



## About the Cisco 7200 Series Design Library

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This chapter provides an introduction to the *Cisco 7200 Series Design Library: ATM Traffic Management* book in the Cisco 7200 Series design library.

### Objective

The *Cisco 7200 Series Design Library: ATM Traffic Management* book is the first publication in the Cisco 7200 series design library. The purpose of the book is to provide you with the architectural and design concepts and guidelines that are necessary to understand for effective management of your ATM traffic on a Cisco 7200 series router.

### Audience and Scope

This book is intended for ATM network engineers, designers, and network support personnel who configure and maintain the Cisco 7200 series router in their ATM network. It is expected that the reader is knowledgeable about ATM technology.

The book includes a wide range of topics that involve the processing of ATM traffic on the Cisco 7200 series router, including both the hardware and software aspects of that processing. It attempts to provide both the “big picture” by discussing the complete flow of traffic on the router and the key architectural concepts involved in that flow, and also provide the in-depth picture in those areas where optimization might occur to support your ATM traffic requirements.

Although some information is provided about all of the ATM port adapters that are supported on the Cisco 7200 series routers, the book primarily focuses on permanent virtual circuit (PVC) configuration on the PA-A3 and PA-A6 ATM port adapters.

# Document Revision History

Table 1 records technical changes to this document. The table shows the document revision number for the change, the date of the change, and a brief summary of the change.

**Table 1** Document Revision History

Revision	Date	Change Summary
OL-3274-01	December 15, 2005	Second release, with the following revisions: <ul style="list-style-type: none"> <li>Revised statements about GTS and class-based shaping in Chapter 2 to read as follows:               <p>“In most cases you do not use class-based shaping to implement traffic shaping on the outbound ATM interface. However, in certain Cisco IOS software releases, you can use the <b>shape</b> command within an outbound service-policy with the PA-A3 or PA-A6 ATM port adapters to achieve class-based shaping at Layer 3.”</p> </li> <li>Removed reference to use of GTS on PA-A1 for nrt-VBR service because the PA-A1 does not support nrt-VBR class of service.</li> <li>Updated this chapter with new information about Obtaining Documentation.</li> </ul>
OL-3274-01	June 23, 2003	First release.

## Organization and Use

This book contains the following chapters:

- [Chapter 1, “Introduction to ATM Traffic Management on the Cisco 7200 Series Routers”](#)—Provides a brief introduction to ATM traffic management, and begins a discussion of some of the concepts associated with traffic management on the Cisco 7200 series router as an edge device on the User-Network Interface (UNI).
- [Chapter 2, “Cisco 7200 Series Architecture and Design for ATM Traffic Management”](#)—Discusses the overall flow of ATM traffic on the Cisco 7200 series router, and the different hardware and software architectures that are part of that flow. These hardware and software components work together to affect the overall performance of the flow of a packet through the router and onto the network as ATM cells.
- [Chapter 3, “ATM Traffic Management Hardware and Software Planning”](#)—Provides an introduction to the ATM port adapter hardware and software that is supported on the Cisco 7200 series routers. It includes hardware installation guidelines and verification information and a review of the Cisco IOS software releases supported by the Cisco 7200 series routers, including a summary of where certain key ATM features were introduced.
- [Chapter 4, “Preparing to Configure ATM Traffic Management and QoS Features”](#)—Includes guidelines for preparing to configure ATM traffic management and QoS features and identifies tasks that you should implement as a regular and ongoing assessment of your network.

- [Chapter 5, “Configuring Traffic Shaping on the PA-A3 and PA-A6 ATM Port Adapters”](#)—Provides a combination of design and configuration information to help you make informed decisions about implementing and optimizing traffic shaping on your ATM port adapters.
- [Chapter 6, “Configuring QoS on the Layer 3 Queues for the PA-A3 and PA-A6 ATM Port Adapters”](#)—Provides a brief introduction and some guidelines for configuring the IP to ATM Class of Service (CoS) features on the PA-A3 and PA-A6 ATM port adapters.
- [Chapter 7, “Configuring the Ring Limits on the PA-A3 and PA-A6 ATM Port Adapters”](#)—Describes how to optimize the ring limits on the PA-A3 and PA-A6 ATM port adapters.
- [Chapter 8, “ATM Traffic Management Case Studies and Configuration Examples”](#)—Provides case studies and configuration examples for enterprise networks using Cisco 7200 series routers in an ATM environment. All of the examples in this chapter represent actual lab-tested configurations from Cisco Systems proof-of-concept and solutions labs.
- [Chapter 9, “Frequently Asked Questions”](#)—Answers some of the frequently asked questions (FAQs) about traffic management on the PA-A3 and PA-A6 ATM port adapters.

## Conventions

Command descriptions use the following conventions:

<b>boldface font</b>	Commands and keywords are in <b>boldface</b> .
<i>italic font</i>	Arguments for which you supply values are in <i>italics</i> .
[ ]	Elements in square brackets are optional.
{ x   y   z }	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.

**Show** command output examples use the following conventions:

screen font	Terminal sessions and information the system displays are in <i>screen font</i> .
<b>boldface screen font</b>	The <b>show</b> command that you must enter is in <b>boldface screen font</b> . Important areas of the display that are discussed within the text are highlighted in the output display using <b>boldface screen font</b> .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Notes and cautionary statements use these conventions:



### Note

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

**Caution**

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

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## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

### Cisco.com

You can access the most current Cisco documentation at this URL:

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

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

### Product Documentation DVD

Cisco documentation and additional literature are available in the Product Documentation DVD package, which may have shipped with your product. The Product Documentation DVD is updated regularly and may be more current than printed documentation.

The Product Documentation DVD is a comprehensive library of technical product documentation on portable media. The DVD enables you to access multiple versions of hardware and software installation, configuration, and command guides for Cisco products and to view technical documentation in HTML. With the DVD, you have access to the same documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .pdf versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD=) from Cisco Marketplace at this URL:

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

### Ordering Documentation

Beginning June 30, 2005, registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

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

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at [tech-doc-store-mkpl@external.cisco.com](mailto:tech-doc-store-mkpl@external.cisco.com) or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

## Documentation Feedback

You can rate and provide feedback about Cisco technical documents by completing the online feedback form that appears with the technical documents on Cisco.com.

You can send comments about Cisco documentation to [bug-doc@cisco.com](mailto:bug-doc@cisco.com).

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems  
Attn: Customer Document Ordering  
170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

## 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](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](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](mailto:security-alert@cisco.com)

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- Nonemergencies—[psirt@cisco.com](mailto:psirt@cisco.com)

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



**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 linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

The link on this page has the current PGP key ID in use.

## Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation 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, at this URL:

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

Access to all tools on the Cisco Technical Support & Documentation 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 & Documentation 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.

## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

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

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

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

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

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

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

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

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

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

or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

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

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>