



Advanced Configuration and Modification of the Management Ethernet Interface on the Cisco ASR 9000 Series Router

This module describes the configuration of Management Ethernet interfaces on the Cisco ASR 9000 Series Aggregation Services Routers.

The Management Ethernet interfaces are intended for out-of-band management on the router for access to the Route Switch Processor cards or other cards on the router, and not for standard data packet forwarding. IPv4 virtual addresses are primarily used for out-of-band management over the Management Ethernet interface. These virtual addresses are typically assigned in the same subnet as the Management Ethernet ports on the RSPs. The virtual IP address always maps to the MAC address of the active Ethernet port on the active RSP, which means that it has the benefit of always being available and not subject to failure during RSP switchovers. For more information about configuring virtual IP addresses, see the [“Configuring Virtual Loopback and Null Interfaces on the Cisco ASR 9000 Series Router”](#).

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 Getting Started Guide*.



Note

Forwarding between the fabric and Management Ethernet interface ports is disabled by default. To enable forwarding between the fabric and Management Ethernet interface ports, use the **rpmgmtethernet 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 3.7.2	This feature was introduced on the Cisco ASR 9000 Series Router.

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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, page 10](#)

Default Interface Settings

[Table 2](#) 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 2 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.
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, page 11](#) (required)
- [Configuring the Duplex Mode for a Management Ethernet Interface, page 13](#) (optional)
- [Configuring the Speed for a Management Ethernet Interface, page 14](#) (optional)
- [Modifying the MAC Address for a Management Ethernet Interface, page 16](#) (optional)
- [Verifying Management Ethernet Interface Configuration, page 17](#) (optional)

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*” 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. **no shutdown**

5. **end**
or
commit
6. **show interfaces MgmtEth interface-path-id**

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 Ethernet interface name and notation <i>rack/slot/module/port</i> . 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. <ul style="list-style-type: none"> • Replace <i>ip-address</i> with the primary IPv4 address for the interface. • Replace <i>mask</i> with the mask for the associated IP subnet. The network mask can be specified in either of two ways: <ul style="list-style-type: none"> – 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	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.

	Command or Action	Purpose
Step 5	<pre>end or commit</pre> <p>Example: RP/0/RSP0/CPU0:router(config-if)# end OR RP/0/RSP0/CPU0:router(config-if)# commit </p>	<p>Saves configuration changes.</p> <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: <pre>Uncommitted changes found, commit them before exiting (yes/no/cancel)? [cancel]:</pre> <ul style="list-style-type: none"> 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.
Step 6	<pre>show interfaces MgmtEth interface-path-id</pre> <p>Example: RP/0/RSP0/CPU0:router# show interfaces MgmtEth 0/RSP0/CPU0/0 </p>	(Optional) Displays statistics for interfaces on the router.

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	<code>configure</code> Example: RP/0/RSP0/CPU0:router# configure	Enters global configuration mode.
Step 2	<code>interface MgmtEth interface-path-id</code> 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	<code>duplex [full half]</code> 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	<code>end</code> OR <code>commit</code> Example: RP/0/RSP0/CPU0:router(config-if)# end OR RP/0/RSP0/CPU0:router(config-if)# commit	Saves configuration changes. <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: <pre>Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]:</pre> <ul style="list-style-type: none"> 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.

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

- `configure`
- `interface MgmtEth interface-path-id`
- `speed {10 | 100 | 1000}`

```

4. end
   or
   commit

```

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p>configure</p> <p>Example: RP/0/RSP0/CPU0:router# configure</p>	Enters global configuration mode.
Step 2	<p>interface MgmtEth interface-path-id</p> <p>Example: RP/0/RSP0/CPU0:router(config)# interface MgmtEth 0/RSP0/CPU0/0</p>	Enters interface configuration mode and specifies the Management Ethernet interface name and instance.
Step 3	<p>speed {10 100 1000}</p> <p>Example: RP/0/RSP0/CPU0:router(config-if)# speed 100</p>	<p>Configures the interface speed parameter.</p> <p>On a Cisco ASR 9000 Series Router, valid speed options are 10 or 100 Mbps.</p> <p>Note The default Management Ethernet interface speed is autonegotiated.</p> <p>Note To return the system to the default autonegotiated speed, use the no speed command.</p>
Step 4	<p>end OR commit</p> <p>Example: RP/0/RSP0/CPU0:router(config-if)# end OR RP/0/RSP0/CPU0:router(config-if)# commit</p>	<p>Saves configuration changes.</p> <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]: <ul style="list-style-type: none"> 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 <i>interface-path-id</i> 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	<p>mac-address <i>address</i></p> <p>Example: RP/0/RSP0/CPU0:router(config-if)# mac-address 0001.2468.ABCD</p>	<p>Configures the MAC layer address of the Management Ethernet interface.</p> <p>Note To return the device to its default MAC address, use the no mac-address <i>address</i> command.</p>
Step 4	<p>end OR commit</p> <p>Example: RP/0/RSP0/CPU0:router(config-if)# end OR RP/0/RSP0/CPU0:router(config-if)# commit</p>	<p>Saves configuration changes.</p> <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting (yes/no/cancel)? [cancel]: <ul style="list-style-type: none"> 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**

Step 1	<p>show interfaces MgmtEth <i>interface-path-id</i></p> <p>Example: RP/0/RSP0/CPU0:router# show interfaces MgmtEth 0/RSP0/CPU0/0</p>	Displays the Management Ethernet interface configuration.
Step 2	<p>show running-config interface MgmtEth <i>interface-path-id</i></p> <p>Example: RP/0/RSP0/CPU0:router# show running-config interface MgmtEth 0/RSP0/CPU0/0</p>	Displays the running configuration.

Configuration Examples for Management Ethernet Interfaces

This section provides the following configuration examples:

- [Configuring a Management Ethernet Interface: Example, page 18](#)

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/RSP0/CPU0/0
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/RSP0/CPU0/0

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/RSP0/CPU0/0

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

Additional References

The following sections provide references related to Management Ethernet interface configuration.

Related Documents

Related Topic	Document Title
Cisco ASR 9000 Series Router master command reference	<i>Cisco ASR 9000 Series Router Master Commands List</i>
Cisco ASR 9000 Series Router interface configuration commands	<i>Cisco ASR 9000 Series Router Interface and Hardware Component Command Reference</i>
Initial system bootup and configuration information for a Cisco ASR 9000 Series Router using the Cisco IOS XR Software.	<i>Cisco ASR 9000 Series Router Getting Started Guide</i>
Information about user groups and task IDs	<i>Cisco ASR 9000 Series Router Interface and Hardware Component Command Reference</i>

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by the feature.	—

MIBs

MIBs	MIBs Link
There are no applicable MIBs for this module.	To locate and download MIBs for selected platforms using Cisco IOS XR Software, use the Cisco MIB Locator found at the following URL: http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport