

Release Notes for Cisco AccessPath Manager Software Release 1.1

These release notes describe the features and caveats for Cisco AccessPath Manager (APM) Software Release 1.1. They discuss the following topics:

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Cisco IOS Releases for APM

Table 1 lists the AccessPath system shelves and the release of Cisco IOS software each is running. In order for Cisco AccessPath Manager to operate properly, each of the AccessPath system shelves be running the correct software release.

Table 1 Cisco IOS Releases for AccessPath

Device	Software Release				
Cisco AS5200	11.2(8)P IP+				
Cisco 7206	11.2(8)P IP+				
Cisco 2511	11.1(1) Enterprise				
Catalyst 5000	2.2(1)				

Oracle User Login Requirements for Installation and Autoboot

This section describes requirements for oracle user logins for installation and autoboot.

If the oracle login is enabled for interactive mode, the installation or boot will hang. This usually happens if the login scripts, such as .cshrc, .login, and .profile, invoke the **coraenv** or **oraenv** scripts provided by Oracle. If these scripts are invoked by the oracle user login and if the ORAENV_ASK variable is set to YES (default) prior to invocation, then interactively environment variable settings confirmations are required. This is not possible during the APM installation or at boot time.

The following example for C shell describes the step to take to request non-interactive **coraenv** script operation.

Note Bourne and K shell have slightly different mechanisms for setting variables.

Procedure

In the oracle user .cshrc file (or similar startup file), add the following lines that clear the ORAENV_ASK environment variable:

setenv ORAENV_ASK NO source /opt/bin/coraenv [or an alternate location] unsetenv ORAENV_ASK

APM Database Installation and Configuration

The APM installation package contains scripts for automatically creating the APM database. For more information on the APM database installation, refer to the README.database file on the CD-ROM in the cdrom0/CSCOapm/reloc directory. After installation, this file is also included in the /opt/CSCOapm directory.

Netscape Navigator and FastTrack Server Issues

The following issues are related to Netscape Navigator and Netscape FastTrack Server software.

APM Requires a Browser with Java Enabled

For APM to work properly, you must run it from a browser that has Java enabled. If you try to run APM from a browser that does not support Java or does not have Java enabled, you will receive the following message:

Error: APM requires a Java-enabled browser

If you are using Netscape 3.01 (recommended for APM 1.1), you can enable Java using the following steps:

- Step 1 Select Options -> Network Preferences -> Languages and check the Enable Java option.
- **Step 2** Either exit and reload Netscape before starting up APM, or hit the **Reload** button to reload APM.

Netscape Browser Caching Issues

The Netscape cache can become corrupted due to the multiuser functionality of APM. If you receive messages that applets cannot start, you should clear the Netscape memory and disk caches.

- Step 1 Select Options -> Network Preferences. Click the Cache tab.
- Step 2 Click Clear Memory Cache Now.
- Step 3 Click Clear Disk Cache Now.
- Step 4 Click OK.
- Step 5 Click Reload on the Netscape main window.

Netscape Browser Dialog Windows

Cisco APM uses modal dialog windows to display warnings. Generally, when an application displays a modal window or dialog, the application stops responding to any event (mouse action, keyboard entry, and so on) other than the event associated with the modal window (you must first respond to the modal window).

If you overlay the modal window with any other application window (the modal window now is "invisible"), the application will appear frozen.

If your browser window appears frozen, ensure that there is no modal window that has inadvertently been covered.

Netscape FastTrack Timeout on Reports

When a timeout occurs, a FastTrack "Connection timed out" message will appear in the Reports output frame (the bottom of the frame).

To determine if this message is because of a timeout, look at the FastTrack error log file (located in opt/CSCOapm/ns-home/httpd-*apm_server_name*/logs/errors). If the message is because of a timeout, you can increase the FastTrack timeout parameter.

To increase the FastTrack timeout parameter, add the following line to the FastTrack "magnus.conf" file (located in opt/CSCOapm/ns-home/httpd-*apm_server_name*/config):

Init fn=init-cgi timeout=nnn

where nnn is the number of seconds to wait.

You can increase the number of seconds to 600 (10 minutes) or 900 (15 minutes).

