



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 modular services cards (MSCs) and shared port adapters (SPAs) that are supported on the Cisco 7304 router.

Organization

This document contains the following chapters:

Chapter	Title	Description
Chapter 1	Using Cisco IOS Software	Provides an introduction to accessing the command-line interface (CLI) and using the Cisco IOS software and related tools.
Chapter 2	Carrier Card and SPA Product Overview	Provides a brief introduction to the MSC and SPA products including compatibility information on Cisco Systems routers.
Chapter 3	Troubleshooting an MSC	Provides information for basic MSC troubleshooting.

Chapter	Title	Description
Chapter 5	Overview of the Fast Ethernet SPA and Gigabit Ethernet SPA	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the SPA architecture for the Fast Ethernet and Gigabit Ethernet SPAs.
Chapter 9	Overview of the POS SPAs	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the SPA architecture for the POS SPAs.
Chapter 12	Overview of the Serial SPAs	Describes release history, feature and Management Information Base (MIB) support, and an introduction to the SPA architecture for the Serial SPAs.
Chapter 16	Upgrading Field-Programmable Devices	Provides information about upgrading FPD on SPAs and Field-Programmable Gate Array (FPGA) on the Cisco 7304 MSC-100.
Chapter 8	Command Reference	Describes Cisco IOS software command reference information including syntax, usage guidelines, and examples for all new and modified commands for the SPAs on the Cisco 7304 Router.

Related Documentation

This section refers you to other documentation that also might be useful as you configure your Cisco 7304 router. The documentation listed below is available online.

Cisco 7304 Router Documentation

As you configure MSCs and SPAs on your Cisco 7304 router, you should also refer to the following companion publication for important hardware installation information:

- *Cisco 7304 Router Modular Services Card and Shared Port Adapter Hardware Installation Guide*

Some of the other Cisco 7304 router publications might be useful to you as you configure your Cisco 7304 router. The following documents can be found at this URL:

<http://www.cisco.com/univercd/cc/td/doc/product/core/cis7300/>

- *Cisco 7304 Router Installation and Configuration Guide*
- *Cisco 7304 Quick Start Guide*
- *Cisco 7300 Series Platform-Specific Commands*
- *Cisco 7304 FPGA Bundling and Update*
- *Cisco 7304 Router MIB Specifications Guide*

Several other publications are also related to the Cisco 7304 router. For a complete reference of related documentation, refer to the *Cisco 7304 Internet Router Documentation Roadmap* located at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/core/cis7300/3515.htm>

Cisco IOS Software Publications

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

<http://www.cisco.com/univercd/cc/td/doc/product/software/index.htm>

Cisco IOS Release 12.2S Software Publications

Documentation for Cisco IOS Release 12.2S, including release notes and system error messages, can be found at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios122s/index.htm>

Document Conventions

Within the MSC and SPA software configuration 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 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 literally 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 not contained in this manual.

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.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.

- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com
- Nonemergencies—psirt@cisco.com



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

<http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on>

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.