



Cisco JTAPI Installation Guide for Cisco CallManager 4.0

This document describes how to install and configure the Cisco Java Telephony API (JTAPI) client software for Cisco CallManager 4.0.

Contents

This document contains the following topics:

- [Introduction](#)
- [Installing the Cisco JTAPI Software](#)
- [Verifying the Installation](#)
- [Auto Install for Upgrades](#)
- [Configuring Cisco JTAPI Tracing](#)
- [JTAPI Preferences on non-Microsoft environments](#)
- [Administering User Information for JTAPI Applications](#)
- [Obtaining Documentation](#)
- [Documentation Feedback](#)
- [Obtaining Technical Assistance](#)
- [Obtaining Additional Publications and Information](#)



Corporate Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Copyright © 2003 Cisco Systems, Inc. All rights reserved.

Introduction

Cisco Java Telephony API (JTAPI) implementation comprises Java classes that reside on all client machines that run JTAPI applications. Installation of the Cisco JTAPI implementation must take place before applications function correctly. Make sure that the Cisco JTAPI classes are installed wherever JTAPI applications will run, whether on Cisco CallManager, on a separate machine, or on both. Installation requires 5 MB of local disk space.

**Note**

If you have upgraded to Cisco CallManager 4.0, you must upgrade the JTAPI client software on any application server or client workstation on which JTAPI applications are installed. If you do not upgrade the JTAPI client, your application will fail to initialize. If you need to upgrade, download the appropriate client from the Cisco CallManager Administration as described in the [Installing the Cisco JTAPI Software](#) section.

The upgraded JTAPI client software does not work with older releases of Cisco CallManager.

Installing the Cisco JTAPI Software

Cisco JTAPI supports multiple languages for the installation and JTAPI preferences UI.

The Cisco JTAPI installation utility installs the following items on the local disk drive:

- JTAPI java classes in %SystemRoot%\java\lib
- JTAPI Preferences (jtprefs.exe) in Program Files\JTAPITools
- JTAPI sample applications (makecall, jtrace) in Program Files\JTAPITools
- JTAPI documentation in Program Files\JTAPITools\doc

**Note**

To run JTAPI applications, you need a Java 1.1-compatible environment such as the Sun JDK 1.1.x, JDK 1.2, JDK 1.3, or Microsoft Virtual Machine (bundled with Internet Explorer 4.0 and higher). Cisco JTAPI will also run on Sun JDK1.2.

To use JTPREFS with Cisco JTAPI, however, requires Microsoft Java Virtual Machine 5.00.3190 or later. For information on JTPrefs, see the [“Configuring Cisco JTAPI Tracing” section on page 4](#).

If you are installing Cisco JTAPI on a Windows 2000 workstation or server, you already have a compatible version of the Microsoft Virtual Machine. On all other Microsoft platforms such as Windows 95, Windows 98, and Windows NT, verify the current version of the Microsoft Virtual Machine by running the command "jview /?" and noting the version that is printed at the top of the console.

Perform the following steps to install the Cisco JTAPI software.

Procedure

- Step 1** Log in to the computer where you want to install the Cisco JTAPI client software.
- Step 2** Close all Windows programs.
- Step 3** Open a web browser.

- Step 4** Go to the Cisco CallManager Administration:
 http://Name/CCMAdmin/main.asp
 where:
Name specifies the name or IP address of the Cisco CallManager
- Step 5** Choose **Application > Install Plugins**.
- Step 6** Choose the **Cisco JTAPI** link.
- Step 7** Follow the instructions in the popup windows.



Note Install Cisco JTAPI software on the default drive as directed by the installation software. When Windows NT is installed in C:\WINNT, the default directory, for example, is C:\WINNT\Java\lib.

Verifying the Installation

To verify the JTAPI installation, you can use the makecall application that allows you to place a call via JTAPI. Perform the following procedure to use the makecall application.