You must stop and restart the web server to enable this change. To restart FastTrack, enter the command:

/opt/CSCOapm/ns-home/httpd-apm_server_name/restart

or:

/opt/CSCOapm/ns-home/httpd-apm_server_name/stop /opt/CSCOapm/ns-home/httpd-apm_server_name/start

where *apm_server_name* is the name of the APM server.

Viewing HTML Reports Graphs

In order to download, store, and view HTML reports graphs on your computer you need a copy of an applet called graph.class in the directory where you store your HTML graph files. Follow this procedure to set up HTML graph reports viewing.

- **Step 1** In Netscape, open the http://*apm_server_name*/results/ web site (where *apm_server_name* is the name you have assigned to your APM server).
- **Step 2** Download the graph.txt file to the directory on your hard drive where you will be saving and opening HTML graph reports.
 - Press **Shift** and use the left mouse button to click on the graph.txt icon.
 - In the Save As... dialog box, select the directory where you will be storing the HTML graphs you want to view. Click **Save**.

Step 3 Rename the graph.txt file as graph.class.

Now you will be able to view any of the graphical HTML reports that are in this directory. You may also copy this graph.class file to any other directory from which you will be opening HTML graph reports.

Software Release Caveats

This section describes suggestions for optimum use of Cisco AccessPath Manager Software Release 1.1. Where applicable, the software caveat includes the Cisco DDTS tracking number (CSCdj*xxxx*).

Installation and Upgrade Caveats

The following caveats relate to APM installation or upgrade.

HP OpenView Daemons Must Be Running Throughout Installation

As documented in the APM CD-ROM booklet, the HP OpenView (HPOV) daemons must be running during the installation of APM if the user will be performing HPOV integration during the installation (CSCdj59951).

If HPOV is not running during APM installation, you will receive the following error messages:

```
5:47:55 INFO: Adding APMovRecTraps as an OpenView daemon application...
ovspmd: Object manager APMovRecTraps is not registered. See ovaddobj(lm).
ovspmd: Object manager APMovRecTraps is not registered. See ovaddobj(lm).
15:47:56 INFO: AccessPath - HP OpenView Integration Complete.
15:47:56 INFO: End APM HP OpenView Integration script (11/18/97 15:47:56)
15:53:03 ERROR: Startup of HP/OV APM Trap Manager failed!
WARN: 1 or more APM services failed to startup!
```

This problem should only happen if the user stops the HPOV daemons after answering all the installation script questions but before the postinstall script (which preforms HPOV integration) begins.

In order to recover from this situation, perform the following steps:

- **Step 1** Remove the APM installation using the **pkgrm** command described in the "Removing APM Software" section of the APM CD-ROM booklet.
- **Step 2** If the removal of APM was successful, continue with Step 3. If the removal was unsuccessful, you may receive the following messages:

ovspmd: Object manager APMovRecTraps is not registered. See ovaddobj(lm). ovspmd: Object manager APMovRecTraps is not registered. See ovaddobj(lm).

If you see these messages, perform the **pkgrm** command again. When you no longer receive these errors, continue with Step 3.

- **Step 3** Make sure all of the HPOV daemons are running correctly by running **ovstop** then **ovstart.**
- **Step 4** Start the APM installation process again. This procedure is detailed in the APM CD-ROM booklet.

If the semsys Kernel Is Not Loaded at Install Time, the Installation Fails

If you install APM 1.1 on a workstation that does not already have the semsys kernel module loaded, the APM preinstall script will display warning messages that the /etc/system values for semsys are not set correctly and exit, terminating the APM installation (CSCdj65599).

There are two ways to fix this:

1 Add the following line to the /etc/system file and reboot the workstation:

forceload: sys/semsys

2 Enter the following command (no reboot required):

modload -p sys/semsys

To find out if the semsys module is loaded, log in as root and issue this command:

modinfo | grep semsys

Manual Database Installation

If you answered no to the question "Automatic install of APM database?" (in order to perform a manual database configuration), you will receive the following error message at the end of the installation (CSCdj61415).

