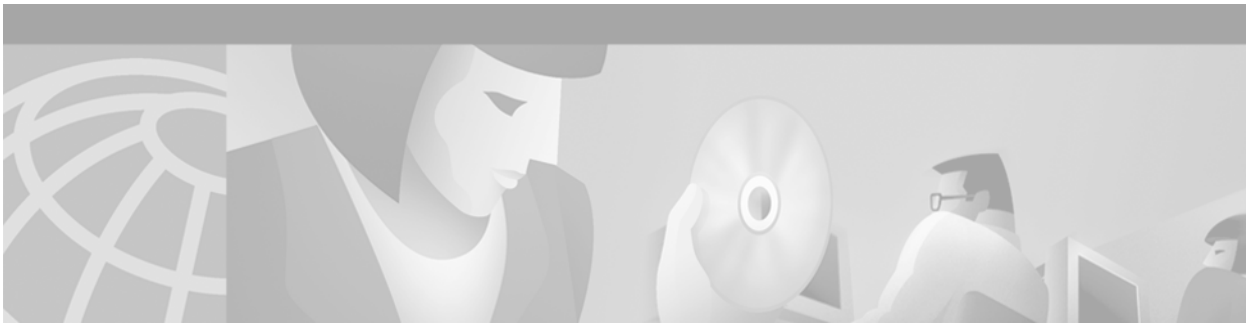

Preface

Objective

The Indonesia 2 country feature package supports the tone plan as stated in Chapter 2, “Indonesia 2 Tone Plan.” The Indonesia 2 country feature package differs from the Indonesia country feature package in its interdigit dual tone multifrequency (DTMF) outpulse timing. Refer to the “Tone Generation” section on page 2-3 for further information.

Except where otherwise noted, this supplement describes the installation, configuration, operation and general functionality of the Indonesia 2 country feature package as used with the following Virtual Central Office (VCO) and Specialty Digital Switch (SDS) platforms:

- VCO/4K running system software V5.1 FSR00 PUN21 or higher
- VCO/20 running system software V5.1 FSR00 PUN21 or higher
- VCO/80 running system software V5.1 FSR00 PUN21 or higher
- SDS-1000 running system software V5.1 FSR00 PUN21 or higher
- SDS-500 running system software V5.1 FSR00 PUN21 or higher

Note 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 2, “Indonesia 2 Tone Plan” to verify that this is the country feature package that you ordered.

Audience

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

Document Organization

This document is organized as follows:

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

Chapter 2, “Indonesia 2 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.

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 Indonesia 2 Supplement* provides important information about running the Indonesia 2 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.

This supplement assumes that readers 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-T Q.440 Interregister Signaling

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

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

- http://www.cisco.com
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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 restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

CHAPTER 1

System Requirements

Installation and Configuration

This chapter lists system requirements for running the Indonesia 2 country feature package on SDS and VCO platforms operating with system V3.3 through V5.x. These requirements are categorized by hardware, firmware, and software. For any site-specific concerns, contact Cisco as described in the Preface.

The Indonesia 2 country feature package consists of the following components:

- Digital Tone Generator (DTG) card or DTG-2 card
- SPC card software-configured for DTMF (displayed as SPC-DTMF)
- Diskette for the CPA and SPC cards containing the download files

Note Service circuit cards must occupy only one resource group in the Resource Group Summary screen; further, different card types cannot share the same resource group. Use the SPC card if your system requires CPA service circuit functionality.

Hardware Requirements

Refer to the *Cisco VCO/4K Tone Plan Release Notes* for the A-law and Mu-law rules and timing rules governing the hardware configurations of cards with jumpers/DIPs, and the software configurations of cards without jumpers/DIPs.

Refer to the *Cisco VCO/4K Card Technical Descriptions* for each service circuit card and for each network card for jumper and DIP switch settings.

Firmware Requirements

Refer to the *Cisco VCO/4K Tone Plan Release Notes* for information regarding system firmware requirements particular to the Indonesia 2 country feature package.

Refer to your system release notes for step-by-step instructions to install firmware on either the DTG-2 mezzanine card, or DTG card, and to install firmware on the MFCR2 card.

Software Requirements

Refer to the *Cisco VCO/4K Tone Plan Release Notes* for information regarding system software requirements particular to the Indonesia 2 country feature package.

System software V5.1 FSR00 PUN21, or higher, is required to operate the Indonesia 2 SPC software on the SPC.

Service Platform Card Downloads

Your country feature package includes a 3.5-inch diskette containing two directories. These directories contain Service Platform Card (SPC) download files. The two directories are named PRE-P24 and POST-P24. The following files are included in each directory:

cpa.nor
cpa.spc
cpa.sit
cpa.ctg
dtmf.spc

Copy the PRE-P24 directory contents to your system's C:/BOOT directory if you are using system software V5.1 FSR00 PUN21 through V5.1 FSR00 PUN23. Copy the POST-P24 directory contents to your system's C:/BOOT directory if you are using system software V5.1 FSR00 PUN24, and higher.