Procedure

-
- Step 1** From the Windows NT command line, navigate to the directory where you installed Cisco JTAPI Tools. By default, this directory is C:\Program Files\JTAPITools.
- Step 2** Execute the following command:
Jview CiscoJtapiVersion
- Step 3** Execute the following command:
Jview makecall <server name> <login> <password> 1000 <phone1> <phone2>
 where:

server name specifies the hostname or IP address of the Cisco CallManager (for example, CTISERVER).

phone1 and *phone2* designate directory numbers of IP phones or virtual phones that the user controls according to the user configuration. See the *Cisco CallManager Administration Guide* for details.

For *login* and *password*, use the user ID and password that you configured in the Cisco CallManager User Configuration window.

You can also use the JTAPI Preferences user interface utility tool to verify the installed JTAPI version: Go to **Start > Programs > CiscoJTAPI > JTAPI Preferences**.

Auto Install for Upgrades

This feature provides a facility by which an application at startup can identify itself to a Cisco CallManager web server via an HTTP request, and receives a response with the version of the required JTAPI API. The application compares the version that is available on the server to the local version in the application classpath and determines whether an upgrade is necessary.

The application makes changes in the init process to instantiate an updater API to discover the server installed component and download the component as needed.

The feature aims are allowing applications to refresh the jtapi.jar component to match the Cisco CallManager, and also a way to centrally deploy the jtapi.jar to which applications can auto update.

The API required to perform this functionality is packaged in the form of an updater.jar. jtapi.jar and updater.jar are packaged with a standard manifest that can be used to compare versions. A application does not have to resort to instantiating a Version class as this could make the API write protected from an update.

This feature, when specified with the location and component, downloads jtapi.jar from server and copies it to local directory. The application can either copy downloaded jtapi.jar with its copy by overwriting it or change the classpath to access the new jtapi.jar.



Note

Auto Install does not update JTAPI preferences, TAPITestTools, updater.jar, and javadoc components. If applications require these components, install JTAPI from the Cisco CallManager plugin pages.

Configuring Cisco JTAPI Tracing

Use the Cisco JTAPI tracing preferences application (JTPREFS.EXE) to configure trace levels and trace destinations. Installation of the Cisco JTAPI Preferences into the Program Files\JTAPITools directory utility takes place by default. To open the Cisco JTAPI Preferences utility, choose **Start > Programs > Cisco JTAPI > JTAPI Preferences**.

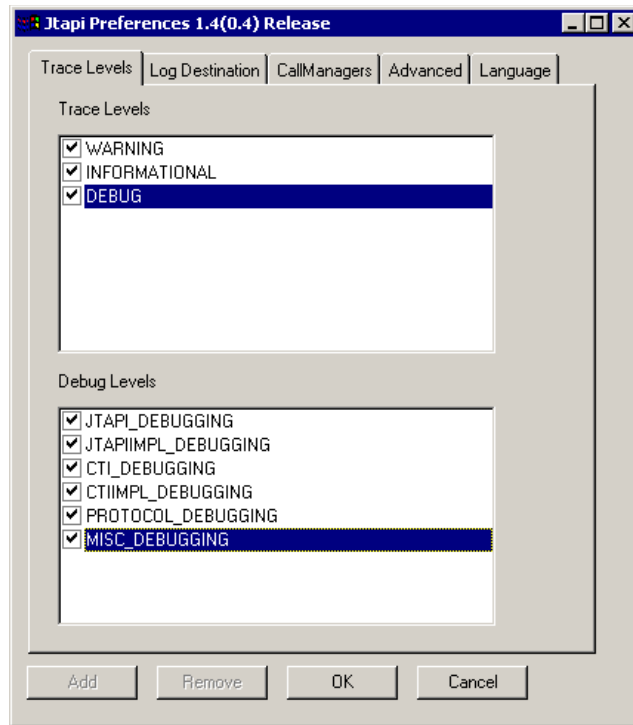
This section, which describes how to use the Cisco JTAPI preferences application, discusses the following topics:

- [Trace Levels](#)
- [Log Destination](#)
- [Cisco CallManager](#)
- [Advanced](#)

Trace Levels

Figure 1 illustrates the Trace Levels tab of the Cisco JTAPI preferences application. The window title shows the JTAPI version number.

