



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 configuration and troubleshooting of SPA interface processors (SIPs) and shared port adapters (SPAs) that are supported on a Cisco ASR 1000 Series Router.

Document Revision History

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

Release No.	Revision	Date	Change Summary
Cisco IOS XE Release 2.5	OL-14127-05	November 25, 2009	Information was added for support of the following areas: <ul style="list-style-type: none"> • 1-Port Clear Channel OC-12 ATM SPA • The hw-module subslot ethernet vlan unlimited command was introduced to remove the restriction of a maximum of 8100 802.1Q VLANs per Ethernet SPA. • Additional verification and troubleshooting information was added for the Cisco WebEx Node for ASR 1000 Series.
Cisco IOS XE Release 2.4	OL-14127-04	June 30, 2009	Information was added for support of the following SPAs: <ul style="list-style-type: none"> • 2-Port, 4-Port, and 8-Port OC-12c/STM-4 Multirate POS SPA • 1-Port OC-48c/STM-16 POS SPA • 8-Port OC-3c/STM-1 POS SPA • 1-Port OC-192c/STM-64 POS/RPR XFP SPA • Cisco WebEx Node for ASR 1000 Series
Cisco IOS XE Release 2.3	OL-14127-03	November 24, 2008	Information was added for support of the following SPAs: <ul style="list-style-type: none"> • 1-Port and 3-Port Clear Channel OC-3 ATM SPA
Cisco IOS XE Release 2.2	OL-14127-02	September 10, 2008	Information was added for support of the following SPAs: <ul style="list-style-type: none"> • 2-Port and 4-Port OC-48c/STM-16 POS SPA • 1-Port Channelized STM-1/OC-3 SPA
Cisco IOS XE Release 2.1	OL-14127-01	April 25, 2008	First release.

Organization

This document contains the following chapters:

Chapter	Title	Description
Chapter 1	Using Cisco IOS XE Software	Provides an introduction to accessing the command-line interface (CLI) and using the Cisco IOS software and related tools.
Chapter 2	SIP and SPA Product Overview	Provides a brief introduction to the SIP and SPA products on the Cisco ASR 1000 Series Router, and information about the SIP and SPAs, and optics compatibility.
Chapter 3	Overview of the SIP	Describes release history, and feature and Management Information Base (MIB) support for the SIP on the Cisco ASR 1000 Series Router.
Chapter 4	Configuring the SIP	Describes related configuration and verification information for the SIP on the Cisco ASR 1000 Series Router.
Chapter 5	Troubleshooting the SIP	Describes techniques that you can use to troubleshoot the operation of the SIP on the Cisco ASR 1000 Series Router.
Chapter 6	Overview of the ATM SPAs	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the ATM SPA architecture on the Cisco ASR 1000 Series Router.
Chapter 7	Configuring the ATM SPAs	Describes the related configuration and verification information for the ATM SPAs on the Cisco ASR 1000 Series Router.
Chapter 8	Troubleshooting the ATM SPAs	Describes techniques that you can use to troubleshoot the operation of the ATM SPAs on the Cisco ASR 1000 Series Router.
Chapter 9	Overview of the Ethernet SPAs	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the Gigabit Ethernet SPA architecture on the Cisco ASR 1000 Series Router.
Chapter 10	Configuring the Ethernet SPAs	Describes the related configuration and verification information for the Gigabit Ethernet SPAs on the Cisco ASR 1000 Series Router.
Chapter 11	Troubleshooting the Gigabit Ethernet SPAs	Describes techniques that you can use to troubleshoot the operation of the Gigabit Ethernet SPAs on the Cisco ASR 1000 Series Router.
Chapter 12	Overview of the POS SPAs	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the POS SPA architecture on the Cisco ASR 1000 Series Router.

