



Preface

This preface explains the objectives, intended audience, and organization of this guide commonly referred to as the “system description” in this document, and presents the conventions that convey additional information.

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Objectives

This system description describes the Cisco CRS Series Carrier Routing System from a high level. It provides background information and basic theory of operation for anyone wanting to understand the routing system. It describes the major assemblies that comprise the routing system. It can be read as a supplement to the site planning guide, installation documents, and software documents. This system description focuses on the hardware elements of the routing system.

Audience

This guide is intended for general audiences who want an overview of the Cisco CRS routing system and its major components.

Document Organization

This system description contains the following chapters and appendixes:

- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Router Overview](#), provides an overview of the routing system.
- [Cisco CRS 16-Slot Chassis Power Systems](#), provides a detailed physical description of the line card chassis DC and AC power systems.
- [Cooling System](#), provides an overview of the line card chassis cooling system.

- [Switch Fabric](#), provides an overview of the switch fabric. It also describes the switch fabric cards used in the single-chassis system and the multishelf system.
- [Line Cards and Physical Layer Interface Modules](#), provides an overview of the MSC (line card) and its associated PLIMs.
- [Route Processor](#), provides an overview of the route processor (RP), performance route processor (PRP), distributed route processor (DRP), and DRP physical layer interface module (PLIM).
- [Single-Chassis System Summary](#), provides a summary of the single-chassis system and includes brief introduction of the routing system cabling requirements. This chapter also describes the Building Integrated Timing System (BITS).
- [Control Plane](#), provides an overview of the routing system control plane, logical routers, and system diagnostics.
- [Technical Specifications](#), provides tables of specifications for the line card chassis and its components.
- [Product IDs](#), provides information about the product structure and product IDs for components of the Cisco CRS-1 routing system Multishelf System.

Documentation Conventions

This publication uses these conventions:

- **Ctrl** represents the key labeled Control. For example, the key combination *Ctrl-Z* means hold down the Control key while you press the Z key.

Command descriptions use these conventions:

- Examples that contain system prompts denote interactive sessions, indicating the commands that you should enter at the prompt. For example:

```
RP/0/RSP0/CPU0:router#
```

Convention	Description
bold font	Commands and keywords and user-entered text appear in bold font .
<i>Italic font</i>	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic font</i> .
[]	Elements in square brackets are optional.
{x y z}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
<code>courier font</code>	Terminal sessions and information the system displays appear in <code>courier font</code> .
	Indicates a variable for which you supply values, in context where italics cannot be used.

Convention	Description
< >	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.



Note *Means reader take note.* Notes contain helpful suggestions or references to material not covered in the 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.



Caution *Means reader be careful.* In this situation, you might perform an action that could result in equipment damage or loss of data.



Warning IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS



Warning Statements using this symbol are provided for additional information and to comply with regulatory and customer requirements.

Related Cisco CRS-1 Series Documentation

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

Hardware Documents

- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Site Planning Guide](#)
- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Installation Guide](#)
- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Unpacking, Moving, and Securing Guide](#)
- [Cisco CRS Carrier Routing System SIP and SPA Hardware Installation Guide](#)

- [Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Hardware Operations and Troubleshooting Guide](#)
- [Cisco CRS Carrier Routing System Ethernet Physical Layer Interface Module Installation Note](#)
- [Cisco CRS Carrier Routing System Packet-over-SONET/SDH Physical Layer Interface Module Installation Note](#)
- [Cisco CRS-1 Carrier Routing System to Cisco CRS-3 Carrier Routing System Migration Guide](#)
- [Cisco CRS Carrier Routing System Regulatory Compliance and Safety Information](#)

Software Documents

For a complete listing of software documentation for the Cisco CRS Carrier Routing System, see <http://www.cisco.com/c/en/us/support/routers/carrier-routing-system/tsd-products-support-series-home.html>

Changes to This Document

This table lists the technical changes made to this document since it was first created.

Table 1: Document Change History

Date	Change Summary
March 2015	Added recommendation to use modular power supplies with CRS-X line cards.
December 2014	Added support for the CRS-MSC-X-L and CRS-FP-X-L line cards.
July 2014	Added updates to support the Cisco CRS-X 400G back-to-back and multishelf systems, which include new CRS-16-FC400/M switch fabric card.
January 2014	Added updates to support the Cisco CRS-X, which includes new line cards, switch fabric cards, and PLIMs.
January 2012	Corrected weight of the Performance Route Processor (PRP) in the Route Processor chapter.
July 2011	Added information about new CRS-LSP Label Switch Processor (LSP) card.
April 2011	Added information about new CRS-16-PRP-6G and CRS-16-PRP-12G Performance Route Processor (PRP) cards. Technical updates and minor editorial changes were also made.
3/4/2011	Added modular power configuration information and graphics. Added CRS-1 and CRS-3 information. Also added technical updates and made minor editorial changes.
October 2010	Added information about the new MSC140 and FP140 line cards; CRS-16-FC140/S switch fabric card; 20-port, 14-port, 8-port, and 4-port 10-GE PLIMs; and the 1-port 100-GE PLIM. Minor editorial and technical changes were also made.
June 2010	Added information about the new modular AC and DC power solutions.
February 2010	Updated weight and floor loading values in Appendix A.
February 2007	Updated the document with technical corrections.
May 2007	Updated the document with information on DC power systems and other technical corrections.

Date	Change Summary
April 2006	Updated document with technical corrections.
July 2005	Added information about the S13 switch fabric card, the distributed route processor (DRP), and the DRP physical layer interface module (DRP PLIM). Also added information to describe the single-chassis (standalone) version of the chassis and the multishelf system version.
December 2004	Updated document with technical corrections.
July 2004	Initial release of this document.

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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