



Avaya Communication Manager API

Quick Start

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Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based), or asynchronous (character-, message-, or packet-based) equipment, or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll facility access)
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- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - Avaya's customer system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- Your Avaya-provided telecommunications systems and their interfaces
- Your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products

TCP/IP Facilities

Customers may experience differences in product performance, reliability and security depending upon network configurations/design and topologies, even when the product performs as warranted.

Standards Compliance

Avaya Inc. is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya Inc. The correction of interference caused by such unauthorized modifications, substitution or attachment will be the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya Inc. could void the user's authority to operate this equipment.

Product Safety Standards

This product complies with and conforms to the following international Product Safety standards as applicable:

Safety of Information Technology Equipment, IEC 60950, 3rd Edition, or IEC 60950-1, 1st Edition, including all relevant national deviations as listed in Compliance with IEC for Electrical Equipment (IECEE) CB-96A.

Safety of Information Technology Equipment, CAN/CSA-C22.2 No. 60950-00 / UL 60950, 3rd Edition, or CAN/CSA-C22.2 No. 60950-1-03 / UL 60950-1.

Safety Requirements for Customer Equipment, ACA Technical Standard (TS) 001 - 1997.

One or more of the following Mexican national standards, as applicable:
NOM 001 SCFI 1993, NOM SCFI 016 1993, NOM 019 SCFI 1998.

The equipment described in this document may contain Class 1 LASER Device(s). These devices comply with the following standards:

- EN 60825-1, Edition 1.1, 1998-01
- 21 CFR 1040.10 and CFR 1040.11.

The LASER devices used in Avaya equipment typically operate within the following parameters:

| Typical Center Wavelength | Maximum Output Power |
|---------------------------|----------------------|
| 830 nm - 860 nm | -1.5 dBm |
| 1270 nm - 1360 nm | -3.0 dBm |
| 1540 nm - 1570 nm | 5.0 dBm |

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Klass 1 Laser Apparat

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposures. Contact your Avaya representative for more laser product information.

Electromagnetic Compatibility (EMC) Standards

This product complies with and conforms to the following international EMC standards and all relevant national deviations:

Limits and Methods of Measurement of Radio Interference of Information Technology Equipment, CISPR 22:1997 and EN55022:1998.

Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement, CISPR 24:1997 and EN55024:1998, including:

- Electrostatic Discharge (ESD) IEC 61000-4-2
- Radiated Immunity IEC 61000-4-3
- Electrical Fast Transient IEC 61000-4-4
- Lightning Effects IEC 61000-4-5
- Conducted Immunity IEC 61000-4-6
- Mains Frequency Magnetic Field IEC 61000-4-8
- Voltage Dips and Variations IEC 61000-4-11

Power Line Emissions, IEC 61000-3-2: Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions.

Power Line Emissions, IEC 61000-3-3: Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.

Federal Communications Commission Statement

Part 15:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Part 68: Answer-Supervision Signaling

Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 rules. This equipment returns answer-supervision signals to the public switched network when:

- answered by the called station,
- answered by the attendant, or
- routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user.

This equipment returns answer-supervision signals on all direct inward dialed (DID) calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered.
- A busy tone is received.
- A reorder tone is received.

Avaya attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

REN Number

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

This equipment complies with Part 68 of the FCC rules. On either the rear or inside the front cover of this equipment is a label that contains, among other information, the FCC registration number, and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

For G350 and G700 Media Gateways:

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the rear of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. The digits represented by ## are the ringer equivalence number (REN) without a decimal point (for example, 03 is a REN of 0.3). If requested, this number must be provided to the telephone company.

For all media gateways:

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

REN is not required for some types of analog or digital facilities.

Means of Connection

Connection of this equipment to the telephone network is shown in the following tables.

