuring General Router Features* module of the *Cisco ASR 9000 Series Router Getting Started Guide*.

- You must be in a user group associated with a task group that includes the proper task IDs. The command reference guides include the task IDs required for each command.

- You know how to apply the generalized interface name specification *rack/slot/module/port*.

  For further information on interface naming conventions, refer to the *Cisco ASR 9000 Series Router Getting Started Guide*.

Note   For transparent switchover, both active and standby Management Ethernet interfaces are expected to be physically connected to the same LAN or switch.

Information About Configuring Management Ethernet Interfaces

To configure Management Ethernet interfaces, you must understand the following concept:

Default Interface Settings

This table describes the default Management Ethernet interface settings that can be changed by manual configuration. Default settings are not displayed in the **show running-config** command output.

Table 1: Management Ethernet Interface Default Settings

Parameter	Default Value	Configuration File Entry
Speed in Mbps	Speed is autonegotiated.	**speed** [**10** | **100** | **1000**] To return the system to autonegotiate speed, use the **no speed** [**10** | **100** | **1000**] command.

Parameter	Default Value	Configuration File Entry
Duplex mode	Duplex mode is autonegotiated.	**duplex** {**full**	**half**} To return the system to autonegotiated duplex operation, use the **no duplex {full	half}** command, as appropriate.
MAC address	MAC address is read from the hardware burned-in address (BIA).	**mac-address** address To return the device to its default MAC address, use the **no mac-address** address command.

How to Perform Advanced Management Ethernet Interface Configuration

This section contains the following procedures:

Configuring a Management Ethernet Interface

Perform this task to configure a Management Ethernet interface. This procedure provides the minimal configuration required for the Management Ethernet interface.

The MTU is not configurable for the Management Ethernet Interface. The default value is 1514 bytes.

Note You do not need to perform this task if you have already set up the Management Ethernet interface to enable telnet servers, as described in the "*Configuring General Router* Features" *Features*module of the *Cisco ASR 9000 Series Router Getting Started Guide*.

SUMMARY STEPS

1. **configure**
2. **interface MgmtEth** *interface-path-id*
3. **ipv4 address** *ip-address mask*
4. **mtu** *bytes*
5. **no shutdown**
6. **end** or **commit**
7. **show interfaces MgmtEth** *interface-path-id*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:**	Enters global configuration mode.

	Command or Action	Purpose
	`RP/0/RSP0/CPU0:router# configure`	
Step 2	**interface MgmtEth** *interface-path-id* **Example:** `RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RSP0/CPU0/0`	Enters interface configuration mode and specifies the Ethernet interface name and notation *rack*/*slot*/*module*/*port*. The example indicates port 0 on the RSP card that is installed in slot 0.
Step 3	**ipv4 address** *ip-address mask* **Example:** `RP/0/RSP0/CPU0:router(config-if)# ipv4 address 172.18.189.38 255.255.255.224`	Assigns an IP address and subnet mask to the interface. • Replace *ip-address* with the primary IPv4 address for the interface. • Replace *mask* with the mask for the associated IP subnet. The network mask can be specified in either of two ways: • The network mask can be a four-part dotted decimal address. For example, 255.0.0.0 indicates that each bit equal to 1 means that the corresponding address bit belongs to the network address. • The network mask can be indicated as a slash (/) and number. For example, /8 indicates that the first 8 bits of the mask are ones, and the corresponding bits of the address are network address.
Step 4	**mtu** *bytes* **Example:** `RP/0//CPU0:router(config-if# mtu 1448`	(Optional) Sets the maximum transmission unit (MTU) byte value for the interface. The default is 1514. • The default is 1514 bytes. • The range for the Management Ethernet interface Interface **mtu** values is 64 to 1514 bytes.
Step 5	**no shutdown** **Example:** `RP/0/RSP0/CPU0:router(config-if)# no shutdown`	Removes the shutdown configuration, which removes the forced administrative down on the interface, enabling it to move to an up or down state.

