



IP Office 4.0

ContactStore Installation and Administration Guide

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Documentation information

For the most current versions of documentation, go to the Avaya Support web site (<http://www.avaya.com/support>) or the IP Office Knowledge Base (<http://marketingtools.avaya.com/knowledgebase/>).

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Introduction

About this Guide

This guide covers the installation and administration of Avaya IP Office ContactStore. It is intended to be used by anyone planning to install or are installing ContactStore. It is also for anyone who administers ContactStore.

The main sections are:

- **Introduction**
Information on the ContactStore IP Office system operation, languages supported and licensing requirements.
- **Installation**
Details on how the hardware requirements and installing IP Office ContactStore software.
- **Configuration and administration**
Details of IP Office ContactStore operation, as well as information needed for server maintenance and updating. This guide also includes instructions for searching and replaying recordings, archiving recordings and system troubleshooting.
- **Appendix**
The Appendix contains a trouble shooting section as well as information about alarms, archiving and how to find the software version that is being used.

Further information about Avaya IP Office is available from www.avaya.com/support and also from www.avaya.com/ipoffice/knowledgebase.

The Avaya university training course 'IP Office Advanced Applications' covers ContactStore.

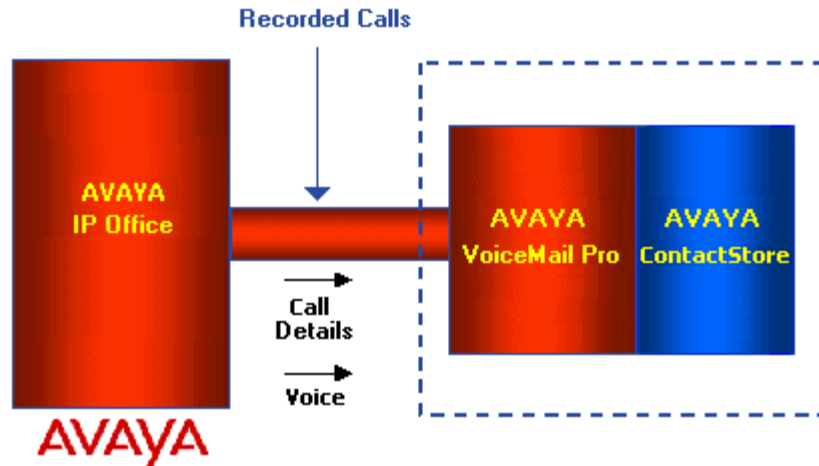
What's New

The following feature was added to version 4.0

- **Automatic Recording of Incoming Call Routes**
Incoming call routes can be configured to be automatically recorded. For more information, see [Configuring Recordings](#).

ContactStore Overview

The standard call recording facilities provided with IP Office and VoiceMail Pro can be extended further by using IP Office ContactStore. IP Office ContactStore stores and catalogs recordings so that they are easily accessible for later retrieval. Any recordings that you instruct VoiceMail Pro to 'send to the Voice Recording library' are placed in a database.



IP Office ContactStore is provided with the Voicemail Pro software CD set and has an inbuilt 45 day trial license. A fully featured IP Office ContactStore system can be installed and used for 45 days from the creation of the first recording. After this time the system will stop taking recordings until a license is purchased and installed into the IP Office. All of the existing recordings can be accessed but no new ones can be made.

