AVAYA

IP Office
ContactStore Pre-requisites Guide

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Preventing toll fraud

"Toll fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, anyone who is not a corporate employee, agent, subcontractor, or person working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya fraud intervention

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, call Technical Service Center Toll Fraud Intervention Hotline at +1-800-643-2353 for the United States and Canada. For additional support telephone numbers, see the Avaya Web site:

http://www.avaya.com

Select Support, then select Escalation Lists. This Web site includes telephone numbers for escalation within the United States. For escalation telephone numbers outside the United States, select Global Escalation List.

Providing telecommunications security

Telecommunications security (of voice, data, and 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 person 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:

- Use (of capabilities special to the accessed equipment)

- Theft (such as, of intellectual property, financial assets, or toll-facility access)

- Eavesdropping (privacy invasions to humans)

- 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 and data privacy, intellectual property, material assets, financial resources, labor costs, and legal costs).

Responsibility for your company's telecommunications security

The final responsibility for securing both this system and its networked equipment rests with you, an Avaya customer's 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.

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Avaya support

For support please contact with your system maintainer.

Preface

About This Guide

The *ContactStore for IP Office Prerequisites Guide* provides details of the ContactStore for IP Office system, as well as recommended and required components.

You should read and understand the information in this guide prior to purchasing, installing, and configuring the required solution components.

Intended audience

This guide is designed for use by:

- Avaya and Business Partner sales, pre-sales and professional services staff responsible for planning, quoting and sizing systems

- Customers' IT staff responsible for sizing or purchasing equipment.

Summary of information included in this guide

This guide provides the following information:

Chapter Title	Description
Chapter 1: **ContactStore for IP Office Overview**	This chapter provides an overview of the ContactStore for IP Office features, functions, and limitations.
Chapter 2: **Avaya System Requirements**	This chapter describes the Avaya components that must be in place for ContactStore for IP Office to operate.
Chapter 3: **ContactStore Server Requirements**	This chapter describes the requirements for the server platform on which the ContactStore for IP Office resides.
Chapter 4: **Storage Requirements**	This chapter provides details about the storage requirements for the ContactStore Server.
Glossary	The glossary defines the terms you need to understand ContactStore for IP Office.
Index	The index lists key words and phrases that you can use to quickly access information in the guide.

Conventions used in this guide

The following table shows how user input, output and instructions are highlighted in this guide, as well as special notations that you will see as you use this guide.

To show...	This style is used	For example...
Information shown on screen	Fixed width	You should see the prompt below: login:
Characters that you should type exactly as shown	**Fixed width, bold**	Enter the following command: **mount** **/mnt/cdrom**
Characters that you should replace with appropriate information	***Fixed width, bold italic***	Browse to the new server by entering http://***servername***:8080
Menu selections, buttons and tabs	**Bold**	Click on the **Install** button.
Helpful hints that can improve the efficiency or effectiveness of your work	**Tip:**	**Tip:** Use a photocopy of the *Header List Worksheet* to plan each header list.
Important details that we want to make sure that you do not overlook	**Note:**	**Note:** Media Encryption may or may not show up on this form.
Advice that can help you avoid undesirable results	⚠ Important:	⚠ **Important:** If the network does not meet the three conditions listed, there will be no media resources.
Situations that can result in: • Harm to software • Loss of data • An interruption in service	⚠ CAUTION:	⚠ CAUTION: Perform this procedure only after normal business hours. This procedure restarts all links on the interface, and can cause a temporary loss of service.
Situations that can result in harm to hardware or equipment	⚠ WARNING:	⚠ WARNING: A fractured or broken ferrite is not effective for EMC control.

Additional references

The following guides contain additional information you may find helpful.