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

| Manufacturer's Port Identifier | FIC Code | SOC/REN/ A.S. Code | Network Jacks |
|--------------------------------|-----------|--------------------|---------------------|
| Off premises station | OL13C | 9.0F | RJ2GX, RJ21X, RJ11C |
| DID trunk | 02RV2-T | 0.0B | RJ2GX, RJ21X |
| CO trunk | 02GS2 | 0.3A | RJ21X |
| | 02LS2 | 0.3A | RJ21X |
| Tie trunk | TL31M | 9.0F | RJ2GX |
| Basic Rate Interface | 02IS5 | 6.0F, 6.0Y | RJ49C |
| 1.544 digital interface | 04DU9-BN | 6.0F | RJ48C, RJ48M |
| | 04DU9-IKN | 6.0F | RJ48C, RJ48M |
| | 04DU9-ISN | 6.0F | RJ48C, RJ48M |
| 120A4 channel service unit | 04DU9-DN | 6.0Y | RJ48C |

For G350 and G700 Media Gateways:

| Manufacturer's Port Identifier | FIC Code | SOC/REN/A.S. Code | Network Jacks |
|--------------------------------|------------|-------------------|---------------|
| Ground Start CO trunk | 02GS2 | 1.0A | RJ11C |
| DID trunk | 02RV2-T | AS.0 | RJ11C |
| Loop Start CO trunk | 02LS2 | 0.5A | RJ11C |
| 1.544 digital interface | 04DU9-BN | 6.0Y | RJ48C |
| | 04DU9-DN | 6.0Y | RJ48C |
| | 04DU9-IKN | 6.0Y | RJ48C |
| | 04DU9-ISBN | 6.0Y | RJ48C |
| Basic Rate Interface | 02IS5 | 6.0F | RJ49C |

For all media gateways:

If the terminal equipment (for example, the media server or media gateway) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242- 2121 or contact your local Avaya representative. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. It is recommended that repairs be performed by Avaya certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

Canadian Department of Communications (DOC) Interference Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Installation and Repairs

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Declarations of Conformity

United States FCC Part 68 Supplier's Declaration of Conformity (SDoC)

Avaya Inc. in the United States of America hereby certifies that the equipment described in this document and bearing a TIA TSB-168 label identification number complies with the FCC's Rules and Regulations 47 CFR Part 68, and the Administrative Council on Terminal Attachments (ACTA) adopted technical criteria.

Avaya further asserts that Avaya handset-equipped terminal equipment described in this document complies with Paragraph 68.316 of the FCC Rules and Regulations defining Hearing Aid Compatibility and is deemed compatible with hearing aids.

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available on the following Web site: <http://www.avaya.com/support>.

All Avaya media servers and media gateways are compliant with FCC Part 68, but many have been registered with the FCC before the SDoC process was available. A list of all Avaya registered products may be found at: <http://www.part68.org> by conducting a search using "Avaya" as manufacturer.

European Union Declarations of Conformity



Avaya Inc. declares that the equipment specified in this document bearing the "CE" (*Conformité Européenne*) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC).

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the following Web site: <http://www.avaya.com/support>.

Japan

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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For the most current versions of documentation, go to the Avaya support Web site: <http://www.avaya.com/support>.

Contents

| | | |
|----------|---|-----------|
| 1 | What is the Quick Start procedure? | 7 |
| 2 | Prerequisites | 9 |
| | • Connector server hardware requirements | 9 |
| | • Connector server software requirements | 9 |
| | • Application machine requirements | 10 |
| | • Communication Manager and media server requirements | 10 |
| | • Required network characteristics | 11 |
| | • Communication Manager configuration requirements | 12 |
| 3 | Installing software on the connector server | 13 |
| | • Installing Linux | 13 |
| | • Installing Java | 14 |
| | • Installing the connector server software | 14 |
| 4 | Configuring the connector server and Communication Manager | 17 |
| | • Administering the connector server | 17 |
| | • Administering Communication Manager | 18 |
| | Create an IP softphone extension | 18 |
| | Set up out-of-band tone detection | 18 |
| 5 | Running the demonstration application | 19 |
| | • Administer the demonstration application | 19 |
| | • Start the connector server | 20 |
| | • Run the demonstration application | 20 |
| | • For more information | 21 |
| | Glossary | 23 |
| | Index | 27 |

1 What is the Quick Start procedure?

This *Quick Start* guide provides you a procedure for setting up the minimum Avaya Communication Manager API environment so that you can run a demonstration application that is included with the software. This allows you to:

- See how Communication Manager API works with Communication Manager
- Learn how to install and configure all of the software required to run an application
- Experiment with a simple Communication Manager API application

The minimum Avaya Communication Manager API environment has these characteristics:

- All of the Communication Manager API software, including the demonstration application and API, are on one server.
- Communication Manager is configured to provide the prerequisites listed in [Communication Manager and media server requirements](#) on page 10.