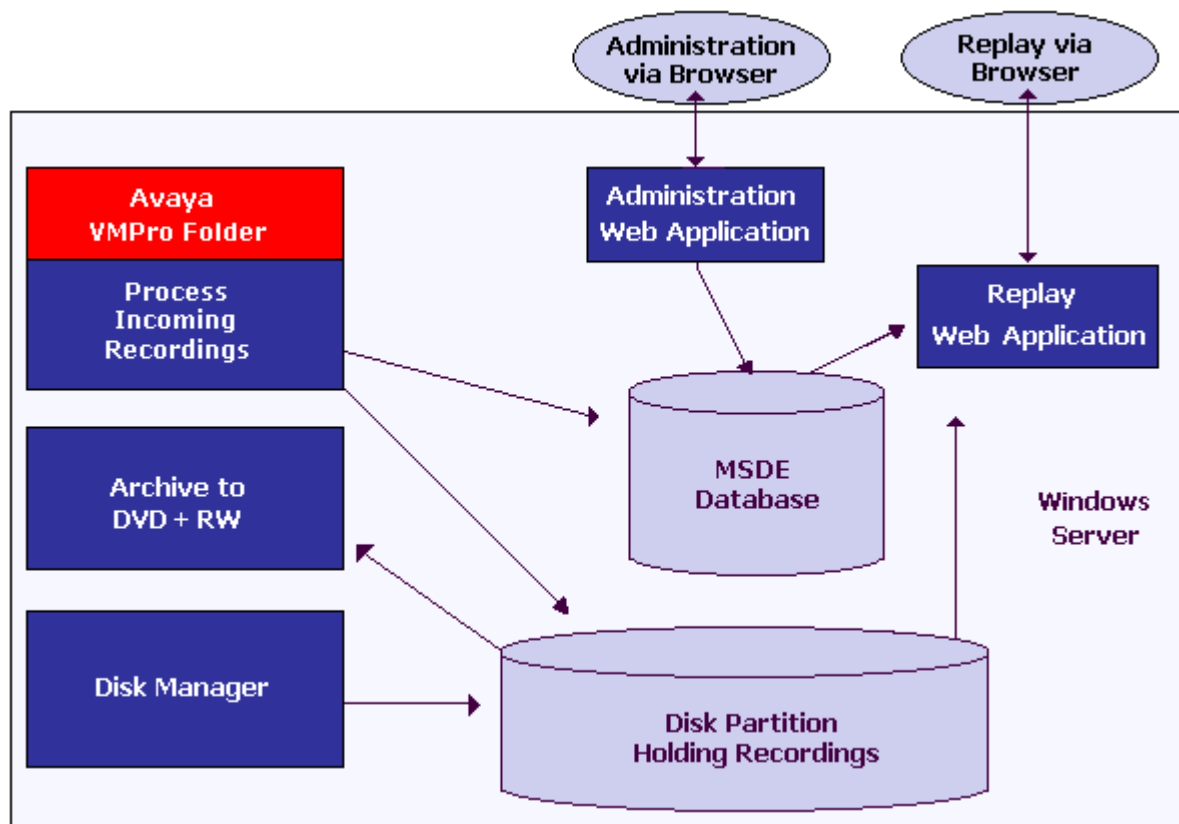
It is important to understand how the ContactStore operates so that you can best maintain and update it. This section takes you from an overview diagram through to a detailed discussion of the operation of the system.

IP Office ContactStore complements the voice recording capabilities of VoiceMail Pro. It stores and catalogs the recordings so that they are easily accessible. Any recordings that you instruct VoiceMail Pro to "send to the Voice Recording Library" are placed in a folder that is visible to ContactStore. ContactStore checks this folder every few seconds and if it finds a new recording file there, it:

- Reads the information about the recording from the file.
- Compresses the audio to 16kbps G.726 format.
- Stores the resultant file in the configured ContactStore hard disk, either on a separate server or in a specified partition.
- Updates its integral database with details of the recording.
- Deletes the original .wav file from the handover directory.

Functional Components

ContactStore can run on the same server as VoiceMail Pro or a separate one. The ContactStore application contains several distinct Functional components as shown in the diagram.



The major functional components of the ContactStore server are:

- A folder into which VoiceMail Pro deposits .wav files as recordings complete.
- A file path into which call contents and derived files are written as industry standard .wav and .xml files.
- An MSDE database into which details of all recorded calls are inserted.
- A browser-based call search and replay application.
- A browser-based system configuration and status monitoring application.
- Disk space management - Oldest recordings are automatically deleted as needed.
- Optional archive management - Recordings are automatically written to a DVD+RW drive.