- *ContactStore for IP Office Installation Guide*

- *ContactStore for IP Office System Administration Guide*

- *ContactStore for IP Office Search & Replay Instructions*

- *Avaya IP Office 3.0 Manager Manual*

- *Avaya IP Office 3.0 Voicemail Pro Installation*

- *Avaya IP Office 3.0 License & Feature Key Server Manual*

- *Avaya IP Office Installation Manual*

Note: Avaya IP Office documentation is available through the Avaya online support Web site, http://support.avaya.com.
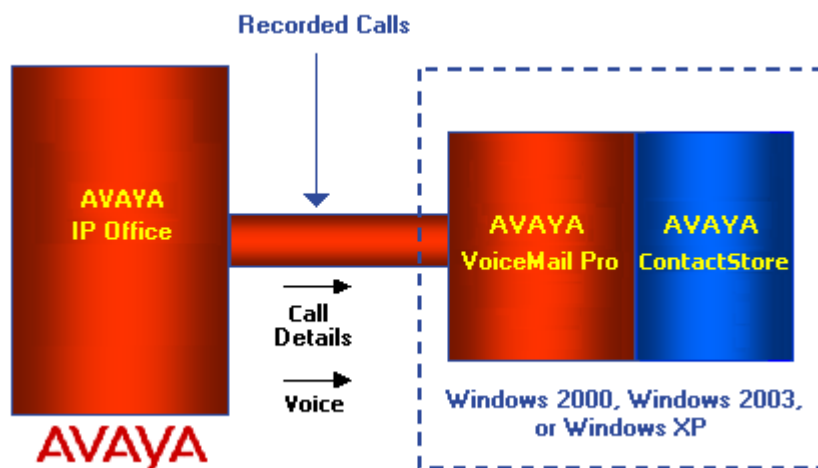
Chapter 1

Chapter 1:   ContactStore for IP Office Overview

This chapter explains the capabilities of the system as a whole. Use this information to determine whether or not the system meets your needs.

General information about ContactStore

ContactStore for IP Office (referred to as "ContactStore") provides a simple-to-use yet powerful search and retrieval interface that allows you to exploit the voice recording capabilities of your Avaya IP Office system. ContactStore requires no proprietary hardware and runs on industry standard PC servers. The basic system consists of a PC server - normally the same server on which you run VoiceMail Pro (VMPro). ContactStore collects, compresses and stores recordings made using the VMPro's recording capabilities. The server also supports an optional DVD+RW drive for archival of recordings. The ContactStore server runs on Windows 2000, Windows 2003, or Windows XP as shown in the following illustration:

ContactStore 7.2 for IP Office provides the functionality described in the following sections.

Voice recording

ContactStore provides controlled access to recordings of telephone calls made on Avaya IP Office systems and applications at release 3.0 or later.

Storage of recordings

Recordings are stored as follows:

- Recordings are stored on a single hard disk partition on the recorder server itself or on a network share. Avaya recommends RAID 1 (mirrored) or RAID 5 (striped) redundant storage for maximum security of recordings.

- Recordings are compressed to G.726 (16kbps) by ContactStore's central processing unit (CPU) after the call completes.

- Recordings are saved as industry standard .wav files, in a hierarchical directory structure.

- Details of all recordings are stored on disk in industry standard .xml files, alongside the audio to which they refer.

- On locally mounted partitions, the oldest recordings are automatically deleted as the disk partition assigned for recording reaches a specified minimum free space threshold.

Archival of recordings

The recorder uses a single disk partition on which to retain the most recent recordings, deleting older calls as needed to free space for new ones. To access recordings older than can be held on this single disk partition, you can archive recordings on a DVD+RW drive within the ContactStore server.

ContactStore supports single-sided 4.7GB DVD+RW media are supported.

⚠ **Important:** In this 7.2 release the ContactStore server supports a single DVD+RW internal drive only for archival.

Searchable database of recordings

In addition to .xml and .wav files, which contain the details about the recordings and the audio contents of the files resepectively, the details of each recording are inserted into a industry standard database (Microsoft's MSDE) for ease of retrieval. ContactStore administers and manages this database automatically.

The details stored allow searching by:

- Call start date/time

- The name(s) and number(s) where provided of any party on the call (including ANI and/or DID where provided by the switch)

- Call duration

- Target number. This is the number dialed, which may be different from the number that actually answered the call.

Call search and replay

The replay mechanism supported for replay of calls recorded and stored on the ContactStore is a very simple and intuitive browser-based interface, requiring Internet Explorer Version 5.0 or higher. The Search and Replay application is hosted on a web server running on the ContactStore server itself.

Users can enter specific parameters to search for calls to replay, although access restrictions determine which calls individual users are able to replay. Each user is given access to calls recorded by one or more stations.

The user can play and view details of any call listed. When playing a call, a graphical representation of the audio level of the call is displayed. The audio wave form shows silence and tones, so the user can click beyond irrelevant sections and pinpoint parts of the call that are of interest.

The user can also search for calls using date/time range, call duration, number dialed and according to parties on the call, for example station number or name, as the criteria.

System administration

ContactStore offers system configuration and status monitoring through a browser interface that is compatible with Internet Explorer 5.0 and higher.

System configuration

Through the ContactStore administration tool, System Administrators may maintain:

- Details of the ContactStore server configuration—including the e-mail address(es) to which alarms and alert messages are sent.

- The list of authorized users and their access rights (administrator rights or not; restriction on search/play)

- A number of other detailed configuration options that determine how the other features operate.

Status monitoring

Through the ContactStore administration tool, System Administrators can access:

- Alarms and warning messages from the ContactStore server. The *ContactStore for IP Office System Administration Guide* provides a full listing of alarm and warning messages.

- Basic statistics showing numbers of calls recorded (ever and today) and the age of the oldest call held on the disk.

