



## Preface

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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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## Objective

This document describes the SPA interface processor (SIPs) and shared port adapters (SPAs) that are supported on the Cisco CRS-1 and Cisco CRS-3 Carrier Routing Systems. This document also describes how to install the supported SIPs and SPAs and how to troubleshoot the installation.

## Changes to This Document

The table lists the technical changes made to this document since it was first printed.

**Table 1: Changes to This Document**

Date	Change Summary
September 2013	<p>Information was added to the <i>Overview: Cisco CRS Shared Port Adapters</i> chapter about the following SPAs:</p> <ul style="list-style-type: none"> <li>• 2-Port OC-48c/STM-16 POS SPA</li> <li>• 4-Port OC-3c/STM-1 POS SPA</li> <li>• 1-Port 10-Gigabit Ethernet SPA</li> <li>• 10-Port Gigabit Ethernet SPA</li> </ul> <p>These SPAs are now supported on the Cisco CRS-3 Flexible PLIM.</p>
May 2013	<p>Information was added to <i>Overview: Cisco CRS Shared Port Adapters</i> about the following SPAs:</p> <ul style="list-style-type: none"> <li>• 4-Port OC-12c/STM-4 POS SPA</li> <li>• 8-Port OC-3c/STM-1 POS SPA</li> </ul> <p>The 4-Port and 8-Port OC-3c/STM-1 POS SPA and the 4-Port and 8-Port OC-12c/STM-4 POS SPA are now supported on the Cisco CRS-3 Flexible PLIM</p>
December 2012	<p>Information about the new Cisco CRS-3 Flexible PLIM was added, and a new chapter, <i>Overview: Cisco CRS-3 Flexible PLIM</i> was created. Supported SPA types were added to <i>Overview: Cisco CRS Shared Port Adapters</i>.</p>
March 2009	<p>Information about the 1-Port Clear Channel OC-3 ATM SPA was added to the chapter <i>SIP and SPA Product Overview</i> and the chapter <i>Overview: Cisco CRS Shared Port Adapters</i>.</p> <p>Information about Dynamic Packet Transport (DPT) support for 2-Port and 4-Port OC-48c/STM-16 POS SPA and 1-Port OC-192c/STM-64 POS/RPR XFP SPA was added to the chapter <i>Overview: Cisco CRS Shared Port Adapters</i></p>
June 2008	<p>Information was added to “Overview: Cisco CRS Shared Port Adapters,” about the following SPAs:</p> <ul style="list-style-type: none"> <li>• 3-Port Clear Channel OC-3 ATM SPA</li> <li>• 1-Port Clear Channel OC-12 ATM SPA</li> </ul>
November 2007	<p>Information was added to the chapter <i>Overview: Cisco CRS Shared Port Adapters</i> about the SPA-1X10GE-WL-V2, 1-Port 10-Gigabit Ethernet SPA.</p>

