

## **Preface**

# **Objective**

The *Cisco VCO/4K ASIST Programming Reference* describes the Application Software Integration Support Tools (ASIST) software product. The ASIST software product is a set of application development tools to help Cisco VCO/4K customers develop host-controlled applications.

ASIST is a C language representation of the command and report host interface protocols described in the *Cisco VCO/4K Standard Programming Reference* and the *VCO/4K Extended Programming Reference*. The command and report protocols allow a host-based application to control system resources, including the following:

- Network interface circuits
- · Service circuits
- Voice paths
- · System controller

Other commands and reports are dedicated to system status and statistics. The ASIST product is organized around the system architecture of the VCO/4K system software (see Figure 1).

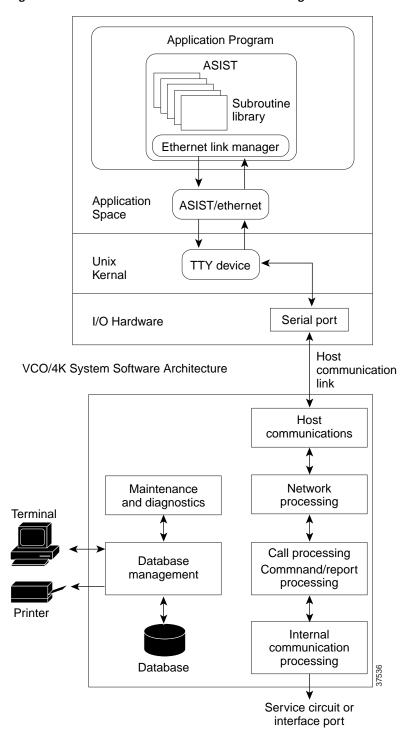


Figure 1 Software Architecture with ASIST Integration

The C language ASIST product is independent of any specific host operating system (see Figure 2). The ASIST product requires a separate communications driver, such as the ASIST/Ethernet component described in Chapter 3, "Ethernet Communications," to transmit commands and receive reports.

Host Computer VCO/4K System Application layer Application layer Virtual communication 1. Command response 1. Command response Command via commands ASSIST 2. Response generation 2. Response generation buildup 3. Message origination 3. Message origination Report 4. Network layer exchange 4. Network layer exchange parsing 5. Application event logging 5. Application event logging Network layer Network layer Virtual communication 1. Message queue processing 1. Message queue processing via packet 2. I/O queue management 2. I/O queue management exchange Link manager 3. Link layer exchange 3. Link layer exchange 4. Network event logging 4. Network event logging Data link layer Data link layer Virtual communication 1. I/O flow control 1. I/O flow control ASSIST/ETHERNET via protocol 2. Output message blocking 2. Output message blocking handshake 3. Message error processing 3. Message error processing Ethernet 4. Message protocol handshake 4. Message protocol handshake communications driver 5. Packet processing 5. Packet processing 6. Byte exchange to physical 6. Byte exchange to physical layer Physical layer Physical layer Physical communication 1. Physical byte-level I/O 1. Physical byte-level I/O via EIA/TIA-232 2. Data overrun, framing, 2. Data overrun, framing, electrical circuits Ethernet parity, underrun, etc. parity, underrun, etc. communications 3. Modern handshake control 3. Modern handshake control driver 4. Idle spacing/flagging 4. Idle spacing/flagging 5. CRC/LRC processing 5. CRC/LRC processing 6. Async line control 6. Async line control

Figure 2 Host-to-Switch Model with ASIST

### **Audience**

This guide is intended for all personnel designing applications for the VCO/4K switch. You should be familiar with the components of the switch as well as the system administrator master console. The master console is your access to the system administration functions. This guide offers programmers a means of easily implementing the call processing aspects of a telecommunications application.

# **Document Organization**

Chapter 1, "ASIST Installation," describes how to install the ASIST software product on your system.

Chapter 2, "Detailed Description," describes the C language functions and structures of ASIST that allow you to create applications used with the VCO/4K system.

Chapter 3, "Ethernet Communications," describes the ASIST/Ethernet software component—a set of application development tools designed to assist in the development of host-controlled applications used with the VCO/4K.

## **Document Conventions**

This guide uses the following conventions:



Means reader take note. Notes contain helpful suggestions.



Means the following are useful tips.



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



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.

## **Related Documentation**

You may want to refer to the following documents that apply to your Cisco VCO/4K configuration:

- Cisco VCO/4K System Software Version 5.n(n) Release Notes
- Cisco VCO/4K System Administrator's Guide
- Cisco VCO/4K System Messages
- Cisco VCO/4K Software Installation Guide
- Cisco VCO/4K Hardware Installation Guide
- Cisco VCO/4K Card Technical Descriptions
- Product supplements for optional software, including:
  - Cisco VCO/4K Management Information Base (MIB) Reference
  - Cisco VCO/4K Extended Programming Reference
  - Cisco VCO/4K Standard Programming Reference
  - Cisco VCO/4K TeleRouter Reference Guide
  - Cisco VCO/4K ISDN Supplement
  - Cisco VCO/4K Ethernet Supplement

- Cisco VCO/4K IPRC Supplement
- Applicable tone plan supplements

# **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

 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).

### **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.

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.