You can specify that alarms and events be forwarded, by email, to a specific address list, so that they do not go unnoticed. A daily "heartbeat" email message ensures that catastrophic failure does not go unnoticed for more than 24 hours. You can also monitor the system using other tools such as HP OpenView to provide earlier warning of total system failure.

Time synchronization

Recordings are timestamped by VoiceMail Pro as they start, so it is important that this server is time-synched to a reliable clock - ideally the same as the IP Office switch itself.

International support

Release 7.2 of ContactStore for IP Office is provided in several languages. Specifically, international support includes:

- **Platform support** . ContactStore is supported on Windows 2000 Server and Professional, 2003, and XP. Refer to Avaya Technical Bulletins for information on specific service pack information. Local keyboard support is selected as part of the installation of the operating system.

- **Time zone and DST support**.   All dates and times are stored in the database in Coordinated Universal Time (UTC). However, when you view records using the search and replay application, these are converted to your local time. If you view the records using a database query tool, the times will be shown in the time zone of the client machine, which may be different from the server time. Note that the XML files relating to the recordings include ISO standard timestamps, giving both UTC and offset from Greenwich Mean Time (GMT).

- **Application support**. The browser-based Replay application and the Administration application are provided in several languages. US English, UK English, Dutch, Italian, German, Russian, Simplified Chinese, Japanese, Korean, Latin Spanish and Brazilian Portuguese.

Chapter 2

Chapter 2:   Avaya System Requirements

This chapter describes the Avaya components that must be in place for ContactStore for IP Office to operate and provides design and sizing guidelines for systems using ContactStore for IP Office.

IP Office requirements

You must have IP Office 3.0 (or later) for ContactStore for IP Office to operate. You can access the latest software at http://support.avaya.com.

You must be running Voicemail Pro 3.0 or later and have the appropriate licenses for ContactStore to operate. Should you wish to purchase a License, contact your local system maintainer, requesting the IP400 ContactStore for IPO RFA. For more information on the Licensing information refer to **Chapter 3: ContactStore Server Requirements**.

The following scenarios are supported by Avaya for installing the ContactStore for IP Office. These scenarios relate to installing the ContactStore and Voicemail Pro application.

- Same Drive - Separate Partition
- Same Server - Separate Drives
- Separate Servers

Note: The IP Office supports a maximum of 8/9 digit extensions. The ContactStore only supports a maximum of 7 digit extensions. To enable full search capability ensure you set a maximum extension limit of 7 when using the ContactStore.

Server types

The table below details two server types, minimum specification and recommended specification, that you can use to support the ContactStore for IP Office.

Server type	Specification
Minimum	2.4GHz single-processor Pentium IV class machine with: • 512K of L2 cache • 1GB RAM • Hard disk with at least 7200 rpm rating (see later for sizing). RAID strongly recommended. • 100Mbps full duplex Ethernet NIC ports
Recommended	As above, but with 3.0GHz Pentium IV Xeon, hyper-threading processor and dual ethernet NIC ports.

Network connectivity

The ContactStore server must have LAN speed of 100Mbps or better access to the directory into which VoiceMail Pro deposits recordings and to the storage location into which ContactStore compresses and retains the recordings.

Chapter 3

Chapter 3:   ContactStore Server Requirements

This chapter describes the hardware requirements of the server platform on which ContactStore for IP Office will be run.

This section provides details of:

- Hardware platforms
- Sound card requirements
- Network requirements
- DVD drives supported
- Remote access requirements

Hardware platform

The platform required for a ContactStore server varies according to the volume of recordings to be made and the number of concurrent users of the search and replay application.

The sizing guidelines given in this manual assume a sustained recording load of up to 15 concurrent recordings and a moderate replay load of up to 5 concurrent replays.

Server types

The table below details two server types, minimum specification and recommended specification, that you can use to support the ContactStore for IP Office.

Server type	Specification
Minimum	2.4GHz single-processor Pentium IV class machine with: • 512K of L2 cache • 1GB RAM • Hard disk with at least 7200 rpm rating (see later for sizing). RAID strongly recommended. • 100Mbps full duplex Ethernet NIC ports
Recommended	As above, but with 3.0GHz Pentium IV Xeon, hyper-threading processor and dual ethernet NIC ports.

Sound card

To replay calls from the ContactStore server itself, it must be equipped with a sound card and appropriate Windows drivers installed. However, this is not essential since replays can be performed via a browser on another computer.

Hard disk

Disks may be SCSI or IDE connected. SCSI is recommended for high capacity systems. You can also use a RAID controller with an array of disks configured so they appear as a single partition to the operating system.

ContactStore manages disk space so as to maintain a small amount of free space on the disk. To do this, install it on its own partition so that the whole partition can be used for the storage of the application and the recordings made by it.

