

# Preface

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## Objectives

The *Cisco VCO/4K System Maintenance Manual* provides information on performing preventive and corrective maintenance routines for peripheral equipment, power subsystem, interface circuits, service and control circuits, and host communication links. It also serves as a reference guide on the diagnostic tools incorporated into the system.

This manual concentrates on fault isolation and refers to technical descriptions to remedy a problem with a specific system component. The *Cisco VCO/4K Card Technical Descriptions* contains specific corrective maintenance procedures for individual VCO/4K system components.



### Note

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This document represents the most current information about VCO/4K mechanical assemblies. If you need information pertaining to VCO/4K assemblies, circuit cards, or other components that are not included in this document, see the following URL on Cisco's web site for legacy VCO/4K information:

[http://www.cisco.com/univercd/cc/td/doc/product/tel\\_pswt/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/tel_pswt/index.htm)

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## Audience

This manual is intended for VCO/4K system users and third-party support personnel. If you are unfamiliar with the VCO/4K system, refer to one or more of the related documents listed in the “Related Documentation” section on page x.

This manual assumes that the host application (if it is a hosted system) is written to conform to the *VCO API Programming Reference Manual*. However, that does not preclude problems occurring between the application and the VCO/4K system.

Each release of the VCO/4K Generic is described in the *Cisco VCO/4K Release Notes* that contain detailed information on changes from one release to the next. If your VCO/4K System includes the SS7 subsystem, refer to the *SS7 Release Notes*.

## Document Organization

This document is organized as follows:

- Chapter 1, “General Information,” describes the overall maintenance scope and process.
- Chapter 2, “Preventive Maintenance Procedures,” describes routine housekeeping tasks for the system and for peripheral equipment.
- Chapter 3, “Corrective Maintenance,” describes fault isolation concepts, causes of system malfunction, diagnostic tools, and repair by replacement.
- Chapter 4, “Corrective Maintenance—Peripheral Equipment,” describes interface problems, equipment self-test, removal and replacement procedures, and the A/B switch.
- Chapter 5, “Corrective Maintenance—Power Subsystem,” describes the power subsystem operation, alarms, removal and replacement procedures, and troubleshooting.
- Chapter 6, “Corrective Maintenance—Interface Circuits,” describes fault isolation, digital interface card problems, interface card configuration, and troubleshooting.
- Chapter 7, “Corrective Maintenance—Service Circuits,” describes service circuit cards, detecting service circuit card problems, card configuration, and troubleshooting.
- Chapter 8, “Corrective Maintenance—Control Circuits,” describes control circuit cards, card configuration, and troubleshooting.
- Chapter 9, “Corrective Maintenance—Host Communications,” describes problem isolation techniques, corrective maintenance procedures, and troubleshooting.

## Document Conventions

This document uses the following 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.



### Warning

Means *danger*. You are in a situation that could cause bodily injury. Before you work on any equipment, you must be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translated versions of the warning, refer to the *Regulatory Compliance and Safety* document that accompanied the device.

## Related Documentation

The following documents are referenced from this guide or contain information that is directly related to system performance and configuration.

- *Cisco VCO/4K System Software Release Note*
- *Cisco VCO/4K SS7 ISUP Release Notes*
- *Cisco VCO/4K TCAP Release Notes*
- *Cisco VCO/4K Product Overview*
- *Cisco VCO/4K Hardware Planning Guide*
- *Cisco VCO/4K Mechanical Assemblies*
- *Cisco VCO/4K Standard Programming Reference*
- *Cisco VCO/4K Extended Programming Reference*
- *Cisco VCO/4K System Administrator's Guide*
- *Cisco VCO/4K Ethernet Guide*
- *Cisco VCO/4K Site Preparation Guide*
- *Cisco VCO/4K Card Technical Descriptions*
- *Cisco VCO/4K Troubleshooting Guide*
- *Ring Generator Instruction Sheet* (included with the ring generator kit)

The VCO/4K documents are available at:

[http://www.cisco.com/univercd/cc/td/doc/product/tel\\_pswt/](http://www.cisco.com/univercd/cc/td/doc/product/tel_pswt/)

## 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>

### 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/cgi-bin/order/order\\_root.pl](http://www.cisco.com/cgi-bin/order/order_root.pl)

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

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

- Nonregistered CCO 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).

## Documentation Feedback

If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to [bug-doc@cisco.com](mailto:bug-doc@cisco.com).

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.  
Document Resource Connection  
170 West Tasman Drive  
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.

Cisco.com provides a broad range of features and services to help customers and partners streamline business processes and improve productivity. Through Cisco.com, you can find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online technical support, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on Cisco.com to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

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

