



## Preface

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### Objective

The Singapore country feature package supports the R2 signaling tones, pulse code modulation (PCM) line signaling, and tone plan as stated in Chapter 2, “R2 Signaling Tones” and Chapter 3, “Singapore Tone Plan.”

Except where otherwise noted, this supplement describes the installation, configuration, operation and general functionality of the Singapore country feature package as used with the following Virtual Central Office (VCO) and Specialty Digital Switch (SDS) platforms:

- VCO/4K running system software V5.x FSR00 PUN00 or higher
- VCO/20 running system software V4.0 FSR00 PUN00\* or higher
- VCO/80 running system software V3.3 FSR00 PUN00\*\* or higher
- SDS-1000 running system software V3.3 FSR00 PUN00\*\* or higher
- SDS-500 running system software V3.3 FSR00 PUN00\*\* or higher

\* The PUN number was included as part of the V4.x system software numbering scheme at V4.0 FSR02 PUN00.

\*\* The PUN number was included as part of the V3.x system software numbering scheme at V3.3 FSR05 PUN00.



**Note**

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Within any given country, there may be more than one tone plan in use by the various telecommunication service providers who operate privately and/or publicly within the country in question. Thoroughly review the tone plan listed in Chapter 3, “Singapore Tone Plan” to verify that this is the country feature package that you ordered.

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### Audience

This document is intended for all personnel using the Singapore country feature package.

# Document Organization

This document is organized as follows:

Chapter 1, “System Requirements” lists the system requirements for running the Singapore country feature package.

Chapter 2, “R2 Signaling Tones” describes the R2 signaling tones generated and detected by the MFCR2 transceiver cards, and the R2 pulse code modulation (PCM) 2-bit line signaling transmitted and received by E1 spans.

Chapter 3, “Singapore Tone Plan” details the modifications to the Digital Tone Generator (DTG or DTG-2) and Call Progress Analyzer (CPA) cards, and the SPC-CPA service cards.

Chapter 4, “R2 Signaling Examples” provides examples of R2 signaling.

# Documentation Conventions

This document uses the following conventions:



**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 material not covered in the manual.

# Related Documentation

The *Cisco VCO/4K Singapore Supplement* provides important information about running the Singapore country feature package on the VCO and SDS platforms. If a topic is discussed in both the SDS/VCO documentation set and this supplement, refer to the information in this document.

You should have a working knowledge of R2 signaling.

Network signaling requirements appear in the following specifications:

- International Telecommunications Union (ITU, formerly Comité Consultatif International Téléphonique et Télégraphique, CCITT) Q.421 Digital Line Signaling Code
- ITU Q.440 Interregister Signaling

# Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

## 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>

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- 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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# 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

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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:

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

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://www.cisco.com/tac/caseopen>

## 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/warp/public/687/Directory/DirTAC.shtml>

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 recovered quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