Refer to the *Cisco VCO/4K System Administrator's Guide* for step-by-step instructions in order to copy the files to your system's C:/BOOT directory.

Note Always wear a wrist strap when installing software and handling system components.

The files are now loaded onto your hard disk. Complete the installation by loading the files from the hard disk to the cards. The method of loading depends on whether or not it is for a new installation, or for an existing installation. For new installations, refer to the "Loading the Software onto Cards—New Installations" section on page 1-2; for existing installations, refer to the "Loading the Software onto Cards—Existing Installations" section on page 1-3. Refer to the *Cisco VCO/4K System Administrator's Guide* as you complete this installation procedure.

Loading the Software onto Cards—New Installations

To load the files from the hard disk to cards in a new installation, follow these steps:

Step 1 If you have not already done so, access the Card Maintenance screen from the Maintenance Menu screen and use the A command to add the SPC (the console displays this choice as either SPC-CPA or SPC-DTMF) to the database.

Step 2 Insert your SPC card into the appropriate slot. The card automatically runs internal diagnostics.

Caution Do not unseat or otherwise disturb the card while running internal diagnostics.

Once the SPC card is inserted, the card's LED matrix display transitions from off to on. When on, the LED matrix displays the letters S, P, and C, one at a time repeatedly, and the lower right LED of the matrix display changes from unlighted to lighted repeatedly.

Step 3 Use the C command to activate the card from the Card Maintenance screen. The card takes the download.

Caution Do not unseat or otherwise disturb the card while it is downloading.

The service circuit spans are active, as can be seen from the Card Maintenance screen.

Step 4 Verify the received FRM225, FRM226, FRM241, and FRM242 messages in your log file to ensure that the card has taken the download.

Step 5 Verify two messages in the log file—"Begin downloading spec file C:/boot/xxx.xxx" and "End downloading spec file C:/boot/xxx.xxx."

Step 6 Create a resource group for the SPC service circuits.

You have completed the software installation.

Loading the Software onto Cards—Existing Installations

To load the files from the hard disk to cards in an existing installation, follow these steps.

Note This process disrupts in-progress calls and removes service circuits from operation for a period of a few minutes.

Step 1 If you have not already done so, access the Card Maintenance screen from the Maintenance Menu screen, and take the SPC service circuits out of service (OOS).

Step 2 From the Card Maintenance screen, use the C command to activate the various SPC service circuits.

Caution Do not unseat or otherwise disturb the card while it is downloading.

Step 3 Verify two messages in the log file in order to ensure that the card has taken the download—"Begin downloading spec file C:/boot/xxx.xxx" and "End downloading spec file C:/boot/xxx.xxx."

Note The SPC does not take a redownloading of the spc.dwn file.

You have completed the software installation.

Typical System Software Configurations

This section lists typical system software configurations used with the Indonesia 2 country feature package. For more information on how to use and configure the various system software screens and menus, refer to the *Cisco VCO/4K System Administrator's Guide*.

Database Administration

Special consideration pertains to the following Database Administration menus and screens.

Card Summary Menu

The Card Summary menu displays the status and port availability of E1, 4xE1, and ICC cards. To assign operating characteristics to E1 spans, access the Configuration screen for that card from the Card Summary menu.

Note The term “E1 span” designates E1 and 4xE1 cards, or ICC cards with associated ICC-E1-I/O module.

Resource Group Summary Menu

You must define all SPC-DTMF or SPC-CPA service circuit ports in a single resource group in the Resource Group Summary menu and Resource Group Configuration screen. To optimize outgoing call system performance, group E1 span outgoing ports into one or more resource groups.

Answer Supervision Template Screen

Refer to Chapter 2, “Indonesia 2 Tone Plan” for information on the answer supervision template function.

Maintenance

Special considerations pertain to the Maintenance screen.

Card Maintenance Screen

Use the Card Maintenance screen to add, delete, and change the card/port status for SPC service circuits, and E1 spans. When an E1 span is added to the Card Maintenance screen, its span type is set to CAS/R2 by default.

For E1 spans set to CAS/R2, ports 1 and 17 of the card’s 32 ports are reserved. Port 1 (Channel 0) carries the frame alignment pattern, remote alarm indication bit, and national-use bits. Port 17 (Channel 16) carries the multiframe alignment pattern, extra bits, and channel-associated signaling bits.

For 4xE1 and ICC cards, set the span type to CCS/31B from the Card Summary menu to use port 17 as a bearer port. Use E1-31B firmware on single span E1 cards to use port 17 as a bearer port.