NOTE:

Communication Manager is a powerful solution with a vast number of configurable options. Although such a system can work well with Communication Manager API, only certain configurations can work with this Quick Start procedure. Because you may be working with an already-configured Communication Manager system, we have explained the many prerequisites for using Communication Manager in this procedure. If your configuration is already too complex for this Quick Start, you can instead use the procedures in *Avaya Communication Manager API Installation and Administration* to set up your Communication Manager API system and run the demonstration application.

2 Prerequisites

This chapter explains the prerequisites for running Communication Manager API connector server software. These prerequisites include:

- [Connector server hardware requirements](#) on page 9
- [Connector server software requirements](#) on page 9
- [Application machine requirements](#) on page 10
- [Communication Manager and media server requirements](#) on page 10
- [Required network characteristics](#) on page 11

Before installing the connector server software, make sure your system meets the following hardware, software, and network requirements.

Connector server hardware requirements

| | |
|-----------------------------------|---|
| Recommended specifications | 2.4-GHz Single-processor Pentium IV class machine with: <ul style="list-style-type: none">• 1GB RAM• Hard Disk with at least 7200 rpm rating• 10/100 ethernet NIC port (should be duplex) <p>NOTE: Available disk space is application-specific (the server requires at least 1 GB).</p> |
|-----------------------------------|---|

Connector server software requirements

Besides the connector server software package, the following software is needed to run the server.

| | |
|-------------------------|--|
| Operating system | Red Hat Linux 9.0 |
| Other software | Java™ 2 platform (J2SE™ 1.4.2_03 or later) |

Instructions for installing this software are found in [Installing Linux](#) on page 13 and [Installing Java](#) on page 14.

Application machine requirements

Applications can be developed and executed on the connector server (not recommended by Avaya) or on any machine that is capable of running the latest version of Sun's JVM™. Application development and execution use the Java 2 Platform, Standard Edition (J2SE) 1.4.2_03 or later.

For more information about application machines in the Communication Manager API configuration, see “Hardware/software configurations” in the *Overview*.

Communication Manager and media server requirements

You must have Communication Manager R2.0 or 2.1 running the latest load on your Avaya media server. Check on the latest load at <http://www.avaya.com/support>. Communication Manager R2.1 or later is required in order to perform shared control of IP telephones.

The Avaya media server running Communication Manager software must be one of the following. This list also explains the additional hardware requirements for these servers:

- S8700/8710 with
 - C-LAN circuit pack: TN799DP
 - One of the following:
 - Media processor circuit pack: TN2302AP
 - G700/G350 media gateway
- S8500 with
 - C-LAN circuit pack: TN799DP
 - One of the following:
 - Media processor circuit pack: TN2302AP
 - G700/G350 media gateway
- HP380 with
 - C-LAN circuit pack: TN799DP
 - One of the following:
 - Media processor circuit pack: TN2302AP
 - G700/G350 media gateway
- S8300 in
 - G700 or G350 media gateway
- DEFINITY® Server CSI with
 - C-LAN circuit pack: TN799DP
 - Media processor circuit pack: TN2302AP

- DEFINITY® Server SI in an MCC/SCC cabinet and with
 - C-LAN circuit pack: TN799DP
 - Media processor circuit pack: TN2302AP

NOTE:

Each VoIP resource on a gateway or port network has 64 available channels (except a G350 gateway, which has only 32 VoIP channels on its motherboard). For each IP endpoint in the call (including CMAPI endpoints), either one VoIP channel will be used (when using a G.711 codec) or two VoIP channels will be used (when using a G.729 codec).

Required network characteristics

Currently, Communication Manager API testing only covers LAN configurations. WAN configurations are not tested; therefore, WAN configurations are not recommended.

Avaya strongly recommends that the application machine, connector server machine, and Communication Manager machines reside on a private LAN.