See Chapter 4, "Storage Requirements" for instructions on how to determine the total hard disk requirements.

Local DVD+RW drive

Single-sided 4.7GB DVD+RW media are supported.

If you intend to use a DVD+RW drive for archiving, the DVD+RW drive must support Nero V6 (see www.nero.com) and the server must have Nero V6 installed.

Operating system

The server must have Windows 2000 (Professional or Server), Windows 2003, or Windows XP Professional installed.

Server licensing

ContactStore for IP Office is provided with Avaya's VoiceMail Pro installation kit. On installation, the software will operate fully for a period of 45 days from the time stamp of the oldest recording to be processed by the ContactStore.

At any time during these 45 days, a server license can be purchased from Avaya and installed on one or more of the IP Office switches supported by the VoiceMail Pro. Recordings from IP Office systems that have had such a license installed will be processed indefinitely.

After the 45 day trial period expires, any further recordings made on unlicensed IP Office systems will be deleted rather than processed. A warning message will be raised each day that this occurs.

Recordings made during the 45 days will continue to be accessible after the trial period.

- Should you wish to purchase a License please contact your local system maintainer, requesting the IP400 ContactStore for IPO RFA.

If the ContactStore for IP Office is used in a Small Community Network (SCN) using Centralized Voicemail, all IP Offices connected to the Centralized Voicemail should be Licensed with the IP400 ContactStore for IPO RFA.

Remote access

Remote access may be required for support purposes. Arrange for your support partner to gain access, to the ContactStore server through a virtual private network (VPN) connection, a dial-up modem, or a TCP/IP connection.

Chapter 4

Chapter 4:   Storage Requirements

This chapter guides you through a detailed analysis of the storage requirements for your ContactStore server.

Daily usage

The table below shows how many gigabytes (GB) per day you typically use given the number of recording ports you have and the average utilization of these ports over the working day. The figures are based on the assumption that your compressed recordings will be at 16kbps (a single G.726 file) and that the utilization is averaged over an 8-hour working day. Should your circumstances differ, recalculate the figures according to the hours over which your port utilization is averaged.

Assumptions	
Compressed Audio:	G.726 16kbps per call
Resulting in:	7.2MB per hour of recording
Hours per day:	8 (typical single shift)

Type of Operation				
	PBX Extn	Busy Extn	Typical Call Center	Extreme Call center
Ports Utilization	10%	30%	70%	100%
10	0.1	0.2	0.4	0.6
20	0.1	0.3	0.8	1.2
30	0.2	0.5	1.2	1.7

Note: All figures are in GB per day.

Total requirements

Use the following table to determine the required disk capacity for your recorder.

Allow	For	Comments
10GB	System overhead and call details database	MSDE database, Java Virtual Machine, and call details for 5 million call records online. Buffering space for DVD archive, etc.
Daily Usage x (Days Required online + safety margin)	Compressed recordings.	—

Examples

Environment	Daily storage	Total storage
Typical office recording • 30 extensions in normal PBX environment • 10% utilization over 8 hour day) • 30 days online storage • 1 million call records kept online	0.2GB/day (G.726 16kbps recording)	10 + (30 x 0.2) = 16GB
Small Informal Call Center • 30 extensions in light use (30% utilization over 8 hour day) • 90 days online storage	0.5GB/day (G.726 16kbps recording)	10 + (90 x 0.5) = 55GB

Glossary

ContactStore Server	The Windows server running the ContactStore for IP Office suite which provides recording storage, search and replay and administration functions.
IP	Internet Protocol. IP specifies the format of packets and the addressing scheme for internet data. The IP, like the postal system, allows you to address a package and drop it in the system. The packet will transverse multiple networks on the way to its ultimate destination.
NIC	Network Interface Card. A NIC is an expansion board that you insert into a computer so the computer can connect to a network. Most NICs are designed for a particular type of network, protocol, and media, although some can serve multiple networks.
RAID	Redundant Array of Inexpensive Disks. RAID is a category of disk drives that use two or more drives together for fault tolerance and enhanced performance. RAID disk drives are used frequently on servers.
Universal Time Coordinated (UTC)	A time scale that couples Greenwich Mean Time, which is based solely on the Earth's inconsistent rotation rate, with highly accurate atomic time. When atomic time and Earth time approach a one second difference, a leap second is calculated into UTC. UTC, like Greenwich Mean Time, is set at 0 degrees longitude on the prime meridian.
VoIP	Voice over IP. The technology use to transmit voice conversations over a data network using the Internet Protocol (IP).
VPN	Virtual Private Network. Private, or restricted, communications networks which use encryption and other security measures to transmit information through a public network such as the Internet and avoid unauthorized use.