The rest of this section provides details about these components.

Recordings

ContactStore stores recorded calls in specific formats with certain security in place. As you use the ContactStore, you need to be aware that access to recordings is strictly controlled according to the security constraints you configure within the System Administration pages. Each recording has an owner; the call owner is the number of the station that recorded the call.

IP Office ContactStore stores recorded calls with certain security in place. Access to recordings is strictly controlled according to the security constraints configured within the System Administration pages. Each recording has an owner; the call owner is the number of the extension that recorded the call. You can specify to which extension each user has replay rights. The user can search for and replay calls 'owned' by those stations. Typically an individual may be given rights to replay calls owned by their own extension number while managers may have rights to extension numbers of all their staff.

Recording files

Calls are stored in an industry standard .wav file.

When each call is completed and as each recording becomes available, ContactStore compresses the audio if necessary, and updates the database with a record of the call. These files are stored in a hierarchy of folders beneath a root path, which defaults to \calls beneath the path in which you installed the software.

Every recording results in:

- One **.wav** file.
The .wav files contain the actual audio of the recording. You can double-click some .wav files to play them directly. Others are in audio formats that are not directly supported by Microsoft's Media Player; these must be converted into a supported format before they can be played. Since ContactStore's Search and Replay application does this conversion automatically, you do not need to access these files directly.
- One **.xml** file.
The .xml files contain details about the recorded calls. Although most users typically search against the ContactStore's database of calls, you can view these files directly in a browser if required. Within each .xml file there are:
 - All the details known about this recording. Most of the information, but not all, will be inserted into the calls database. Some of the information is only of interest for diagnostic and maintenance purposes.
 - A link to the final audio file.
 - Start and end time.

You should always back up both .xml and .wav files to ensure a complete record of the content and context of your recordings. When in use, the integral DVD archiver automatically backs up these files.

Audio compression

ContactStore uses the G.726 16kbps ADPCM compression standard, which provides the best compromise between storage capacity and CPU loading.

ContactStore is designed to perform compression as a background task, which does not impact your ability to record, search or play other calls. It takes approximately 1 minute to compress a two hour recording; there is a delay (from a few seconds to a few minutes) between completion of a recording and its availability in the Search and Replay application.

Internal Database

If you have retained all of the .xml and .wav files, then you have kept all of the details about the recordings you have made. However, the system uses Microsoft's MSDE database to hold this information in more readily accessible forms. This database is located on the ContactStore server.

Archiving

To avoid having to repopulate these databases in the event of corruption or disk failure, ContactStore automatically backs up the database content to a path you specify. A full backup is performed weekly with daily incremental backups.

The database stores details of the recordings as well as details of the ContactStore configuration.

- **Recording details**

The call details database is stored beneath the location into which you installed ContactStore, under the /MSSQL sub-directory and occupies approximately 1KB per call. To allow you to search for calls easily, the details of the recordings are normally inserted into this database. It contains one record for each call recorded and additional records for each party on the call and the owner of the call. The information stored for each call is:

- A unique reference for the recording.
- The start date and time.
- The duration of the recording.
- The name and number of the parties on the call—where this was available to IP Office (through ANI, CLI or DNIS) at the time of the call.
- The direction of the call (incoming or outgoing).
- The owner of the recording.
- The target or dialed number, which may be different from the number that actually took the call.

- **Configuration details**

Several tables hold details of system configuration, such as file paths, time outs and user authorization rights.

Licensing

The full functionality of the IP Office ContactStore is available through purchasing a license. However, IP Office ContactStore will operate with a free 45-day evaluation license. This time period starts from the time at which you make your first recording with the system. During this period, the product is fully functional.