13:28:05 INFO: Begin APM System Startup (11/21/97 13:28:05)
13:28:06 ERROR: Startup of Oracle database (unable to determine database status)
!
13:28:06 INFO: Enabling future poller crontab jobs
13:28:06 INFO: Starting FastTrack Admin Server
13:28:12 INFO: Starting FastTrack Web Server
13:28:18 INFO: End APM System Startup (11/21/97 13:28:18)
13:28:18 WARN: 1 or more APM services failed to startup!
13:28:18 INFO: End CSCOapm postinstall script (11/21/97 13:28:18)
pkgadd: ERROR: postinstall script did not complete successfully

These error messages only reflect the fact that you have not completed the database installation.

The procedure for manual database configuration is the same as the one for configuring a remote database. The APM installation package contains scripts for automatically creating the APM database. The APM_dbcreate.sh script in /opt/CSCOapmdb/oracle/admin is the master database creation script for remote databases that invokes all the other necessary scripts.

For remote database support, tailoring of both the Client and Server SQL*Net is left to your local Oracle database administrator, who should be familiar with the specific Oracle installation.

For the APM product, the remote database name is defined by the \$APM_REMOTEDB environment variable. If this variable is undefined, or if it is blank, then APM assumes that the database is local. Otherwise, APM attempts to connect to the database identified by the variable.

The following files may need to be edited for your particular Oracle installation.

Client configuration involves the tnsnames.ora file:

```
1.5 29 Feb 1996
# @(#)tnsnames.ora
# Filename.....: tnsnames.ora
##################
<remote db name> =
  (DESCRIPTION =
   (ADDRESS_LIST =
       (ADDRESS =
         (PROTOCOL = TCP)
         (Host = <remote host>)
         (Port = 1521)
       )
   )
    (CONNECT_DATA =
      (SID = APMDB)
      (GLOBAL_NAME = <remote db name>)
   )
  )
```

Server configuration involves the listener.ora file:

```
# @(#)listener.ora
                      1.8 06 Sep 1995
# Filename.....: listener.ora
# Node.....: <remote host name>
LISTENER =
  (ADDRESS_LIST =
       (ADDRESS=
         (PROTOCOL = TPC)
         (KEY= <supported remote DB name>)
       )
       (ADDRESS=
         (PROTOCOL=IPC)
         (KEY= APMDB)
       )
       (ADDRESS =
         (PROTOCOL = TCP)
         (Host = <supported/alternate remote DB name>)
         (Port = 1521)
       )
 )
STARTUP_WAIT_TIME_LISTENER = 0
CONNECT_TIMEOUT_LISTENER = 10
TRACE_LEVEL_LISTENER = OFF
SID_LIST_LISTENER =
 (SID_LIST =
   (SID DESC =
     (SID_NAME = APMDB)
      (ORACLE_HOME = <root dir of installed Oracle>)
    )
  )
```

Refer to the README.database file in /opt/CSCOapm for further instructions regarding remote database setup.

Manual Database Configuration Error Checking

If you choose to do a manual database configuration, the installation script will perform only minimal verification of the variables you supply to the script.

Local database configurations receive verification that the ORACLE_HOME directory exists and for correct Oracle version and components, but with manual configuration the script checks only that the directory name supplied for ORACLE_HOME exists (CSCdj61448).

Oracle Workgroup Server Detected Error

AccessPath Manager requires Oracle Enterprise Server 7.3.2.2 software. If it detects Oracle Workgroup software it will warn you of this fact but not instruct you on how to recover (CSCdj62142).

The warning is as follows:

11:11:20 WARN: Oracle Workgroup Server detected

AccessPath Manager supports Oracle Enterprise Server 7.3.2.2 or higher. The installation program has detected an Oracle Workgroup Server product. At this time the Oracle Workgroup Server is not supported by AccessPath Manager. The installation will continue but it is possible that AccessPath Manager will not operate correctly with the Oracle Workgroup Server.

The recommended recovery from this condition is as follows:

- **Step 1** Abort the installation script. Press CTRL-C.
- **Step 2** Install the Oracle Enterprise Server 7.3.2.2 software.
- **Step 3** Start the APM installation process again. This procedure is detailed in the APM CD-ROM booklet.

Working APM 1.0 Installation Required for Upgrade

In order for the upgrade from APM 1.0 to APM 1.1 to be successful, you must have a fully functional and operational APM 1.0 system.