Figure 1 Trace Levels Tab



The Trace Level tab allows you to enable or disable the following JTAPI trace levels:

- WARNING—Low-level warning events
- INFORMATIONAL—Status events
- DEBUG—Highest level debugging events

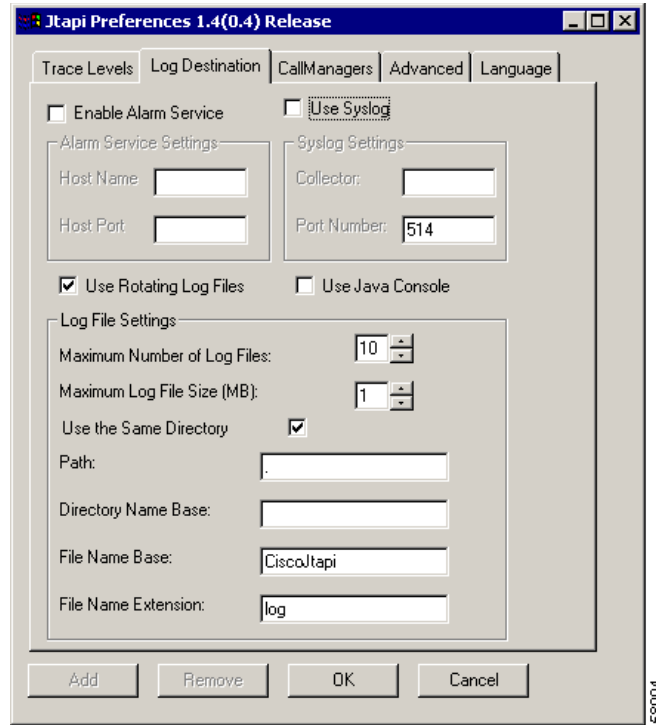
You may enable or disable additional debugging levels in the Debug Levels window, as described in the following list:

- JTAPI_DEBUGGING—JTAPI methods and events trace
- JTAPI_IMPLDEBUGGING—Internal JTAPI implementation trace
- CTI_DEBUGGING—Trace Cisco CallManager events that are sent to the JTAPI implementation
- CTI_IMPL_DEBUGGING—Internal CTICLIENT implementation trace
- PROTOCOL_DEBUGGING—Full CTI protocol decoding
- MISC_DEBUGGING—Miscellaneous low-level debug trace

Log Destination

Figure 2 illustrates the Log Destination tab of the Cisco JTAPI preferences application.

Figure 2 Log Destination Tab



The Log Destination tab allows you to configure how JTAPI creates traces and how they are stored. Table 1 contains descriptions of the log destination fields.

Table 1 Log Destination Configuration Fields

Field	Description
Enable Alarm Service	When this option is enabled, JTAPI alarms go to an alarm service that is running on the specified machine. You must specify the host name and port number when enabling this option.
Use Java Console	When this option is enabled, tracing goes to the standard output or console (command) window.
Use Syslog	When this option is enabled, traces go to a UDP port as specified in the Syslog Collector and Port Number fields. Syslog collector service collects traces and directs them to the CiscoWorks2000 server.