Step 6	**end** or **commit**
	
	Example:
	
	`RP/0/RSP0/CPU0:router(config-if)# end`
	
	or
	
	`RP/0/RSP0/CPU0:router(config-if)# commit`
		Saves configuration changes.
		
		• When you issue the **end** command, the system prompts you to commit changes:
		
		`Uncommitted changes found, commit them before exiting(yes/no/cancel)?`
		`[cancel]:`
		
		• Entering **yes** saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode.

	Command or Action	**Purpose**
		• Entering **no** exits the configuration session and returns the router to EXEC mode without committing the configuration changes.
		• Entering **cancel** leaves the router in the current configuration session without exiting or committing the configuration changes.
		• Use the **commit** command to save the configuration changes to the running configuration file and remain within the configuration session.
Step 7	**show interfaces MgmtEth** *interface-path-id* **Example:** RP/0/RSP0/CPU0:router# show interfaces MgmtEth 0/RSP0/CPU0/0	(Optional) Displays statistics for interfaces on the router.

IPv6 Stateless Address Auto Configuration on Management Interface

The IPv6 Stateless Address Auto Configuration (SLAAC) is used to automatically assign IPv6 addresses to the host interfaces. This functionality can be used when the exact addresses used by the host need not be specific, as long as they are unique and properly routable. SLAAC helps in automating provisioning of the router.

IPv6 auto configuration is disabled by default. Perform this task to enable IPv6 SLAAC. The SLAAC functionality has to be enabled from the Management interface.

SUMMARY STEPS

1. **configure**
2. **interface MgmtEth** *interface-path-id*
3. **ipv6 address autoconfig**
4. **show ipv6 interfaces** *interface-path-id*

DETAILED STEPS

Step 1 **configure**

Example:

RP/0/RSP0/CPU0:router# configure

Enters global configuration mode.

Step 2 **interface MgmtEth** *interface-path-id*

Example:

RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RP0/CPU0/0

Enters interface configuration mode on the specified Management Ethernet interface. Use the notation *rack/slot/module/port*. This example indicates port 0 on the RP card that is installed in slot 0.

Step 3   **ipv6 address autoconfig**

Example:

```
RP/0/RSP0/CPU0:router(config-if)# ipv6 address autoconfig
```

Enable IPv6 stateless address auto configuration on the management port.

Step 4   **show ipv6 interfaces** *interface-path-id*

Example:

```
RP/0/RSP0/CPU0:router# show ipv6 interfaces gigabitEthernet 0/2/0/0
```

Displays statistics for interfaces on the router. You can see in the output shown below that IPv6 is enabled and the IPv6 addresses has been auto configured.

Example

This example displays how to enable IPv6 SLAAC auto configuration on management interface:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RP0/CPU0/1
RP/0/RSP0/CPU0:router(config)# ipv6 address autoconfig
RP/0/RSP0/CPU0:router# show ipv6 interfaces MgmtEth 0/RP0/CPU0/1

MgmtEth0/RSP0/CPU0/1 is Up, ipv6 protocol is Up, Vrfid is default (0x60000000)
  IPv6 is enabled, link-local address is fe80::cecc:ccff:fecc:cccc
  Global unicast address(es):
    25::cecc:ccff:fecc:cccc, subnet is 25::/64
    2020:abcd:1234:1001:cecc:ccff:fecc:cccc, subnet is 2020:abcd:1234:1001::/64
    20::cecc:ccff:fecc:cccc, subnet is 20::/64
    447::cecc:ccff:fecc:cccc, subnet is 447::/64
    448::cecc:ccff:fecc:cccc, subnet is 448::/64
    13::cecc:ccff:fecc:cccc, subnet is 13::/64
    3457::cecc:ccff:fecc:cccc, subnet is 3457::/64
    19::cecc:ccff:fecc:cccc, subnet is 19::/64
  Joined group address(es): ff02::1:ffcc:cccc ff02::2 ff02::1
  MTU is 1514 (1500 is available to IPv6)
  ICMP redirects are disabled
  ICMP unreachables are enabled
  ND DAD is enabled, number of DAD attempts 1
  ND reachable time is 0 milliseconds
  ND cache entry limit is 1000000000
  ND advertised retransmit interval is 0 milliseconds
  Hosts use stateless autoconfig for addresses.
  Outgoing access list is not set
  Inbound  common access list is not set, access list is not set
  Table Id is 0xe0800000
  Complete protocol adjacency: 2
  Complete glean adjacency: 0
  Incomplete protocol adjacency: 0
  Incomplete glean adjacency: 0
```