Diagnostics

Special considerations pertain to the following Diagnostics screens.

Card Display Screen

The Card Display screen lists the operating status of E1 spans. Information on the Card Display screen varies according to card type.

Host Commands and Reports

The host commands and reports are documented in the *Cisco VCO/4K Standard Programming Reference* and the *Cisco VCO/4K Extended Programming Reference*.

CHAPTER 2

Indonesia 2 Tone Plan

This chapter details the modifications to the Digital Tone Generator (DTG or DTG-2) and Service Platform Card (SPC)-CPA service circuits to support the supervision tones specific to the Indonesia telephone network.

The information in this chapter supersedes the information in the following manuals:

- *Cisco VCO/4K System Administrator's Guide*
- *Cisco VCO/4K Standard Programming Reference*
- *Cisco VCO/4K Extended Programming Reference*
- *Cisco VCO/4K Supervision and Call Progress Tone Detection*

Tone Characteristics

Table 2-1 summarizes the characteristics of the most frequently used supervision tones in the Indonesia 2 network.

Table 2-1 Indonesia 2 Digital Tone Generator Supervision Tones

Tone	Frequencies (Hz)	Amplitude (dBm)	Cadence	Detected by CPA?
Dial	425	–9	Continuous	Yes
Ringback	425	–9	1 second on, 4 second off, REPEATED	Yes[1]
Busy	425	–9	0.5 second on, 0.5 second off, REPEATED	Yes
Fast Busy	425	–9	0.25 second on, 0.25 second off, REPEATED	Yes

Table 2-1 Indonesia 2 Digital Tone Generator Supervision Tones (continued)

Tone	Frequencies (Hz)	Amplitude (dBm)	Cadence	Detected by CPA?
SIT	950 1400 1800	–9 –9 –9	330 milliseconds on, 30 milliseconds off, 330 milliseconds on, 30 milliseconds off, 330 milliseconds on, 1.03 seconds off	Yes
Number Unobtainable	425	–9	2 seconds on, 0.5 second off	Yes[2]
Trunk Offering	425	–9	0.5 second on, 0.5 second off, 0.5 second on, 1 second off	No
Payphone Recognition	1200 800	–9 –9	0.2 second on, 0.2 second off, 0.2 second on, 2 seconds off	No
Call Wait	425	–9	0.15 second on, 0.15 second off, 0.15 second on, 10 seconds off	No
Special Dial	425	–9	0.13 second on, 0.13 second off	No
Recognition	1000	0	5 seconds on, 5 seconds off	No
Howler	1400	+3	Continuous	No

1. The Caller Wait tone, a tone requested for the Indonesia 2 country feature package, is identical to, and reported as, the Ringback tone.
2. Number Unobtainable is detected by the CPA as SIT.

Tone Detection

Use the system administration answer supervision templates function to control tone detection for the tones listed in Table 2-1. Supervision template processing is described in the *Cisco VCO/4K System Administrator's Guide*.

Answer Supervision Template Screen Terminology

The supervision events and tones listed in the Answer Supervision Template screen use standard North American network terminology. Table 2-2 shows the Answer Supervision Template screen terms to use with the Indonesia 2 country feature package.

Tone Generation

Table 2-2 Answer Supervision Template Screen Terminology for Indonesia 2

Answer Supervision Template Event and Tone Names	Indonesia 2 Tone Names
Dial Tone	Dial
Ringback	Ringback
Busy	Busy
Reorder	Fast Busy
SIT Tones	SIT/Number Unobtainable
Ring Cess.[1]	Not Applicable
Voice Det.[1]	Not Applicable
Voice Cess.[1]	Not Applicable
Wink[1]	Not Applicable
Answer[1]	Not Applicable
Time[1]	Not Applicable
Hook Flash[1]	Not Applicable
Pager Cue	Not Available
ISUP Tone	Not Applicable
ISUP Cess.[1]	Not Applicable

1. Not a tone.

Tone generation is performed through DTG outpulse and static tone channels. The allocation of these tones is controlled via inpulse rules, Voice Path Control ($66), and DTMF Collection Control ($67) commands.

Note The Indonesia 2 country feature package's DTMF interdigit outpulse timing has been altered from the international standard to 100 milliseconds on, 100 milliseconds off.

Table 2-3 supersedes the tone generation table listed in the *Cisco VCO/4K Standard Programming Reference* and the *Cisco VCO/4K Extended Programming Reference*. It also supersedes the tone output level specifications found in the *Cisco VCO/4K Card Technical Descriptions*. For more information on generating tones, refer to the *Cisco VCO/4K System Administrator's Guide*.

The tones and their corresponding output levels, decimal values, hexadecimal values, and port addresses are summarized in Table 2-3.