Communication Manager configuration requirements

NOTE:

In order to use this Quick Start procedure, all of the following prerequisites must apply for your current Avaya Communication Manager configuration. If your current configuration is missing one or two of these prerequisites, you may still be able to use this Quick Start procedure after meeting those prerequisites. This document references the books that provide those procedures.

If you find that your configuration is missing *several* of the prerequisites, you may need to instead use the procedures in the section “Administering Avaya Communication Manager for Communication Manager API” in *Avaya Communication Manager API Installation and Administration* (03-300085).

This Quick Start Communication Manager administration procedure assumes these prerequisites:

- A dial plan is already administered.
- An IP network is already set up for Avaya Communication Manager.

If you first must set up an IP network, see “Setting up an IP network” in the installation and administration book.

- At least one VoIP resource with G.711 (A or U) or G.729 is the first preference in the network region codec set associated to a network region. This region can be the same as the CMAPI softphone’s network region or it can be an interconnected region.

This VoIP resource can be on either the media processor card on a port network/G600 or the G700 media gateway.

If the IP network region is not already set, use the default network region value of 1.

If you have other network regions set up for Avaya Communication Manager, see “If you have network regions” in *Installation and Administration*

- There is no IP network map used in Communication Manager for the softphones that are being administered for Communication Manager API.

If an IP network map is already set up, see “If you have IP network maps” in *Installation and Administration*.

- A port network or media gateway (like G600 or G700) is already set up.

To run an application, you will need the following IP address:

- (using an S8300 media server) The IP address of the media server
- (using any other media server) The IP address of the C-LAN

Get this information from your telecom manager.

3 Installing software on the connector server

This chapter explains how to install all the software necessary to run the connector server software. The procedures are:

- [Installing Linux](#) on page 13
- [Installing Java](#) on page 14
- [Installing the connector server software](#) on page 14

Installing Linux

- 1 Install Red Hat Linux 9.0. Follow the instructions of the Red Hat installation utility to install your system.
- 2 During the installation, at the **Installation Type** prompt, select **Install** and **Server**.
- 3 Because the connector server requires at least 1 GB of free hard disk space, use the following guide to configure Linux:

| Mount Point | Partition Size | File System Type |
|-------------|-------------------------------|------------------|
| / | equal to or greater than 1 GB | ext3 |

- 4 Complete the Linux installation and reboot the system.

NOTE:

Verify that you have included a separate line in `etc/hosts` that specifies the IP address of the connector server.

- For a system with 1 GB of installed memory, the `Mem:` line should include `1048576k av` (available memory).
- For a system with 960 MB of installed memory, the `Mem:` line should include `983040k av` (available memory).

If the line does not match the expected value, check your configuration file or call Avaya for technical support.

```
/dev/hda:
multcount      = 16 (on)
I/O support    = 0 (default 16-bit)
unmaskirq      = 0 (off)
using_dma      = 1 (on)
keepsettings   = 0 (off)
nowerr         = 0 (off)
readonly       = 0 (off)
readahead      = 8 (on)
geometry       = 7476/255/63, sectors = 120103200, start = 0
busstate       = 1 (on)
```

Installing Java

To install the Java 2 Platform JDK:

- 1 Download the RPM version of the latest J2SE JDK (1.4.2_03 or later) from <http://java.sun.com>.
- 2 Install the Java J2SE JDK RPM according to the instructions provided by Sun Microsystems™.

NOTE:

Do not use the self-extracting installation of the Java package. Communication Manager API verifies that the Java RPM is installed.

- 3 Run a sample Java program to verify the proper installation of the Java platform.

Installing the connector server software

To download the connector server software from the DevConnect site:

- 1 Go to **www.devconnectprogram.com**.
- 2 Select Member Login.
- 3 Log in with your E-mail address and password.
- 4 Download the connector server software (cmapi-server-release#-1.noarch.rpm).

It does not matter where you download the files in your directory system.

Besides the server software, the RPM includes the demonstration/verification application and all the files necessary for administering and running that application.

Installing the RPM upgrades any existing version of Communication Manager API you have already installed.

To install the RPM:

As root, execute **rpm -Uv cmapi-server-release#-1.noarch.rpm**.