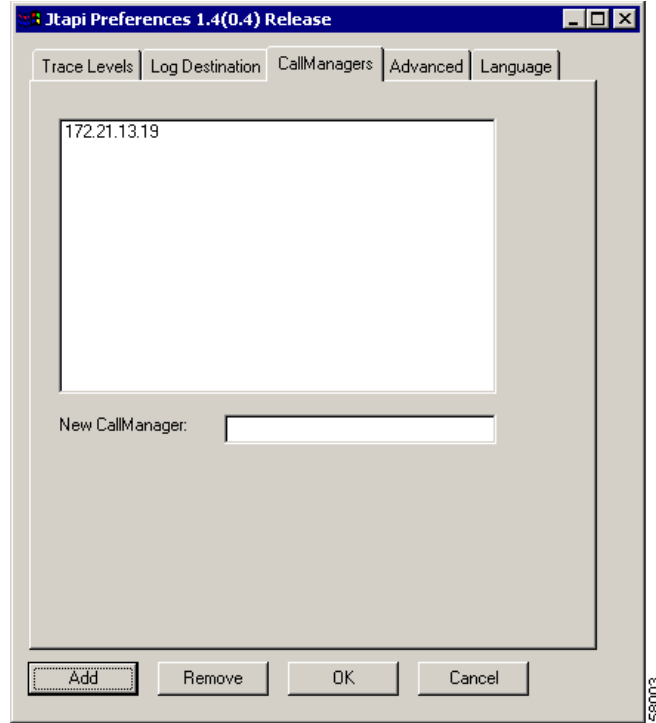
Table 1 Log Destination Configuration Fields (continued)

Field	Description
Use Rotating Log Files	This option allows you to direct the traces to a specific path and folder in the system. No fewer than two log files and no more than 99 files can exist. Cisco JTAPI rotates through the log files in numerical order, returning to the first log file after filling the last. Log files increase in size in 1-megabyte increments.
Use the Same Directory	<p>This option allows you to specify whether the same folder name should be used for each instance of an application.</p> <p>When the option is enabled, JTAPI traces the log files to the same directory. In this case, successive instances of a JTAPI application will restart the log files starting at index 01.</p> <p>When the option is disabled, each application instance, whether successive or simultaneous, will cause the trace files to be placed in a new folder sequential to the last folder written. Cisco JTAPI detects the last folder present in the trace path and automatically increments the numeric index.</p>
Path	This field allows you to specify the path name to which the trace files are written. When the path is not specified, JTAPI makes the default the application path.
Directory Name Base	This field allows you to specify a folder name where the trace files will be contained.
File Name Base and File Name Extension	<p>Use these values to create the trace file names with a numerical index that is appended to the file base name to indicate the order in which the files are created.</p> <p>For example, if you enter jtapiTrace in the File Name Base field and log in the File Name Extension field, the trace files would rotate between jtapiTrace01.log, jtapiTrace02.log, and jtapiTrace10.log. If the File Name Base and File Name Extension fields are left blank, Cisco JTAPI picks the trace files names as CiscoJtapi01.log, CiscoJtapi02.log, and so on.</p>

Cisco CallManager

Figure 3 illustrates the Cisco CallManager tab of the Cisco JTAPI preferences application.

Figure 3 CallManager Tab

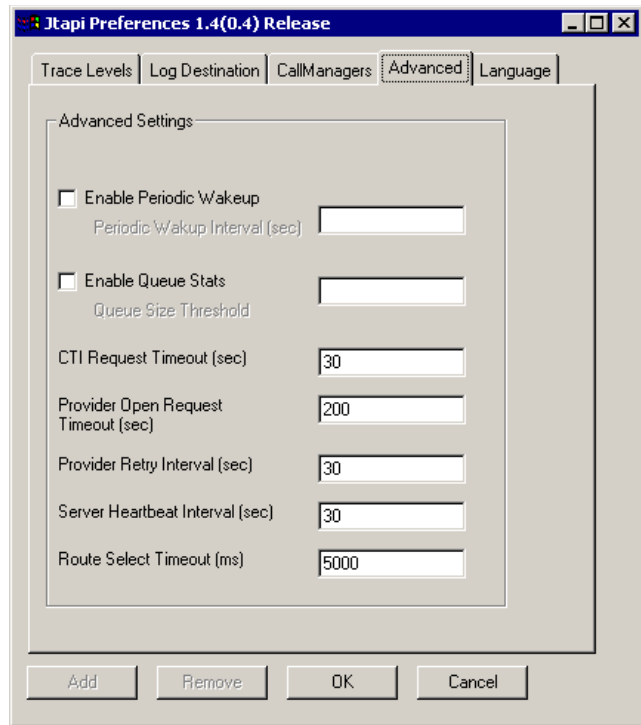


This tab allows you to define a list of Cisco CallManagers that a JTAPI application can present to the user for optional Cisco CallManager connectivity.