720 MB of Tablespace Required for Upgrade

The upgrade from APM release 1.0 to APM release 1.1 attempts to extend the existing tablespaces to the new disk requirements defined for APM 1.1. This requires 720 MB of free space on the APM_DBPATH file system (where APMDB is located). If there is not enough space for the additional tablespace data files, a warning will be issued along with information on recovering from this condition (CSCdj60219).

The warning is as follows:

```
TIMESTAMP WARN: Not enough free space to extend tablespaces (720MB req)
TIMESTAMP` INFO: Oracle administrator should add datafiles manually:
   ALTER TABLESPACE data_ts ADD DATAFILE '$APM_DBPATH/data02.dbf' size 290M;
   ALTER TABLESPACE index_ts ADD DATAFILE '$APM_DBPATH/index02.dbf' size 210M;
   ALTER TABLESPACE rbs_ts ADD DATAFILE '$APM_DBPATH/rbs02.dbf' size 220M;
```

If you receive this message, you can recover using the following steps.

- **Step 1** Alter your disk space allocation so that there is at least 720 MB of free disk space in the APM_DBPATH file system.
- **Step 2** Start the upgrade again.

Correct Upgrade Command

In order to upgrade from APM Release 1.0 to Release 1.1, you must follow the software upgrade procedure described in the Cisco AccessPath Manager CD-ROM booklet (CSCdj54670).

If you enter the command for a first-time installation:

pkgadd -d /device [-a none]

where device is the device name of the CD-ROM drive, you will receive the following error message:

Current administration requires that a unique instance of the <CSCOapm> package be created. However, the maximum number of instances of the package which may be supported at one time on the same system has already been met.

No changes were made to the system.

To perform the upgrade, enter the command:

pkgadd -a /device/apmadmin -d dir

where:

- device is the device name of the CD-ROM drive.
- dir is the directory that contains the "CSCOapm" and "CSCOapmdb" kit directories.

as documented in the Cisco AccessPath Manager CD-ROM booklet.

Attempting to Upgrade More Than Once

If you attempt to upgrade from APM 1.0 to APM 1.1 and you abort the upgrade procedure or the procedure otherwise fails, you must manually restore the data saved in the directory /opt/\$PKGINST/etc/tmp/upgrade_backup before attempting the upgrade again. This is because the upgrade may have failed after overwriting user files but before restoring those files (CSCdj57209).

You will be warned if the installation script detects any previous upgrade attempts. The message is as follows:

18:19:19 WARN: Previous upgrade backup directory found

An existing upgrade directory /opt/CSCOapm/etc/tmp/upgrade_backup has been detected. This may be an indicator of a previous failed attempt at upgrading AccessPath Manager. If this is the case then continuing this installation session may cause loss of data!

To backup these files and get ready to attempt the APM upgrade again, follow these steps.

Step 1 Cancel the upgrade. Answer **n** when you asked if you wish to proceed:

Do you wish to proceed? [y] **n**

The installation will be aborted.

- **Step 2** Manually restore the data.
 - (a) **For both CSCOapm (local) and CSCOapmdb (remote) installations,** restore the files in the oracle and APMDB directories:
 - % cd /opt/CSCOapmdb/etc/tmp/upgrade_backup
 - % tar cf oracle | (cd /opt/CSCOapmdb; tar xfBp -)
 - % cd /opt/CSCOapmdb/etc/tmp/upgrade_backup/APMDB
 - % tar cf sql | (cd \$APM_DBPATH; tar xfBp -)
 - (b) For CSCOapm (local) installations, you must also backup some files in the www, ns-home, and etc directories. Enter these commands:
 - % cd /opt/CSCOapmdb/etc/tmp/upgrade_backup

% tar cf - www/cgi-bin/env | (cd /opt/CSCOapm; tar xfBp -)

- % cd /opt/CSCOapmdb/etc/tmp/upgrade_backup
- % tar cf etc/defPasswd | (cd /opt/CSCOapm; tar xfBp -)
- % cd /opt/CSCOapmdb/etc/tmp/upgrade_backup

% tar cf - ns-home | (cd /opt/CSCOapm; tar xfBp -)

Step 3 Start the upgrade again using the procedure in the APM CD-ROM booklet.

APM Removal Caveat

The following is a caveat related to removing APM.