Table 2-3 Tone Levels, Values, and Port Addresses

Tone	Output Level	Decimal Value	Hex Value	Port Addresses
Beep	—	0	00	None
Quiet (PCM idle pattern 01010100)	—	1	01	04C0

Table 2-3 Tone Levels, Values, and Port Addresses (continued)

Tone	Output Level	Decimal Value	Hex Value	Port Addresses
1 KHz	0 dBm	2	02	04C1
Dial	**–9 dBm**	**3**	**03**	**04C2**
380 Hz	–10 dBm	4	04	04C3
Beep (440Hz)	–13 dBm	5	05	04C4
Howler	**+3 dBm**	**6**	**06**	**04C5**
1400 Hz	–9 dBm	7	07	04C6
1000 Hz @max CODEC output	—	8	08	04C7
920 Hz Dial Tone	–13 dBm	9	09	04C8
404 Hz	0 dBm	10	0A	04C9
1004 Hz	0 dBm	11	0B	04CA
2804 Hz	0 dBm	12	0C	04CB
Reserved	—	13	0D	04CC
Reserved	—	14	0E	04CD
Reserved	—	15	0F	04CE
Reserved	—	16	10	04CF
Ringback	**–9 dBm**	**17**	**11**	**04D0**
Busy	**–9 dBm**	**18**	**12**	**04D1**
Fast Busy	**–9 dBm**	**19**	**13**	**04D2**
Reserved	—	20	14	04D3
SIT	**–9 dBm**	**21**	**15**	**04D4**
Number Unobtainable	**–9 dBm**	**22**	**16**	**04D5**
Trunk Offering	**–9 dBm**	**23**	**17**	**04D6**
Payphone Recognition	**–9 dBm**	**24**	**18**	**04D7**
Reserved	—	25	19	04D8
Reserved	—	26	1A	04D9
Special Dial	**–9 dBm**	**27**	**1B**	**04DA**
Call Wait	**–9 dBm**	**28**	**1C**	**04DB**
Recognition	**0 dBm**	**29**	**1D**	**04DC**
Reserved	—	30	1E	04DD
Reserved	—	31	1F	04DE
Reserved	—	32	20	04DF
DTMF digit 0 (steady)	–10/–9 dBm/freq	33	21	04E0
DTMF digit 1 (steady)	–10/–9 dBm/freq	34	22	04E1
DTMF digit 2 (steady)	–10/–9 dBm/freq	35	23	04E2
DTMF digit 3 (steady)	–10/–9 dBm/freq	36	24	04E3

Table 2-3 Tone Levels, Values, and Port Addresses (continued)

Tone	Output Level	Decimal Value	Hex Value	Port Addresses
DTMF digit 4 (steady)	–10/–9 dBm/freq	37	25	04E4
DTMF digit 5 (steady)	–10/–9 dBm/freq	38	26	04E5
DTMF digit 6 (steady)	–10/–9 dBm/freq	39	27	04E6
DTMF digit 7 (steady)	–10/–9 dBm/freq	40	28	04E7
DTMF digit 8 (steady)	–10/–9 dBm/freq	41	29	04E8
DTMF digit 9 (steady)	–10/–9 dBm/freq	42	2A	04E9
DTMF digit A (steady)	–10/–9 dBm/freq	43	2B	04EA
DTMF digit B (steady)	–10/–9 dBm/freq	44	2C	04EB
DTMF digit C (steady)	–10/–9 dBm/freq	45	2D	04EC
DTMF digit D (steady)	–10/–9 dBm/freq	46	2E	04ED
DTMF digit * (steady)	–10/–9 dBm/freq	47	2F	04EE
DTMF digit # (steady)	–10/–9 dBm/freq	48	30	04EF
MF digit 0 (steady)	–7 dBm/freq	49	31	04F0
MF digit 1 (steady)	–7 dBm/freq	50	32	04F1
MF digit 2 (steady)	–7 dBm/freq	51	33	04F2
MF digit 3 (steady)	–7 dBm/freq	52	34	04F3
MF digit 4 (steady)	–7 dBm/freq	53	35	04F4
MF digit 5 (steady)	–7 dBm/freq	54	36	04F5
MF digit 6 (steady)	–7 dBm/freq	55	37	04F6
MF digit 7 (steady)	–7 dBm/freq	56	38	04F7
MF digit 8 (steady)	–7 dBm/freq	57	39	04F8
MF digit 9 (steady)	–7 dBm/freq	58	3A	04F9
MF digit KP (steady)	–7 dBm/freq	59	3B	04FA
MF digit ST (steady)	–7 dBm/freq	60	3C	04FB
MF digit ST3P	–7 dBm/freq	61	3D	04FC
MF digit STP	–7 dBm/freq	62	3E	04FD
MF digit ST2P	–7 dBm/freq	63	3F	04FE