Advanced

Figure 4 illustrates the Advanced tab of the Cisco JTAPI preferences application.

Figure 4 Advanced Tab



You can configure the parameters in [Table 2](#) through the Advanced tab in the JTPrefs application. You may need these low-level parameters for troubleshooting and debugging purposes only.

**Note**

Cisco recommends that you *not* modify the parameters in [Table 2](#) unless the Cisco Technical Assistance Center (TAC) instructs you to do so.

Table 2 Advanced Configuration Fields

Field	Description
Enable Periodic Wakeup	This setting enables a heartbeat in the internal message queue that JTAPI uses. It causes the thread to wake up if it has not received a message in the time that is defined in the PeriodicWakeupInterval and creates a log event. The default setting is disabled.
Periodic Wakeup Interval (sec)	This setting allows you to define a time of inactivity in the JTAPI internal message thread. If JTAPI has not received a message during this time, the thread wakes up and logs an event. The default is 50 seconds.

Table 2 *Advanced Configuration Fields (continued)*

Field	Description
Enable Queue Stats	This setting causes JTAPI to log the max queue depth over the specified number of messages that are queued to JTAPI main event thread. In other words, for every x messages processed, JTAPI logs a DEBUGGING level trace that reports the maximum queue depth over that interval, where x is the number of messages that are specified in Queue Size Threshold. The default setting is disabled.
Queue Size Threshold	This setting allows you to specify the number of messages that define the time over which JTAPI will report the maximum queue depth. The default is 25 messages.
CTI Request Timeout (sec)	This setting specifies the time in seconds that JTAPI will wait for a response from a CTI request. The default is 15 seconds.
Provider Open Request Timeout (sec)	This setting specifies the time in seconds that JTAPI will wait for a response for the Provider Open Request. The default is 30 seconds.
Provider Retry Interval (sec)	This setting specifies the time in seconds that JTAPI will retry opening a connection to the Cisco CallManager cluster in case of system failure. The default is 30 seconds.
Server Heartbeat Interval (sec)	This setting specifies how often in seconds that the connection between JTAPI and the Cisco CallManager cluster will be verified to be alive. If JTAPI fails to receive heartbeats, it will establish a connection via the second CTIManager that is specified in the provider open request.
Route Select Timeout (ms)	This setting specifies the time in milliseconds that JTAPI will wait for the application to respond to the Route event. If the application does not respond within this time, JTAPI will end the route and send the corresponding RouteEnd event.

Language Tab

The Language tab allows you to select one of the installed languages to view the configuration settings in that language.

Choose a language and click **Change Language** to reload the tabs with the text in that language.

JTAPI Preferences on non-Microsoft environments

For non-Microsoft environments, you must create a jtapi.ini file manually and place it in the CLASSPATH. The following list provides the parameter names with sample values:

```

PROTOCOL_DEBUGGING=0
UseSameDirectory=1
JTAPIIMPL_DEBUGGING=0
UseSystemDotOut=0
QueueStatsEnabled=0
PeriodicWakeupInterval=50
RouteSelectTimeout=5000
UseTraceFile=0
ProviderOpenRequestTimeout=30
Directory=
DEBUG=0
DesiredServerHeartbeatInterval=30
AlarmServicePort=1444
CTI_DEBUGGING=0
SyslogCollector=
JTAPI_DEBUGGING=0
PeriodicWakeupEnabled=0
NumTraceFiles=10
AlarmServiceHostname=
MISC_DEBUGGING=0
TracePath=.
UseAlarmService=0
CTIIMPL_DEBUGGING=0
WARNING=0
Traces=WARNING; INFORMATIONAL; DEBUG
INFORMATIONAL=0
UseSyslog=0
CtiPortAutoRecovery=1
FileNameBase=CiscoJtapi
CtiRequestTimeout=15
TraceFileSize=1048576
Debugging=JTAPI_DEBUGGING; JTAPIIMPL_DEBUGGING; CTI_DEBUGGING;
    CTIIMPL_DEBUGGING; PROTOCOL_DEBUGGING; MISC_DEBUGGING
FileNameExtension=log
QueueSizeThreshold=25
ProviderRetryInterval=30
CallManagers=cm1
SyslogCollectorUDPPort=514