Chapter	Title	Description
Chapter 13	Configuring the POS SPAs	Describes the related configuration and verification information for the POS SPAs on the Cisco ASR 1000 Series Router.
Chapter 14	Overview of the Serial SPAs	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the serial SPA architecture on the Cisco ASR 1000 Series Router.
Chapter 15	Configuring the 8-Port Channelized T1/E1 SPA	Describes the related configuration and verification information for the 8-Port Channelized T1/E1 SPAs on the Cisco ASR 1000 Series Router.
Chapter 16	Configuring the 2-Port and 4-Port Channelized T3 SPAs	Describes the related configuration and verification information for the 2-Port and 4-Port Channelized T3 SPAs on the Cisco ASR 1000 Series Router.
Chapter 17	Configuring the 2-Port and 4-Port Clear Channel T3/E3 SPAs	Describes the related configuration and verification information for the 2-Port and 4-Port Clear Channel T3/E3 SPAs on the Cisco ASR 1000 Series Router.
Chapter 18	Configuring the 4-Port Serial Interface SPA	Describes the related configuration and verification information for the 4-Port Serial Interface SPA on the Cisco ASR 1000 Series Router.
Chapter 19	Configuring the 1-Port Channelized STM-1/OC-3 SPA	Describes the related configuration and verification information for the 1-Port Channelized STM-1/OC-3 SPA on the Cisco ASR 1000 Series Router.
Chapter 20	Troubleshooting the Serial SPAs	Describes techniques that you can use to troubleshoot the operation of the serial SPAs on the Cisco ASR 1000 Series Router.
Chapter 21	Overview of the Cisco WebEx Node for ASR 1000 Series	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the Cisco WebEx Node for ASR 1000 Series on the Cisco ASR 1000 Series Aggregation Services Routers, also referred to as the Cisco WebEx Node services shared port adapter (SPA).
Chapter 22	Configuring the Cisco WebEx Node for ASR 1000 Series	Describes the related configuration and verification information for the Cisco WebEx Node for ASR 1000 Series on the Cisco ASR 1000 Series Aggregation Services Routers, including information about registering the Cisco WebEx Node SPA with the Cisco WebEx Data Center and Cisco WebEx Node Management System.

Chapter	Title	Description
Chapter 23	Troubleshooting the Cisco WebEx Node for ASR 1000 Series	Describes techniques that you can use to troubleshoot the operation of the Cisco WebEx Node for ASR 1000 Series on the Cisco ASR 1000 Series Aggregation Services Routers.
Chapter 24	Upgrading Field-Programmable Devices	Provides information about upgrading the field-programmable devices on the Cisco ASR 1000 Series Router.

Related Documentation

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

Cisco IOS XE Features and Software Configuration

- Information about supported features and their configuration on the Cisco ASR 1000 Series 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 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 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

As you configure SIPs and SPAs on your Cisco ASR 1000 Series Routers, you should also refer to the following companion publication for important hardware installation information:

- *Cisco ASR 1000 Series Aggregation Services Routers SIP and SPA Hardware Installation Guide*

Some of the following other Cisco ASR 1000 Series Router publications might be useful to you as you configure your Cisco ASR 1000 Series Router.

- *Cisco ASR 1000 Series Router Hardware Installation Guide*
- Three Quick Start Guides:
 - *Cisco ASR 1002 Router Quick Start Guide*
 - *Cisco ASR 1004 Router Quick Start Guide*
 - *Cisco ASR 1006 Router Quick Start Guide*
- *Regulatory Compliance and Safety Information for the Cisco ASR 1000 Series Router*
- *Cisco ASR 1000 Series Aggregation Services Routers Software Configuration Guide*
- *Cisco ASR 1000 Series Router MIB Specifications Guide*

- *Release Notes for Cisco ASR 1000 Series Aggregation Services Routers*

Several other publications are also related to the Cisco ASR 1000 Series Router. For a complete reference of related documentation, refer to the *Cisco ASR 1000 Series 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/web/psa/products/index.html>

Document Conventions

Within the SIP and SPA software configuration guides, 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 an SNMP <i>community</i> string to <i>public</i> , do not use quotation marks around the string or 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, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