Scripts Used for Final Cleanup After APM Removal Saved in /tmp

Two scripts used to complete the removal of APM files are written to the /tmp directory. These files might be removed if the /tmp directory is purged (CSCdj61332).

If you do will not be running the /tmp/CSCOapm_remove or /tmp/CSCOapmdb_remove command immediately after the removing the APM software package, as directed by the instructions in the APM CD-ROM booklet, you should us the UNIX cp command to copy the appropriate file to another directory.

User Interface Caveats

This section describes software user interface caveats.

Stack Icon Cannot be Selected

To select a stack, click on its stack label and not the stack icon (CSCdj27561).

Selection and Execution of Options Can Create an Invalid Operations Message

Any invalid combination of selection operations and objects will immediately display an error message (CSCdj31787).

Deselecting a Selected Stack

You cannot deselect a selected stack by clicking on it. To deselect a stack, select another device (CSCdj30710).

Cursor Missing on Template Editor

The template editor sometimes does not display a cursor. You can still enter information. If you click outside the editor pane, and then click back in the editor, the cursor should reappear (CSCdj08836).

Hotkeys Not Supported

The use of hotkey shortcuts are not supported in APM Software Release 1.1 (CSCdj31735).

Tab Key Not Supported

The use of the tab key for cursor movement inside dialogs for Windows 95 are not supported in APM Software Release 1.1.

Configuration Caveats

This section describes software configuration caveats.

Adding a Shelf Does Not Dynamically Increase the Number of Shelves in a Stack

If you attempt to add a shelf exceeding the predefined number of shelves in a stack, the shelf will not add to the stack unless you modify the stack definition to increase the number of shelves allowed in this stack (CSCdj29369). This does not effect addressing on existing shelves.

Special Characters Not Supported in the Configuration Subsystem

The configuration subsystem of APM does not permit the use of certain characters in text entry fields. See Table 2 (CSCdj61329).

Description	Character			
Nonprintable characters.	There are less than 32 in the ASCII character set.			
Exclamation point	!			
Double quotation mark	"			
Pound sign	#			
Dollar sign	\$			
Percent sign	%			
Ampersand	&			
Single quotation mark	1			
Back quotation mark	`			
Plus sign	+			
Less than symbol	<			
Greater than symbol	>			
Equal sign	=			
Question mark	?			
Caret	٨			
Vertical bar				
Tilde	~			

 Table 2
 Special Characters Not Supported in the Configuration Subsystem

No IP Address Validation Is Done on Network Addresses During Stack Add or Stack Modify

No Class A, B, or C validation is done on network addresses during the Stack Add and Stack Modify processes (CSCdj46854).

The management network and the first network must be Class C network addresses. (Class A, Class B, Class D and Class E addresses are not supported in these two fields at the stack level). Valid Class C networks include the following range of network numbers: 192.0.1.0 through 223.255.254.0.

For any other IP address fields (including shelf level addresses), you should avoid the loopback addresses (127.x.x.x), the IP broadcast address (with all ones in the host part of the address) and the network addresses (with 0 in the host part of the address).

Shelf Addressing Requires Manually Entering Configuration IP Address When Modifying a Shelf's Address

The Shelf Address screen calculates the IP address to be used to configure a given device through the Ethernet. However, if you attempt to modify a shelf's Ethernet IP address, the Shelf Address screen will incorrectly make its calculation of the configuration IP address using the new address although it may not exist yet (CSCdj53948).

In such a case, you must manually enter the correct Ethernet IP address to use when configuring the device.

Configuring a Shelf Results in a Permission Denied Message

When you configure a shelf using Ethernet or FastEthernet, if in the log there is an **rcp Permission denied** error message, perform the following steps:

- **Step 1** Use the UNIX command **ls -al**, to check the APMadmin account home directory for the following conditions:
 - Is the account home directory owned by the APMadmin user?
 - If there is a .rhosts file, is it also owned by the APMadmin user?
- **Step 2** If both of the answers are yes, use vi or another text editor to view the contents of the .rhosts file. Check to see if the Ethernet or FastEthernet IP address of the device to be configured is present.
 - If the addresses are not present, add them.
 - If the addresses are present, then having only the IP address in .rhosts is not sufficient to pass the rcp permission validation test in your environment.