When the RPM installs, the following directories and files are placed in these locations:

- The main server directory
/opt/cmapi
- The connector server configuration properties file
/opt/cmapi/conf/cmapi-user-configuration.properties
- The connector server startup configuration file
/etc/sysconfig/cmapi
- Log files
/opt/cmapi/logs
- The client properties file for the demonstration/verification application
/opt/cmapi/cmapisd/lib/cmapi-client.properties
- The application properties file for the demonstration/verification application
/opt/cmapi/cmapisd/examples/lib/tutorial.properties

- The media files for the demonstration/verification application
 - /opt/cmap/cmapisdsk/examples/media/0001.wav
 - /opt/cmap/cmapisdsk/examples/media/0002.wav
 - /opt/cmap/cmapisdsk/examples/media/0003.wav
 - /opt/cmap/cmapisdsk/examples/media/0004.wav
- The demonstration/verification application run script
 - /opt/cmap/cmapisdsk/examples/bin/runTutorial.sh
- A README file containing a description of how to set up and run the verification application.
 - /opt/cmap/cmapisdsk/examples/bin/README.txt

3 Installing software on the connector server

Installing the connector server software

4 Configuring the connector server and Communication Manager

This section explains the steps necessary to configure the connector server and Communication Manager to run the demonstration application.

Administering the connector server

You configure the connector server for running the demonstration application by editing the startup configuration file (/etc/sysconfig/cmapi).

In /etc/sysconfig/cmapi edit the JAVA_HOME variable (bolded in the example), assigning it a value matching the installation directory of the Java 2 SDK.

NOTE:

Do *not* modify anything else in this file.

Following is an example startup configuration file:

```
# Avaya Communication Manager API Connector Server

# Java SDK Home Directory.
# Ensure this variable is set to directory where
# the Java SDK is installed.
JAVA_HOME=/usr/java/j2sdk1.4.2_03

# Connector Server Home Directory
# (Do not change these variables.)
CMAPI_HOME=/opt/cmapi
SERVER=${CMAPI_HOME}/bin/cmserver
SERVER_USER=avaya
```

NOTE:

Verify that you have included a separate line in etc/hosts that specifies the IP address of the connector server.

Administering Communication Manager

Use the Communication Manager SAT interface to administer the following.

Create an IP softphone extension

You must administer an IP softphone extension to use for the demonstration application.

Use the **add station** command to add a station.

- 1 For `station type`, choose **4624**.

NOTE:

This is the station type that we are suggesting for this Quick Start procedure. However, a type 4624 is not required to run the demonstration application

`Port` automatically becomes **IP**.

- In the `IP softphone` field, enter **y**.
- For `security code`, provide a numeric security code. Remember this code as it will be used in a later step.

For an example of how you fill out the form, see “Example screens: adding stations for the application” in Chapter 3, “Administering Avaya Communication Manager” in *Installation and Administration*.

To administer a different station type (not 4624) see “Adding stations for the API application” in Chapter 3, “Administering Avaya Communication Manager” in *Installation and Administration*.

Set up out-of-band tone detection

Communication Manager API and Communication Manager must support the same type of tone detection. The Communication Manager API configuration properties file defaults to out-of-band tone detection. Make sure that Communication Manager also is configured for out-of-band.

- 1 Use the **change system-parameters ip-options** command.
- 2 For `Intra-System IP DTMF Transmission Mode`, enter **out-of-band**.

For an example of how you fill out the form, see “Example screens: setting up out-of-band tone detection” in Chapter 3, “Administering Avaya Communication Manager” in *Installation and Administration*.

5 Running the demonstration application

The sample application that is included on the connector server RPM is used to demonstrate an example application that can be created using Communication Manager API. In this book we refer to this sample application as the demonstration application (and sometimes as the verification/demonstration application).

NOTE:

In *Installation and Administration*, the application is used to verify connectivity. In that book we refer to the application as the verification application (and sometimes as the verification/demonstration application). This application is also referenced in the *Java Programmer's Guide* to view sample source.

To run the demonstration application, you must:

- 1 [Administer the demonstration application](#)
- 2 [Start the connector server](#)
- 3 [Run the demonstration application](#)

The following sections explain these steps.