Date	Change Summary
June 2007	<p>Information was added to “Overview: Cisco CRS Shared Port Adapters,” about the very-long reach XFP module, XFP-10GZR-OC192LR.</p> <p>Cautions were added to the chapter <i>Installing and Removing a SPA</i> regarding the time necessary between installing SPAs.</p> <p>Illustrations were updated to represent changes in the ejector lever on the Cisco CRS-1 SIP-800.</p>
January 2006	<p>Information was added to “Overview: Cisco CRS Shared Port Adapters,” about the following SPAs:</p> <ul style="list-style-type: none"> <li>• 1-Port OC-192c/STM-64 POS/RPR VSR Optics SPA</li> <li>• 2-Port and 4-Port Clear Channel T3/E3 SPA</li> </ul> <p>Port number information for these SPAs was updated in the chapter <i>Overview: Cisco CRS-1 SPA Interface Processor</i>.</p> <p>Troubleshooting information for oversubscription of the SIP was added to the chapter <i>Troubleshooting the Installation</i>.</p>
October 2006	<p>Information was added to “Overview: Cisco CRS Shared Port Adapters,” about the following SPAs:</p> <ul style="list-style-type: none"> <li>• 2-Port and 4-Port OC-48c/STM-16 POS SPA</li> <li>• 5-Port Gigabit Ethernet SPA</li> <li>• 10-Port Gigabit Ethernet SPA</li> <li>• 1-Port 10-Gigabit Ethernet SPA</li> </ul> <p>Port number information for these SPAs was updated in the chapter <i>Overview: Cisco CRS-1 SPA Interface Processor</i>.</p> <p>Optics and compatibility information for these SPAs was updated in the chapter <i>SIP and SPA Product Overview</i>.</p>
April 2006	<p>Information about the 8-Port OC-12c/STM-4 Multirate POS SPA was added to the chapter <i>Overview: Cisco CRS Shared Port Adapters</i>.</p> <p>The <i>Packing a SIP for Shipment</i> section in the <i>Troubleshooting the Installation</i> chapter was added.</p>
July 2005	Initial release of the document.

## Organization

This document contains the following chapters:

Title	Description
<i>SIP and SPA Product Overview</i>	Provides a brief introduction to the SPA interface processors (SIPs) and shared port adapters (SPAs).
<i>Cisco CRS-1 SPA Interface Processor</i>	Provides a SIP and SPA compatibility summary. For each supported SIP, it provides a summary of SIP characteristics and a SIP overview.
<i>Overview: Cisco CRS-3 Flexible PLIM</i>	Provides a PLIM and SPA compatibility summary. For each supported PLIM, it provides a summary of PLIM characteristics and a PLIM overview.
<i>Overview: Cisco CRS Shared Port Adapters</i>	For each supported SPA, provides a summary of SPA characteristics and a SPA overview.
<i>Preparing to Install a SIP or a SPA</i>	Describes the required tools, equipment, and safety guidelines for installing SIPs and SPAs.
<i>Installing and Removing a SIP</i>	Describes the procedures for installing and removing a SIP on the Cisco CRS-1 router.
<i>Installing and Removing a SPA</i>	Describes the procedures for installing and removing a SPA on the Cisco CRS-1 router. It also describes how to verify the SIP and SPA installation.
<i>Troubleshooting the Installation</i>	Provides information for troubleshooting the installation of SIPs and SPAs. It also describes helpful debug commands and error messages.

## Related Documentation

For complete planning, installation, and configuration information, refer to the following documents:

- Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Site Planning Guide
- Cisco CRS Carrier Routing System 8-Slot Line Card Chassis Site Planning Guide
- Cisco CRS Carrier Routing System Multishelf System Site Planning Guide
- Cisco CRS Carrier Routing System 16-Slot Line Card Chassis System Description
- Cisco CRS Carrier Routing System 8-Slot Line Card Chassis System Description
- Cisco CRS Carrier Routing System Multishelf System Description
- Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Installation Guide
- Cisco CRS Carrier Routing System 8-Slot Line Card Chassis Installation Guide
- Cisco CRS Carrier Routing System Fabric Card Chassis Installation Guide
- Cisco CRS Carrier Routing System Multishelf System Interconnection and Cabling Guide

- Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Hardware Operations and Troubleshooting Guide
- Regulatory Compliance and Safety Information for the Cisco CRS Carrier Routing System
- Cisco CRS Carrier Routing System Fiber-Optic Cleaning Guide
- Gigabit Interface Converter (GBIC) Module and Small Form-Factor Pluggable (SFP) GBIC Module Installation Information and Specifications

For a complete listing of software documentation available, refer to *About Cisco IOS XR Software Documentation*, available online at

<http://www.cisco.com/c/en/us/support/routers/carrier-routing-system/tsd-products-support-series-home.html>

## 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/c/en/us/td/docs/general/whatsnew/whatsnew.html>.

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