```
Dropped protocol request: 0
Dropped glean request: 0
```

Configuring the Duplex Mode for a Management Ethernet Interface

Perform this task to configure the duplex mode of the Management Ethernet interfaces for the RPs.

SUMMARY STEPS

1. **configure**
2. **interface MgmtEth** *interface-path-id*
3. **duplex** [**full** | **half**]
4. **end** or **commit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** RP/0/RSP0/CPU0:router# configure	Enters global configuration mode.
Step 2	**interface MgmtEth** *interface-path-id* **Example:** RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RSP0/CPU0/0	Enters interface configuration mode and specifies the Management Ethernet interface name and instance.
Step 3	**duplex** [**full**	**half**] **Example:** RP/0/RSP0/CPU0:router(config-if)# duplex full	Configures the interface duplex mode. Valid options are **full** or **half**. **Note** • To return the system to autonegotiated duplex operation, use the **no duplex** command.
Step 4	**end** or **commit** **Example:** RP/0/RSP0/CPU0:router(config-if)# end or RP/0/RSP0/CPU0:router(config-if)# commit	Saves configuration changes. • When you issue the **end** command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]: • Entering **yes** saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode. • Entering **no** exits the configuration session and returns the router to EXEC mode without committing the configuration changes.

Command or Action	Purpose
	• Entering **cancel** leaves the router in the current configuration session without exiting or committing the configuration changes. • Use the **commit** command to save the configuration changes to the running configuration file and remain within the configuration session.

Configuring the Speed for a Management Ethernet Interface

Perform this task to configure the speed of the Management Ethernet interfaces for the RPs.

SUMMARY STEPS

1. **configure**
2. **interface MgmtEth** *interface-path-id*
3. **speed** {**10** | **100** | **1000**}
4. **end** or **commit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** `RP/0/RSP0/CPU0:router# configure`	Enters global configuration mode.
Step 2	**interface MgmtEth** *interface-path-id* **Example:** `RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RSP0/CPU0/0`	Enters interface configuration mode and specifies the Management Ethernet interface name and instance.
Step 3	**speed** {**10**	**100**	**1000**} **Example:** `RP/0/RSP0/CPU0:router(config-if)# speed 100`	Configures the interface speed parameter. On a Cisco ASR 9000 Series Router, valid options are 10 or 100 Mbps. **Note** • The default Management Ethernet interface speed is autonegotiated. • To return the system to the default autonegotiated speed, use the **no speed** command.
Step 4	**end** or **commit** **Example:**	Saves configuration changes.

Command or Action	Purpose

RP/0/RSP0/CPU0:router(config-if)# end
 	
or
 	
RP/0/RSP0/CPU0:router(config-if)# commit
	• When you issue the **end** command, the system prompts you to commit changes:
	
	`Uncommitted changes found, commit them before`
	` exiting(yes/no/cancel)?`
	`[cancel]:`
	
	• Entering **yes** saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode.
	
	• Entering **no** exits the configuration session and returns the router to EXEC mode without committing the configuration changes.
	
	• Entering **cancel** leaves the router in the current configuration session without exiting or committing the configuration changes.
	
	• Use the **commit** command to save the configuration changes to the running configuration file and remain within the configuration session.

Modifying the MAC Address for a Management Ethernet Interface

Perform this task to configure the MAC layer address of the Management Ethernet interfaces for the RPs.

SUMMARY STEPS

1. **configure**
2. **interface MgmtEth** *interface-path-id*
3. **mac-address** *address*
4. **end** or **commit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** RP/0/RSP0/CPU0:router# configure	Enters global configuration mode.