- During the timed trial period, the administration pages will warn you that you are running on a timed license and that following the expiration date, ContactStore will DELETE subsequent recordings. It is therefore important that you install a full license BEFORE the end of the trial period if you wish to continue making recordings.

Even after the trial period, you will still be able to access recordings made during the trial - it is only newly made recordings that will be deleted rather than processed by ContactStore.

- This does not apply to recordings made and kept within your VoiceMail Pro system - only to those directed to the Voice Recording Library (VRL).

At any time during the trial period, or after it, you may purchase a license for the product to run on one or more of your IP Office systems. As you install the supplied license on an IP Office, the ContactStore will automatically detect this as you make the next recording and will process recordings from that system. Until a recording is made you will continue to see a warning message on the ContactStore administration screens. If you have multiple IP Office systems in a Small Community Network (SCN), you must purchase and install a separate license for each.

- Once one or more of your IP Office systems has had a full license installed and a recording has been made, you will continue to receive daily warnings about the trial period - for any other IP Office systems which are not licensed. Recordings made on these unlicensed systems will continue to be processed up to 45 days from the date of the first recording (made by the system as a whole) but thereafter recordings made on these systems will not be saved. Daily warnings will continue to be raised in this case.

You can add ContactStore licenses to additional IP Offices (if your VMPro supports multiple IP Offices) at any time. These will be detected automatically by ContactStore as the first recording from each switch is processed after the installation of the license. This will be applicable if you have multiple IP Offices in a Small Community Network (SCN) using Centralized VoiceMail Pro. Until you do so, any recordings received from unlicensed IP Office servers will result in a warning alarm being generated each day to ensure that you are aware that the timed license will expire or has expired.

Important:

After 45 days no further recordings are saved until the system is licensed.

Supported Languages

IP Office ContactStore is supported in several languages.

- US English
- UK English
- Dutch
- Italian
- German
- Russian
- French
- Japanese
- Korean
- Latin Spanish
- Brazilian Portuguese
- Simplified Chinese

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. The XML files relating to the recordings include ISO standard time stamps, giving both UTC and offset from Greenwich Mean Time (GMT).

Installation

Hardware Requirements

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 assume a sustained recording load of up to 15 concurrent recordings and a moderate replay load of up to 5 concurrent replays.

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. For more information, see Calculating the Disk Size Required for Recordings for instructions on how to determine the total hard disk requirements.

Variant	RAM	HD	Pentium 4	Celeron	AMD	XP Pro	2000 Pro	2000 Server	2003 Server
VM Pro Server and ContactStore	512MB	20GB* ¹	P4 2.8GHz	Not Tested	Athlon XP 3000+ All Athlon 64	✓	✓	✓	✓
ContactStore	512MB	10GB* ²	2.GHz	Not Tested	Athlon XP 3000+ All Athlon 64	✓	✓	✓	✓

Notes

*1 - For all voicemail servers, also allow 1mb per minute for messages and greeting storage.

*2 - Also allow 7.2MB per hour for recordings in the ContactStore disk partition.

Disk Partitions

We recommend that you install ContactStore on a dedicated drive partition. This enables the software to monitor the available disk space and automatically delete your oldest recordings to make room for newer ones as your disk fills.

If you install the software onto a partition that other software uses, you may find that, over time, the amount of storage available for your recordings decreases, due to gradual build-up of log files, internet caches, temporary files, and so on. ContactStore is designed to control the growth of its own such files in its own partition but cannot do so for other applications.

The first step of the installation process is for you to specify the partition and path onto which ContactStore should be installed. A minimum of 20GB is recommended to allow for at least 10GB of recordings (over 1000 hours of audio) to be held online. For more information, see Calculating the Disk Size Required for Recordings.

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

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

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.

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.

You should install the DVD+RW before you install the software. You can do this after you install the ContactStore software; however, no archive media will be created until you install the drive.

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.

- Internet Explorer 5.0 or higher required.