Administer the demonstration application

- 1 Edit the tutorial application properties file (/opt/cmapi/cmapisdsk/examples/lib/tutorial.properties) for the demonstration application.

This is the application properties file (tutorial.properties):

```
callserver=nnn.nnn.nnn.nnn
extension=nnnn
password=nnnn
```

- Set `callserver` to the IP address of the media server for Communication Manager.
 - (using an S8300 media server) The IP address of the media server
 - (using any other media server) The IP address of the C-LAN
- Set `extension` to the extension number of the station you administered as a softphone.
- Set `password` to the security code you administered for that station.

- 2 Move the application media files:

- a Make sure that the directories you specify in the configurations properties file for the location of the player files and of the recorded files are set to the same directory. The directories are specified in these two properties:

```
com.avaya.mvcs.media.VoiceUnitServices.dir.recorder=/tmp
com.avaya.mvcs.media.VoiceUnitServices.dir.player=/tmp
```

The default directory is /tmp.

- b Copy the application media files located in /opt/cmapi/cmapisdsk/examples/media, into this directory.

Start the connector server

The server must be running before you can run an application.

To start the connector server, execute:

```
/sbin/service cmapi start
```

If you have problems starting the connector server, see “Starting the connector server” in Chapter 4, “Administering the connector server” in *Communication Manager API Installation and Administration*.

Run the demonstration application

- 1 Change to the directory where the demonstration application run script resides:

```
cd /opt/cmapi/cmapiSdk/examples/bin
```

- 2 Start the script file that runs the application:

```
runTutorial.sh
```

NOTE:

Remember that for Linux, you must enter the entire filename, runTutorial.sh, to start the script file.

The application begins running.

This application acts as a softphone and waits for calls. When the extension is called from any other phone, it answers with a recorded greeting that prompts you to record a message.

Experiment with this application:

- 1 Call the extension and listen to the recorded greeting.
- 2 Follow the prompts to record a message and have it played back to you..

NOTE:

The demonstration application can play only the last recorded message on a given call. If you make a new call, you will not hear a recording from a previous call. All the recorded files are saved in the file you have specified as the location of the recorded files in the configuration properties file.

If you have problems running the application, see “Test connectivity with the application” in Chapter 5 “Verifying connectivity” in *Installation and Administration*.

For more information

For more detailed information about using Communication Manager API, see the following books.

- For more detailed information about installing and administering the connector server software and administering Avaya Communication Manager for Communication Manager API, see the *Communication Manager API Installation and Administration*.
- For more detailed information about starting and stopping the server and troubleshooting, see *Communication Manager API Management*.
- For information about writing a Java application, see:
 - *Communication Manager API Java Programmer's Guide*
 - *Communication Manager API Java Programmer's Reference (Javadoc)*
- For information about writing an application to the XML protocol, see:
 - *Communication Manager API XML Programmer's Guide*
 - *Communication Manager API XML Programmer's Reference (XMLdoc)*

5 Running the demonstration application

For more information

Glossary

A

API

Application Programming Interface. A “shorthand” term in this documentation for the Java interface provided by the Communication Manager API. See also [connector client API library](#)

application machine

The hardware platform that the [connector client API library](#) and the [client application](#) are running on

B

BHCC

busy hour call capacity

C

client application

An application created using Communication Manager API

CMAPI softphone

Communication Manager API software objects that represent softphone-enabled, Communication Manager telephones or extensions

Communication Manager API

The product name. This includes the server-side runtime software (see [connector server software](#)) and the [connector client API library](#). This term is never used to reference only the client API library.

connector

This describes the function of Communication Manager API

In this context, “connector” means software and communications protocol(s) that allow two disparate systems to communicate. Often used to provide open access to a proprietary system. In the case of Communication Manager API, the connector enables applications running on a computing platform to incorporate telephony functionality through interaction with Communication Manager.

connector client API library

The Communication Manager API Java API, also referred to as the [API](#)

connector server machine

The hardware platform that the connector server software is running on. In these books, the term “connector server” by itself never refers to the connector server machine. See [connector server software](#).

connector server software

The Communication Manager API server-side runtime software, often referred to as the “connector server” in these documents

CSTA

Computer-Supported Telecommunications Applications

D

DMA

Direct memory access

E

ECMA

European Computer Manufacturers Association. A European association for standardizing information and communication systems in order to reflect the international activities of the organization.

