



# System Requirements

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## Installation and Configuration

This chapter lists system requirements for running the Singapore 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 site-specific concerns, contact Cisco as described in the preface.

The Singapore country feature package consists of the following components:

- Digital Tone Generator (DTG) card or DTG-2 card
- Call Progress Analyzer (CPA) or Service Platform (SPC) cards, software-configured for CPA (displayed as SPC-CPA)
- SPC card software-configured for DTMF (displayed as SPC-DTMF)
- Multifrequency Compelled R2 (MFCR2) card, or SPC, software-configured for MFCR2 (displayed as SPC-MFCR2)
- Diskette for the CPA and SPC containing the download files



### Note

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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 either the SPC or the CPA card (but not both) if your system requires CPA service circuit functionality.

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## 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 Singapore 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 Singapore country feature package.

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

## Call Progress Analyzer and Service Platform Card Downloads

Your country feature package contains a 3.5-inch diskette containing the POST-P24 directory. This directory contains Call Progress Analyzer (CPA) and Service Platform Card (SPC) download files. The POST-P24 directory contains the following files:

cpa.dwn  
cpa.nor  
cpa.spc  
cpa.sit  
cpa.ctg  
mfc2.sim  
mfc2.sma  
mfc2.utg  
mfc2.spc  
mfc2.smt  
dtmf.spc

Copy the POST-P24 directory contents to your system's C:/BOOT directory. You must be using system software V5.1 FSR00 PUN24, or higher, in conjunction with this directory.

In addition, if you are using system software V4.2 FSR00 PUN28 and lower, copy only the cpa.dwn file to the C:/BOOT directory.

Refer to the *Cisco VCO/4K System Administrator's Guide* for step-by-step instructions in order to copy the above 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 1-3; 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 files from the hard disk to cards in a new installation, follow these steps:

**Step 1** Access the Card Maintenance screen from the Maintenance Menu screen, and add the CPA (the console displays this choice as Call Progress Analyzer) or the SPC (the console displays this choice as either SPC-CPA or SPC-DTMF) to the database by using the A command, if you have not already done so.

**Step 2** Insert your card, either the CPA or the SPC, into the appropriate slot. The card automatically runs internal diagnostics. One of two results follow, dependent upon which card you have inserted.



**Caution**

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

- For the CPA, the LEDs display the transition from off (all LEDs unlighted) to on (the red and yellow unlighted and the green lighted).
- For the SPC, the LED matrix display transitions from off (all LEDs unlighted) to on (the LED matrix lights the letters S, P, and C one at a time repeatedly; the lower right LED changes from unlighted to lighted repeatedly).

**Step 3** Activate the card using the C command from the Card Maintenance screen. The card takes the download. The service circuit spans are active, as can be seen from the Card Maintenance screen.



**Caution**

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

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

For the SPC, verify two additional messages in the log file: “Begin downloading spec file C:/boot/xxx.xxx” and “End downloading spec file C:/boot/xxx.xxx.” The CPA does not have these, or any other, additional log file messages.

**Step 5** Create a resource group for the CPA or the SPC service circuits.

You have completed the software installation.

## Loading the Software onto Cards—Existing Installations

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



**Caution**

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

**Step 1** Access the Card Maintenance screen from the Maintenance Menu screen, and take either the CPA card or the SPC service circuits out of service (OOS), if you have not already done so.

If you have a CPA, unseat it, wait 15 seconds, then insert the card into its slot. The SPC does not require, or allow, this action.

**Step 2** Activate the CPA or the various SPC service circuits using the C command from the Card Maintenance screen.

**Caution**


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

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**Step 3**

Verify received download messages in your log file in order to ensure that the card has taken the download. The messages you need to verify are dependent upon which card type you are using.

- For the CPA, verify the received FRM225, FRM226, FRM241, and FRM242 messages.
- For the SPC, verify the following two messages: “Begin downloading spec file C:/boot/xxx.xxx” and “End downloading spec file C:/boot/xxx.xxx.”

**Note**


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

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You have completed the software installation.

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## Typical System Software Configurations

This section lists typical system software configurations used with the Singapore 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 considerations pertain 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**


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

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### Resource Group Summary Menu

You must define all SPC-DTMF, SPC-CPA, DRC, CPA, and MFCR2 service circuits 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.

### Inpulse Rule and Outpulse Rule Screen

Typical inpulse and outpulse rule tokens used to support R2 signaling are listed in Table 1-1.

*Table 1-1 Typical Impulse and Outpulse Rule Tokens Used to Support R2 Signaling*

Impulse Tokens		Outpulse Tokens	
REP NEXT	CLR CHAR1 [xx]	REP END	OP ANI
MFCR2	WINK ENAB	REP NEXT	OP MFCR2
DIGITS [xx]	IP ANI [xx]	OP FIELD [xx]	
END CHAR1 [xx]	IP FIELD [xx]	OP CAT [xx]	

For more information about these and other impulse and outpulse rule tokens, refer to the *Cisco VCO/4K System Administrator's Guide*.

For more information on how to construct impulse and outpulse rules for R2 signaling, refer to Chapter 4, "R2 Signaling Examples."

## Answer Supervision Template Screen

Refer to the "Tone Detection" section on page 3-2 for information on the answer supervision template function.

## System Configuration

Special considerations pertain to the following System Configuration screen.

## System Features Screen

The Enable MFCR2 Supervised Clear feature flag supports automatic call release on outgoing ports in response to backward MFCR2 supervision tones. When the Enable MFCR2 Supervised Clear feature flag is set to **Y**, an outgoing port is released when a B2, B4, A4, or C4 backward tone is detected during R2 signaling. The system performs disconnect processing appropriate to the port, and generates an Outgoing Port Change of State (\$DA) report that indicates a supervision error and specifies the backward tone. Backward supervision tones are described in Chapter 2, "R2 Signaling Tones." The \$DA report is discussed in the *Cisco VCO/4K Standard Programming Reference* and the *Cisco VCO/4K Extended Programming Reference*.



### Note

This feature flag enables/disables automatic call release on a system wide basis. When the feature is enabled (set to **Y**), any outgoing port receiving the backward tones specified above is automatically released. If the feature flag is disabled (set to **N**), the outgoing port remains in SETUP unless out-of-band supervision or a host command changes the port state.

## Maintenance

Special considerations pertain to the following Maintenance screen.

## Card Maintenance Screen

Use the Card Maintenance screen to add, delete, and change the card/port status for MFCR2, CPA, and SPC service circuits. 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 in order to use port 17 as a bearer port. Use E1-31B firmware on single span E1 cards in order 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.

### Port Display Screen

The Port Display screen lists the processing states, rule processing, links, paths, and digit collection activity of E1 spans.

### Test Port Card Screen

The Test Port Card screen tests individual E1 channels. A path is set up between three elements—the selected E1 channel(s), MFCR2 circuits, and a Digital Tone Generator (DTG) channel. The system compares the signals sent with the signals received and reports discrepancies. You can test all channels on E1 spans with one command. You can select the E1-CAS card for port card diagnostic tests. The E1 span enters a local loopback mode during the test and sends out an all 1s (ones) pattern.

### Test Service Circuit Screen

The Test Service Circuit function tests MFCR2 cards, and SPC-MFCR2 service circuits.

## 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*.