Preface

This preface explains the objectives, software options, intended audience, and organization of the *Cisco uBR7100 Series Universal Broadband Router Software Configuration Guide*.

Document Revision History

The Document Revision History table below records technical changes to this document.

Table 1   Document Revision History

Document Revision	Date	Change Summary
OL-2238-04	October 9, 2005	Reformatted Chapter 1: "Overview of Cisco uBR7100 Series Software". Added Document Revision History table.

Purpose

This guide describes the basic configuration, maintainenance and troubleshooting for the Cisco uBR7100 series universal broadband routers. This document describes the supported Cisco IOS software feature sets as they exist in these Cisco IOS releases:

- Cisco IOS Release 12.1 EC (through release 12.1(13)EC4)

Note Unless otherwise indicated, the term Cisco uBR7100 series refers to all models of the Cisco uBR7100 series universal broadband router, including the Cisco uBR7111, Cisco uBR7111E, Cisco uBR7114, and Cisco uBR7114E routers.

Cisco IOS Software Options

The Cisco uBR7100 series supports Cisco IOS 12.1(7)EC, with the following software options:

Table 2   Software Options for Cisco uBR7100 Series

Product Number	'Product Description
SU71M3K4-12107EC	Cisco uBR7100 Series IOS DOCSIS 2-WAY BPI
SU71M3K4-12107EC=	Cisco uBR7100 Series IOS DOCSIS 2-WAY BPI
SU71PK4-12107EC	Cisco uBR7100 Series IOS DOCSIS 2-WAY BPI IP+ (default)
SU71PK4-12107EC=	Cisco uBR7100 Series IOS DOCSIS 2-WAY BPI IP+
SU71PK4T2-12107EC	Cisco uBR7100 Series IOS DOCSIS 2-WAY BPI TELCO-RETURN IP+
SU71PK4T2-12107EC=	Cisco uBR7100 Series IOS DOCSIS 2-WAY BPI TELCO-RETURN IP+
CNR-EVAL	Cisco Network Registrar (CNR), 30-day evaluation kit

Audience

This guide is intended for system administrators and support engineers who configure and maintain the Cisco uBR7100 series router. Many different delivery models exist for Cisco uBR7100 series equipment:

- In smaller networks, a single service provider manages all equipment and infrastructure.

- In larger networks, multiple service operators (MSOs) and ISPs share responsibility for provisioning and managing the cable plant and IP network.

How the MSO and ISP divide responsibilities depends on the service model. In some cases, the MSO maintains and operates the cable plant and attached CMs and STBs, and the ISP owns, operates, and maintains the regional network and IP infrastructure beyond the cable distribution hub. In other cases, the CMTS and RF customer premises equipment (CPE) are viewed as part of the networking infrastructure, and the ISP maintains control for provisioning and managing DOCSIS functionality.

Note   This guide considers the MSO and ISP as a single service principle with responsibility to provision and manage DOCSIS-based cable modems and set-top boxes. The guide assumes administrators are familiar with Cisco uBR7100 series hardware, DOCSIS or EuroDOCSIS requirements, and networking.

Organization

This guide includes the following chapters:

Table 3   Document Organization

Title	Description
Chapter 1, "Overview of Cisco uBR7100 Series Software"	Acquaints you with the Cisco uBR7100 series features and Cisco IOS 12.1(7)EC software.
Chapter 2, "Configuring the Cisco CMTS for the First Time"	Provides instructions to make basic configurations to the Cisco uBR7100 series CMTS using AutoInstall, the Setup Facility, or manual configuration mode. Includes sample Cisco uBR7100 series software configurations. **Note** Complete the configurations in this chapter prior to attempting additional configurations later in this guide.
Chapter 3, "Configuring the Cisco Cable Interface"	Describes the command-line interface (CLI), and provides instructions for multiple cable modem card configurations.
Chapter 4, "Configuring Basic Broadband Internet Access"	Describes the parameters of configuring and maintaining basic broadband Internet access.
Chapter 5, "Troubleshooting the System"	Provides troubleshooting instructions for the configuration of the Cisco uBR7100 series CMTS.
Appendix A, "Configuration Register Information for the Cisco uBR7100 Series Universal Broadband Routers"	Provides information about the functions and configuration of bits in the Cisco IOS Software Configuration Register.

Conventions

This guide uses the following conventions for command syntax descriptions and textual emphasis:

Table 4   Command Syntax and Emphasis Conventions

Convention	Description
boldface font	Commands and keywords are in **boldface**.
italic font	Arguments for which you supply values are in *italics*.
[ ]	Elements in square brackets are optional.
{*x*	*y*	*z*}	Alternative, mutually exclusive, 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.
screen font	Terminal sessions and information the system displays are in screen font.

Table 4   Command Syntax and Emphasis Conventions (continued)

Convention	Description
boldface screen font	Information you must enter is in **boldface screen** font.
italic screen font	Arguments for which you supply values are in *italic screen* font.
⟶	This pointer highlights an important line of text in an example.
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords, are in angle brackets in contexts where italics are not available.
[ ]	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 materials not contained in this publication.

Timesaver   Means *the described action saves time*. You can save time by performing the action described in the paragraph.

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

Additional References

The following references provide additional information related to the Cisco uBR7100 Series router. Related Documents

Related Topic	Document Title and Location
General Documentation	• *Cisco uBR7100 Series Technical Documentation Web Page:* http://www.cisco.com/en/US/docs/cable/cmts/ubr7100/configuration/guide/scg71pre.html
Cisco uBR7100 Series Hardware Installation	• *Cisco uBR7100 Series Hardware Installation Guide:* http://www.cisco.com/en/US/docs/cable/cmts/ubr7100/installation/guide/hig7100.html
Cisco uBR7100 Series Software Configuration and Features	• *Cisco uBR7100 Series Release Notes* http://www.cisco.com/en/US/products/hw/cable/ps2211/prod_release_notes_list.html • *Cisco Cable Modem Termination System Feature Guide* http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/cmtsfg.html

Related Topic	Document Title and Location
Cisco IOS Command Reference	• *Cisco Broadband Cable Command Reference Guide* http://www.cisco.com/en/US/docs/ios/cable/command/reference/cbl_book.html • *Cisco CMTS Error Messages* http://www.cisco.com/en/US/docs/cable/cmts/system/message/uberrchap1.html#wp1053312
Additional Cable/Broadband Information Resources	• *Cisco Cable/Broadband Technical Support Web page* http://www.cisco.com/cisco/web/support/index.html • *Cisco Multiservice Broadband Cable Guide* http://www.cisco.com/en/US/prod/collateral/video/ps8806/ps5684/ps2209/prod_brochure09186a008014eeb0.pdf

Obtaining Documentation

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World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- http://www.cisco.com
- http://www-china.cisco.com
- http://www-europe.cisco.com

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/en/US/partner/ordering/index.shtml

- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:

  http://www.cisco.com/go/subscription

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

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San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

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To access Cisco.com, go to the following website:

http://www.cisco.com

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

http://www.cisco.com/tac

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

https://tools.cisco.com/RPF/register/register.do

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

http://tools.cisco.com/ServiceRequestTool/create/launch.do

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

http://www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.