H

hold time

The total length of time in minutes and seconds that a facility is used during a call

J

JDK

Java Developers Kit

J2SE

Java™ 2 Platform, Standard Edition

JSW

Java Service Wrapper

JVM

Java Virtual Machine

R

RPM

Red Hat Package Manager

S

SAT

System Access Terminal (for Communication Manager)

SDK

Software Development Kit. An SDK typically includes API library, software platform, documentation, and tools.

T

TCP

Transmission Control Protocol. A connection-oriented transport-layer protocol, IETF STD 7. RFC 793, that governs the exchange of sequential data. Whereas the Internet Protocol (IP) deals only with packets, TCP enables two hosts to establish a connection and exchange streams of data. TCP guarantees delivery of data, and also guarantees that packets are delivered in the same order in which the packets are sent.

TTI

Terminal Translation Initialization. This is a feature in Communication Manager that allows administrators, when initially administering new DCP stations, to not initially bind the extension number to a port. When the technician is installing the stations, they then use the TTI feature access code to bind the extension number to the station.

V**VoIP**

Voice over IP. A set of facilities that use the Internet Protocol (IP) to manage the delivery of voice information. In general, VoIP means to send voice information in digital form in discrete packets instead of in the traditional circuit-committed protocols of the public switched telephone network (PSTN). Users of VoIP and Internet telephony avoid the tolls that are charged for ordinary telephone service.

XML

Extensible Markup Language

XSD

XML Schema Definition. Specifies how to formally describe the elements in an Extensible Markup Language (XML) document. This description can be used to verify that each item of content in a document adheres to the description of the element in which the content is to be placed.

Index

A

application properties file
example, [19](#)

B

BHCC, [23](#)

C

change system-parameters ip-options command, [18](#)
client application, [23](#)
 also see application
CM Link, [23](#)
CMAPI softphone, [23](#)
Communication Manager
 administering, [18](#)
 configuration requirements, [12](#)
 IP network, [12](#)
 IP network map, [12](#)
configuring Linux
 Linux
 configuring, [13](#)
connector, [23](#)
connector server
 administering for Quick Start, [17](#)
 starting, [20](#)
connector server machine
 minimum hardware specifications, [9](#)

D

demonstration application
 running, [20](#)
DevConnect site, downloading from, [14](#)
dial plan, [12](#)
DMA, [24](#)

E

ECMA, [24](#)

G

G.711, [12](#)
G600, [12](#)
G700, [12](#)

H

hardware requirements, [9](#)
hold time, [24](#)

I

installing
 Java, [14](#)
 Linux, [13](#)
 server software, [14](#)
IP network, [12](#)
 map, [12](#)
IP softphone extension, creating, [18](#)

J

J2SE, [24](#)
Java
 installing, [14](#)
Java 2 Platform SDK, [9](#)
 installing, [14](#)
JAVA_HOME variable
 editing, [17](#)
JDK, [24](#)
JVM, [24](#)

L

Linux
 installing, [13](#)
Linux operating system, [9](#)

M

media files, [19](#)
media gateway requirements, [12](#)
media servers
 hardware requirements, [10](#)

N

network characteristics, required, [11](#), [12](#)

O

operating system requirements, [9](#)

P

port network, [12](#)
prerequisites, [9](#)
properties
 configuration file, [19](#)
 media, [19](#)

R

Red Hat Linux, [9](#)
requirements
 Communication Manager configuration, [12](#)
 connector server machine, [9](#)
 hardware, [9](#)
 media gateways, [12](#)
 media server hardware, [10](#)
 media servers, [10](#)
 network characteristics, [11](#)
 operating system, [9](#)
 software, [9](#)
requirements network characteristics, [12](#)
RPM, [24](#)

S

SAT, [24](#)
SDK, [24](#)
server software
 configuring, [14](#)
 installing, [14](#)
software requirements, [9](#)
startup configuration file
 example, [17](#)

T

tone detection
 setting up in Communication Manager
 out-of-band, [18](#)
TTI, [25](#)

V

VoIP, [25](#)
VoIP resource, [12](#)