Calculating the Disk Size Required for Recordings

The table 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.

The assumptions are:

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 <ul style="list-style-type: none"> • 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)	$10 + (30 \times 0.2) = 16\text{GB}$
Small Informal Call Center <ul style="list-style-type: none"> • 30 extensions in light use (30% utilization over 8 hour day) • 90 days online storage 	0.5GB/day (G.726 16kbps recording)	$10 + (90 \times 0.5) = 55\text{GB}$

Installing ContactStore

Before installing ContactStore software make sure that you have:

- Installed the IP Office Manager application and added the ContactStore License if purchased.
- Installed the VoiceMail Pro application.
- If ContactStore is to be installed on a separate machine:
 1. Make the Voice Recording Library on the VMPro server visible as a network share.
 2. Configure your security so that the ContactStore service can read and write to this share.
 3. Create and set a registry key on the ContactStore server to tell ContactStore the location of the share. Set the key HKEY_LOCAL_MACHINE\SOFTWARE\Network Alchemy\Voicemail\Directories\VRDir to be a string containing the name of the share.

Note

If a version of ContactStore is already installed, follow the instructions for Upgrading ContactStore.

To install ContactStore:

1. Insert the **ContactStore Distribution** CD. Installation should auto-start. The Choose Setup Language window opens.
 - If the installation program does not start automatically, use Windows Explorer to access the CD drive and double-click **setup.exe** to start the program.
2. Select the installation language. The language is used for the installation.
3. Click **OK**. Installation preparation begins. The Welcome to the InstallShield Wizard for ContactStore for IP Office window opens.
4. Click **Next**. The Choose Destination Location window opens.
5. Select the path into which to install the application.
6. Click **Next**. Installation will take a few minutes. When the software has been installed the InstallShield Wizard Complete window opens.
 - The Microsoft SQL Server Desktop Engine (MSDE) will be installed automatically. It will be located in your Program Files path, as recommended by Microsoft. Since the ContactStore installation program installs a named instance of MSDE ("ContactStore"), it can co-exist with any other installation of MSDE you may already have.
7. Click **Finish**.
8. To complete the installation reboot the server.
5. Connect the ContactStore server to the IP Office via the Local Area Network port.
6. Verify connection by entering `http://myservername:8888/` in your browser, replacing **myservername** with the IP address or hostname of the ContactStore.

Once you have completed the installation, you need to verify the ContactStore configuration. In most cases, the default settings for many of the configuration options in IP Office ContactStore are valid. However, there are some settings that have no defaults. For more information, see Changing Server Settings.

The first time you access the Search and Replay page you will be asked to install ActiveX control. For more information, see Starting ContactStore.

Upgrading ContactStore

If a version of ContactStore is already installed, you need to complete the following steps before installing the new software version.

1. You are strongly advised to take a complete backup of the partition onto which the application has been installed. If you have configured your calls folder to be on a different partition as recommended, this does NOT need to be backed up. Before backing up the disk, you should STOP the “ContactStore for IP Office” and “MSSQL\$CONTACTSTORE” services.
2. Remove the current version of ContactStore.
 - From the **Start** button open the **Control Panel** menu.
 - Select **Add/Remove Programs > ContactStore for IP Office**.
 - Remove the application completely.
3. Install the new ContactStore version. For more information, see Installing ContactStore.

Distributing User Instructions

A template document “ContactStore IP Office User Guide.doc” is included on the Installation CD. The document provides basic instructions for end users of the system, specifically, those who will make and replay recordings using it.

Customize this document as follows:

- Replace the URL in the document with the URL of your ContactStore.
- Check the document itself for additional customization instructions.

By default the document csuser.doc is installed in the directory \Program Files\Witness\Doc\Language folder

Configuration & Administration

Configuring Recordings


The type of calls that are to be recorded need to be configured in IP Office Manager before ContactStore can be used to store the recordings.