To resolve this problem, edit the .rhosts file and add a"+" as a single line at the beginning of the file. The "+" removes all security and allows permissions for all users.

Cannot Submit Configuration Job

Under certain conditions, a configuration job may not submit correctly despite having correct parameters (CSCdj32971).

If this occurs, enter the UNIX command **ls -l** on the directory /opt/CSCOapm/etc. If your APM admin account is APMadmin, then ensure your file ownership and permissions are as follows:

-rwsrwsr-x	1	root	other	23272	Aug	8	02:45	APMQ
-rwsrwsr-x	1	APMadmin	other	9136	Aug	8	02:45	APM_access
-rwsrwsr-x	1	root	other	9136	Aug	8	02:45	APM_crontab
-rwsrwsr-x	1	APMadmin	other	11140	Aug	8	02:45	APM_rhosts

If necessary, use the chmod or chown commands to change permissions and ownerships.

Timeout Error May Occur When Creating Shelf Without Really Configuring It

Under certain rare conditions, when adding a shelf without really configuring the device, a timeout error condition may occur (CSCdj52777).

Although the shelf is added properly to the APM system for polling purposes, the output in the shelf add job popup window stops early. After about 10 minutes, the following message appears:

```
<HTML><HEAD><TITLE>OK</TITLE></HEAD>
<BODY><H1>OK</H1>
An error has occurred.
```

To avoid this problem, select **Ethernet** rather than **Terminal Server** in the last Shelf Add Device Access Configuration screen.

Logfiles Stop Displaying Log Before Completion

Configuration popup windows may freeze for some time (CSCdj47989). If this happens, wait for the main browser window to indicate the status of the ongoing configuration job.

Submit Shelf Job Screen May Lose Selections

The Submit Shelf Job screen may lose user selections (CSCdj52683).

You may have selected **Ethernet** as a device configuration, but if you click the **Back** button and later return to this screen, your selection of **Ethernet** will be lost along with any IP address values you entered for the Ethernet port. Instead, **Terminal Server** will be selected and the default IP addresses will have replaced any customizations you may have made. Reselect **Ethernet** and re-enter any customized IP values.

When Downgrading a Stack to One Router Shelf,

the IP Address of the Second Router Shelf May Be Erased

When modifying a stack from two Router Shelves (offload server shelves) to one, the IP address of the second Router Shelf will be set to blank in the database (CSCdj41895). This will stop the poller from polling the stack.

To downgrade dual Router Shelf AccessPath stack to a single Router Shelf configuration, follow these steps:

- Step 1Delete the second Router Shelf. Select the second Router Shelf, then click Configure ->Shelf Delete -> Execute. With all of the data verifying the shelf you want to delete, clickNext, then Next, then Delete.
- Step 2 Change the number of Router Shelves in the stack. With the stack selected, click
 Configure -> Stack Modify -> Execute. Change the Number of 7206(s) pulldown menu from 2 to 1. Click Next six times as you go through the other stack modification screens. Click Finish.

Templates Added Manually Not Available to Template Manager

Any templates placed into the APM file structure manually, that is, without the use of the APM Template Manager, will not be available for editing or viewing in the Template Manager (CSCdj59421).

Any templates that are copied into the APM directory structure must be viewed or edited using a text editor such as vi. These templates may still be downloaded to the shelves within an AccessPath system.

APM Can Only Display Original Cisco IOS Release

The Cisco IOS release displayed when you select **Shelf -> Monitor -> Display -> IOS Version** is the release originally configured for that shelf (CSCdj46782).

This tool is not meant to provide Cisco IOS image management, only a view into what APM understood the Cisco IOS release was on this shelf when the shelf was created.

Reports Caveat

This section describes a software reports caveat.

Inaccurate Data in Modem Connection Report

For certain time ranges, there is a possibility of inaccurate data in the Modem Connection report if a device has rebooted during the time range (CSCdj32971).

HP OpenView Caveat

This section describes an HP OpenView caveat.

No Automatic Shelf Symbol/Object Deletion

If you delete a shelf, you must manually delete the shelf symbol and object (CSCdj25841).

Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: http://www.cisco.com
- WWW: http://www-europe.cisco.com
- WWW: http://www-china.cisco.com
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

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This document is to be used in conjunction with the Cisco AccessPath Manager 1.1 publication.

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