```

Administering User Information for JTAPI Applications

The JTAPI application requires that users be administered in the directory and given the privilege to control one or more devices. Follow the procedures for adding a user and assigning devices to a user in the “Adding a New User” section before using the JTAPI application. The list of devices assigned to the user represents the phones that the user needs to control from the application (for example, make calls and answer calls).

Obtaining Documentation

Cisco provides several ways to obtain documentation, technical assistance, and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which may have shipped with your product. The Documentation CD-ROM is updated regularly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual or quarterly subscription.

Registered Cisco.com users can order a single Documentation CD-ROM (product number DOC-CONDOCCD=) through the Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

All users can order annual or quarterly subscriptions through the online Subscription Store:

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

Click Subscriptions & Promotional Materials in the left navigation bar.

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

<http://www.cisco.com/en/US/partner/ordering/index.shtml>

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit e-mail comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

Developer Support

The Developer Support Program provides formalized support for Cisco Systems interfaces to enable developers, customers, and partners in the Cisco Service Provider solutions Ecosystem and Cisco AVVID Partner programs to accelerate their delivery of compatible solutions.

The Developer Support Engineers are an extension of the product technology engineering teams. They have direct access to the resources necessary to provide expert support in a timely manner.

For additional information on this program, refer to the Developer Support Program Web Site at [www.cisco.com/go/developer support/](http://www.cisco.com/go/developer%20support/).

Developers using the Cisco JTAPI Development are encouraged to join the Cisco Developer Support Program. This new program provides a consistent level of support while leveraging Cisco interfaces in development projects.



Note

Cisco Technical Assistance Center (TAC) support does not include Cisco JTAPI Development support and is limited to Cisco AVVID installation/configuration and Cisco-developed applications. For more information about the Developer Support Program, please contact Cisco at developer-support@cisco.com.

Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

<http://www.cisco.com/tac>

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

<http://www.cisco.com/tac/caseopen>

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete listing of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Product Catalog describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:
http://www.cisco.com/en/US/products/products_catalog_links_launch.html
- Cisco Press publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press online at this URL:
<http://www.ciscopress.com>
- Packet magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:
<http://www.cisco.com/packet>
- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:
<http://www.cisco.com/go/iqmagazine>
- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:
http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html
- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:
<http://www.cisco.com/en/US/learning/index.html>

CCIP, CCSP, the Cisco Arrow logo, the Cisco *Powered* Network mark, Cisco Unity, Follow Me Browsing, FormShare, and StackWise are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, and iQuick Study are service marks of Cisco Systems, Inc.; and Aironet, ASIST, BPX, Catalyst, CCDA, CCDP, CCIE, CCNA, CCNP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, the Cisco IOS logo, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Empowering the Internet Generation, Enterprise/Solver, EtherChannel, EtherSwitch, Fast Step, GigaStack, Internet Quotient, IOS, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, LightStream, MGX, MICA, the Networkers logo, Networking Academy, Network Registrar, *Packet*, PIX, Post-Routing, Pre-Routing, RateMUX, Registrar, ScriptShare, SlideCast, SMARTnet, StrataView Plus, Stratm, SwitchProbe, TeleRouter, The Fastest Way to Increase Your Internet Quotient, TransPath, and VCO are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries.

All other trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0304R)

Copyright © 2003, Cisco Systems, Inc.
All rights reserved.