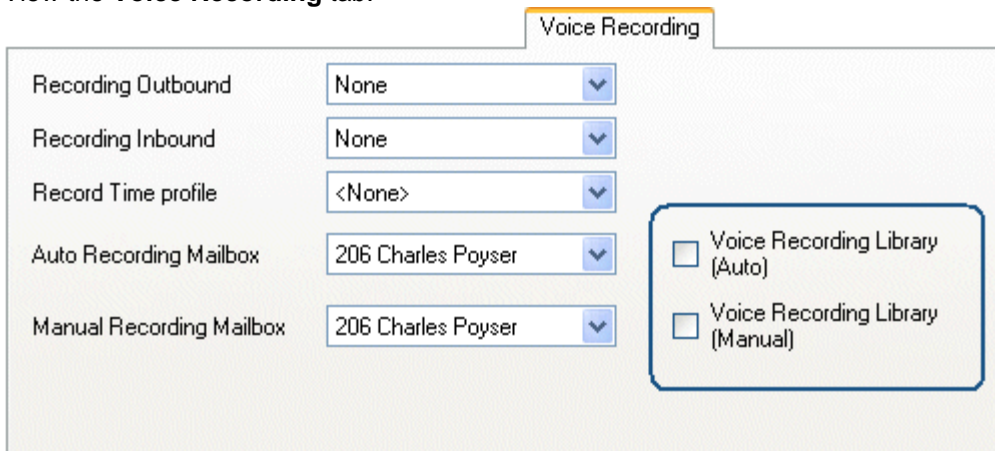
The details that can be configured in IP Office Manager are:

- Users.
- Groups.
- Incoming Call Routes.
- Outgoing Account Calls.

IP Office supports a maximum of 9 digit extensions. 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.

To configure a User to use the ContactStore Voice Recording Library:

1. Open the IP Office Manager application.
2. In the Navigation pane click  **User** and select the individual user.
3. View the **Voice Recording** tab.




Voice Recording	
Recording Outbound	None
Recording Inbound	None
Record Time profile	<None>
Auto Recording Mailbox	206 Charles Poyser
Manual Recording Mailbox	206 Charles Poyser

Voice Recording Library (Auto)
 Voice Recording Library (Manual)

4. Check the **Voice Recording Library (Auto)** to enable Automatic voice recording to ContactStore or **Voice Recording Library (Manual)** to enable Manual voice recordings to utilize the ContactStore.
5. Click **OK** to save the changes.
6. Amend any other details, then save the configuration file.


To configure a Group to use the ContactStore Voice Recording Library:

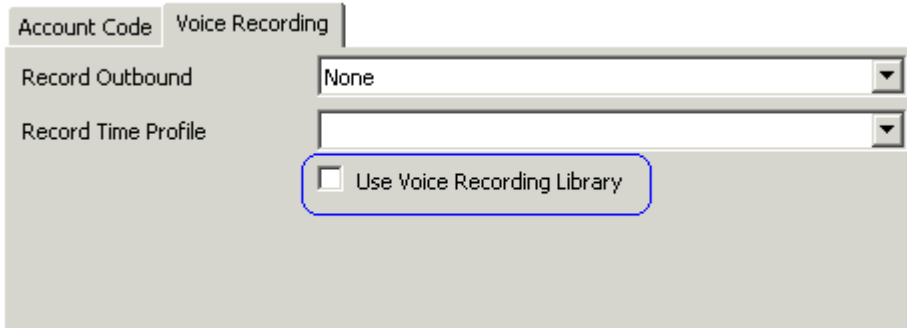
1. Open the IP Office Manager application.
2. In the Navigation pane click  **HuntGroup** and select the hunt group.
3. View the **Voice Recording** tab.



4. Check **Voice Recording Library** to enable voice recording to ContactStore.
5. Click **OK** to save the changes.
6. Amend any other details, then save the configuration file.