Step 2	**interface MgmtEth** *interface-path-id* **Example:** RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RSP0/CPU0/0	Enters interface configuration mode and specifies the Management Ethernet interface name and instance.

	Command or Action	**Purpose**
Step 3	**mac-address** *address* **Example:** RP/0/RSP0/CPU0:router(config-if)# mac-address 0001.2468.ABCD	Configures the MAC layer address of the Management Ethernet interface. **Note** • To return the device to its default MAC address, use the **no mac-address** address command.
Step 4	**end** or **commit** **Example:** RP/0/RSP0/CPU0:router(config-if)# end or RP/0/RSP0/CPU0:router(config-if)# commit	Saves configuration changes. • When you issue the **end** command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]: • Entering **yes** saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode. • Entering **no** exits the configuration session and returns the router to EXEC mode without committing the configuration changes. • Entering **cancel** leaves the router in the current configuration session without exiting or committing the configuration changes. • Use the **commit** command to save the configuration changes to the running configuration file and remain within the configuration session.

Verifying Management Ethernet Interface Configuration

Perform this task to verify configuration modifications on the Management Ethernet interfaces for the RPs.

SUMMARY STEPS

1. **show interfaces MgmtEth** *interface-path-id*
2. **show running-config interface MgmtEth** *interface-path-id*

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**show interfaces MgmtEth** *interface-path-id* **Example:** RP/0/RSP0/CPU0:router# show interfaces MgmtEth 0/RSP0/CPU0/0	Displays the Management Ethernet interface configuration.

	Command or Action	Purpose
Step 2	**show running-config interface MgmtEth** *interface-path-id*	Displays the running configuration.
	Example:	
	`RP/0/RSP0/CPU0:router# show running-config interface MgmtEth 0/RSP0/CPU0/0`	

Configuration Examples for Management Ethernet Interfaces

This section provides the following configuration examples:

Configuring a Management Ethernet Interface: Example

This example displays advanced configuration and verification of the Management Ethernet interface on the RP:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RSP0RP0
RP/0/RSP0/CPU0:router(config)# ipv4 address 172.29.52.70 255.255.255.0
RP/0/RSP0/CPU0:router(config-if)# speed 100
RP/0/RSP0/CPU0:router(config-if)# duplex full
RP/0/RSP0/CPU0:router(config-if)# no shutdown
RP/0/RSP0/CPU0:router(config-if)# commit
RP/0/RSP0/CPU0:Mar 26 01:09:28.685 :ifmgr[190]:%LINK-3-UPDOWN :Interface MgmtEth0/RSP0/CPU0/0,
 changed state to Up
RP/0/RSP0/CPU0:router(config-if)# end

RP/0/RSP0/CPU0:router# show interfaces MgmtEth 0/RSP0RP0

MMgmtEth0/RSP0/CPU0/0 is up, line protocol is up
  Hardware is Management Ethernet, address is 0011.93ef.e8ea (bia 0011.93ef.e8ea
)
  Description: Connected to Lab LAN
  Internet address is 172.29.52.70/24
  MTU 1514 bytes, BW 100000 Kbit
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA,  loopback not set,
  ARP type ARPA, ARP timeout 04:00:00
  Last clearing of "show interface" counters never
  5 minute input rate 3000 bits/sec, 7 packets/sec
  5 minute output rate 0 bits/sec, 1 packets/sec
     30445 packets input, 1839328 bytes, 64 total input drops
     0 drops for unrecognized upper-level protocol
     Received 23564 broadcast packets, 0 multicast packets
             0 runts, 0 giants, 0 throttles, 0 parity
     57 input errors, 40 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     171672 packets output, 8029024 bytes, 0 total output drops
     Output 16 broadcast packets, 0 multicast packets
     0 output errors, 0 underruns, 0 applique, 0 resets
     0 output buffer failures, 0 output buffers swapped out
     1 carrier transitions

RP/0/RSP0/CPU0:router# show running-config interface MgmtEth 0/RSP0RP0
```

```
interface MgmtEth0/RSP0/CPU0/0
 description Connected to Lab LAN
 ipv4 address 172.29.52.70 255.255.255.0
!
```