



Preface

This preface describes the objectives and organization of this document and explains how to find additional information on related products and services. This preface contains the following sections:

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Objectives

This document describes the Cisco ASR 1000 Series Modular Interface Processor (MIP) that is supported on the Cisco ASR 1000 Series Aggregation Services Routers, as well as the Ethernet port adapters (EPAs) that are supported in the MIP. This document also describes how to install the MIP and EPAs, and how to troubleshoot the installation.

Document Revision History

The Document Revision History records changes made to this document. The table shows the Cisco IOS XE software release number and document revision number pertaining to the change, the date of the change, and a brief summary of the change.

Release No.	Date	Change Summary
Cisco IOS XE 16.9.1	August, 2018	Added support for EPA-QSFP-1X100GE.
Cisco IOS XE 16.6.2	November, 2017	Added support for EPA-1X40GE and EPA-2X40GE
Cisco IOS XE 16.2.1	April, 2016	Added support for EPA-10X10GE
Cisco IOS XE Release 3.16.2S	February, 2016	Added support for EPA-CPAK-2X40GE
Cisco IOS XE Release 3.16.1S	November, 2015	First version of the document.

Organization

This document contains the following chapters:

Chapter	Title	Description
Chapter 1	Overview of the Cisco ASR 1000 Series MIP and EPAs	Provides an introduction to the Cisco ASR 1000 Series Modular Interface Processor (MIP) and Ethernet port adapters (EPAs). Also provides a compatibility summary for the MIP, characteristics of the cards, and overview.
Chapter 2	Preparing to Install a MIP or EPA	Describes the required tools, equipment, and safety guidelines for installing the MIP and EPAs.
Chapter 3	Installing and Removing a MIP	Describes the procedures for installing and removing the MIP in a Cisco ASR 1000 Series Aggregation Services Router.
Chapter 4	Installing and Removing an EPA	Describes the procedures for installing and removing an EPA in the MIP.
Chapter 5	Installing and Removing the SFP+, CPAK, and QSFP Modules	Describes the procedures for installing and removing the small form-factor pluggable (SFP+), CPAK, and QSFP modules on the EPA.
Chapter 6	Troubleshooting	Provides information about troubleshooting the installation of the MIP. It also describes the debug commands and provides packing instructions.

Related Documentation

This section refers you to other documentation that might be useful as you configure your Cisco ASR 1000 Series MIP.

Cisco IOS XE Features and Software Configuration

- Information about supported features and their configuration on the Cisco ASR 1000 Series Aggregation Services Routers are available in the Cisco IOS XE software configuration guides at: http://www.cisco.com/en/US/products/ps9587/products_installation_and_configuration_guides_list.html
- A summary of the new features in a particular release can be found at: http://www.cisco.com/en/US/products/ps9587/products_feature_guides_list.html
- Command documentation for the Cisco ASR 1000 Series Aggregation Services Routers is available at: http://www.cisco.com/en/US/products/ps9587/prod_command_reference_list.html

Cisco ASR 1000 Series Aggregation Services Routers Documentation

Some of the other publications pertaining to the Cisco ASR 1000 Series Aggregation Services Routers might be useful to you as you configure your Cisco ASR 1000 Series Aggregation Services Router:

- *Cisco ASR 1000 Series Aggregation Services Routers Hardware Installation Guide*
<http://www.cisco.com/c/en/us/td/docs/routers/asr1000/install/guide/asr1routers/asr1higV8.html>
- *Cisco ASR 1000 Series Modular Ethernet Line Card Software Configuration Guide*
http://www.cisco.com/c/en/us/td/docs/interfaces_modules/shared_port_adapters/configuration/ASR1000/modular_ethernet_linecard/ASRmelconf_guide.html
- Command Reference Guide:
 - *Cisco IOS Quality of Service Solutions Command Reference guide at the URL:*
http://www.cisco.com/c/en/us/td/docs/ios/qos/command/reference/qos_book.html
- *Regulatory Compliance and Safety Information for the Cisco ASR 1000 Series Aggregation Services Routers*
<http://http://www.cisco.com/c/en/us/td/docs/routers/asr1000/rcsi/asr1rcsi.html>
- *Cisco ASR 1000 Series Aggregation Services Routers Software Configuration Guide*
<http://www.cisco.com/c/en/us/td/docs/routers/asr1000/configuration/guide/chassis/asrswcfg.html>
- *Cisco ASR 1000 Series Aggregation Services Routers MIB Specifications Guide*
<http://http://www.cisco.com/c/en/us/td/docs/routers/asr1000/mib/guide/asr1kmib.html>
- *Release Notes for Cisco ASR 1000 Series Aggregation Services Routers*
http://http://www.cisco.com/c/en/us/td/docs/routers/asr1000/release/notes/asr1k_rn_rel_notes.html

Several other publications are also related to the Cisco ASR 1000 Series Aggregation Services Routers. For a complete reference of related documentation, see the *Cisco ASR 1000 Series Aggregation Services Router Documentation Roadmap* located at the following URL:

http://www.cisco.com/en/US/products/ps9343/products_documentation_roadmaps_list.html

Your router and the Cisco IOS software running on it contain extensive features. You can find documentation for Cisco products at the following URL:

<http://www.cisco.com/cisco/web/psa/default.html?mode=prod>

Document Conventions

Within the guide, the term *router* is generally used to refer to a variety of Cisco products (for example, routers, access servers, and switches). Routers, access servers, and other networking devices that support Cisco IOS software are shown interchangeably within examples. These products are used only for illustrative purposes, that is, an example that shows one product does not necessarily indicate that other products are not supported.

This documentation uses the following conventions:

Convention	Description
^ or Ctrl	The ^ and Ctrl symbols represent the Control key. For example, the key combination ^D or Ctrl-D means hold down the Control key while you press the D key. Keys are indicated in capital letters, but are not case sensitive.
<i>string</i>	A string is a nonquoted set of characters shown in italics. For example, when setting a Simple Network Management Protocol (SNMP) <i>community</i> string to <i>public</i> , do not use quotation marks around the string. If you do, the string will include the quotation marks.

Command syntax descriptions use the following conventions:

Convention	Description
bold	Bold text indicates commands and keywords that you enter exactly as shown.
<i>italics</i>	Italic text indicates arguments for which you supply values.
[x]	Square brackets enclose an optional element (keyword or argument).
	A vertical line indicates a choice within an optional or required set of keywords or arguments.
[x y]	Square brackets enclosing keywords or arguments separated by a vertical line indicate an optional choice.
{x y}	Braces enclosing keywords or arguments separated by a vertical line indicate a required choice.

Nested sets of square brackets or braces indicate optional or required choices within optional or required elements. For example:

Convention	Description
[x {y z}]	Braces and a vertical line within square brackets indicate a required choice within an optional element.

Examples use the following conventions:

Convention	Description
screen	Examples of information displayed on the screen are set in Courier font.
bold screen	Examples of text that you must enter are set in Courier bold font.
< >	Angle brackets enclose text that is not printed to the screen, such as passwords.
!	An exclamation point at the beginning of a line indicates a comment line. (Exclamation points are also displayed by the Cisco IOS software for certain processes.)
[]	Square brackets enclose default responses to system prompts.

The following conventions are used to attract the attention of the reader:



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials that may not be contained in this manual.



Tip

Means *the following information will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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