To configure an Account code to use the ContactStore Voice Recording Library:

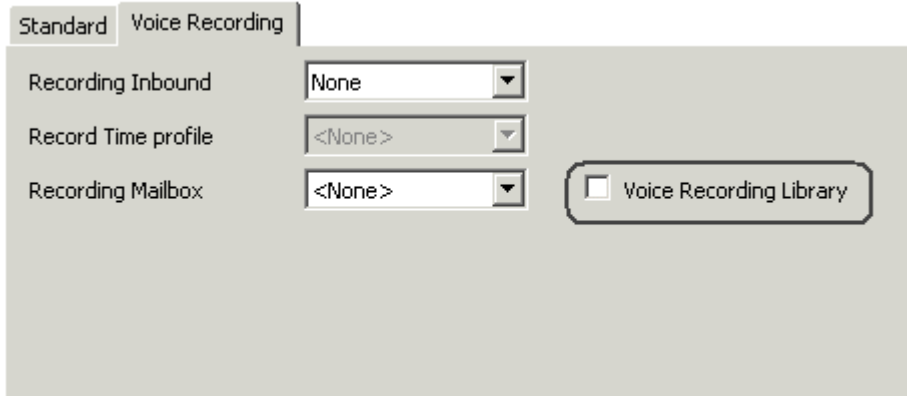
1. Open the IP Office Manager application.
2. In the Navigation pane click  **Account Code** and select the Account Code.
3. View the **Voice Recording** tab.



4. Check **Voice Recording Library** to enable voice recording to ContactStore.
5. Click **OK** to save the changes.
6. Amend any other details, then save the configuration file.

To configure an Incoming Call Route to use the ContactStore Voice Recording Library:

1. Open the IP Office Manager application.
2. In the Navigation pane click  **Incoming Call Route** and select the line group ID.
3. View the **Voice Recording** tab.



Standard Voice Recording

Recording Inbound None

Record Time profile <None>

Recording Mailbox <None>

Voice Recording Library

4. Check **Voice Recording Library** to enable voice recording to ContactStore.
5. Click **OK** to save the changes.
6. Amend any other details, then save the configuration file.

Note

Incoming Call Route recording is only available in IP Office 4.0 and above.

Configuring ContactStore Settings

Starting ContactStore

If you have trouble starting ContactStore make sure that ContactStore is part of a trusted site or internet zone. For more information, see Adding ContactStore to a Zone.

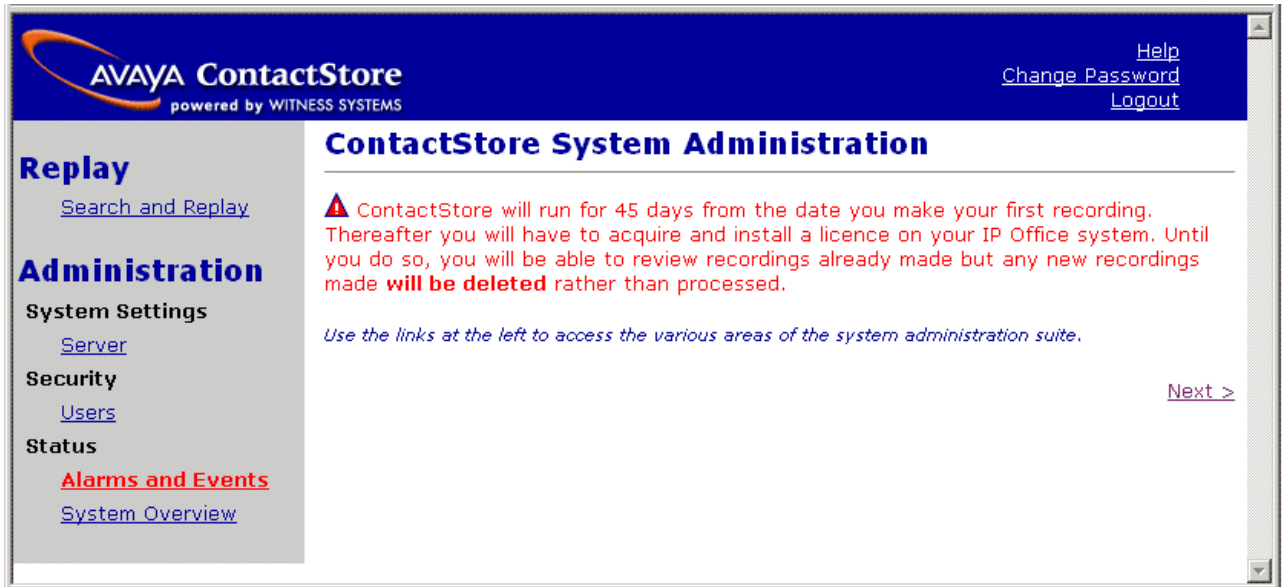
To start ContactStore:

1. Open a browser window (using Internet Explorer) on any PC that can access the ContactStore server.
2. Enter `http://myservname:8888` (where `myservname` is the host name or IP address of the ContactStore server).
3. You will be directed to the login page as shown in the example.



4. Enter your username and password.
 - If it is the first time that ContactStore has been logged into, enter a username of your choice. Leave the password field blank as it is ignored on the initial login.
 - Click **OK**. As the first user of the system, you are automatically added to the user database with administrator rights. You are then redirected to the **Change Password** page.
 - Leaving the **Old Password** field blank. Enter a **New Password** and enter it again in the **Verify New Password** box.

5. Click **OK**. You are now logged into the system and the Introduction page is displayed. Unless there are already any recordings to process and you have installed a full license, you will see the timed trial warning as shown below.



If it is the first time that you have logged in to ContactStore you can now configure the system. For more information, see Changing Server Settings.

Note

If you logged into the application with a local user account, you should always use the Logout link from any page in the Administration application to exit the application.

Changing Server Settings

There are some configuration details that **must** be set in order to safeguard the operation and recoverability of your system. Any that cannot be left at automatic defaults are shown in red on the appropriate administration page.

To complete the configuration:

1. Click the link **Server** under the heading **System Settings**. The Server Settings page opens.
2. The Server Settings page determines how the ContactStore server operates. Verify that all settings are appropriate for your system. Any values that are shown in red must be edited and valid values entered.

Settings are split into two groups:

- **Recorder Settings** - affecting the storage of recordings and details about them.
- **Alarm Notification** - used to allow sending of alarms and events via email.

Server Settings

These settings determine how and where ContactStore stores your recordings and the details about them. Any shown in red are invalid and must be changed.

Recorder Settings	Setting	
Recorder Number	1	Edit
Directory path for recordings	d:\witness\calls	Edit
Database Backup Path	\\central\cstore	Edit
Optional Internal DVD+RW Drive Letter	e	Edit
Start DVD+RW volume labels with	Calls	Edit
Retain call details for (months)	60	Edit

These settings determine how and where ContactStore sends e-mails when events are raised.

Alarm Notification	Setting	
SMTP Mail "From" address	Not defined	Edit
SMTP Mail Server	Not defined	Edit
SMTP Username	Not defined	Edit
SMTP Password	Not defined	Edit
Send alarm/event e-mails to	Not defined	Edit

[< Previous](#) [Next >](#)

Each setting is described below in the order in which they are listed on screen.

Recorder Settings

- **Recorder Number**
This defaults to 1. If you have more than one IP Office within your business, you should set each one to a different number to ensure that recordings made on each of your systems are readily distinguishable from each other. The ContactStore application gives each recording a unique recording reference number. If you do not set each of your systems to a different number, it may be impossible to identify which system a given recording came from.
- **Directory Path for Recordings**
This defaults to **calls** beneath the path into which you installed ContactStore. All recordings are stored beneath this root folder. Before you start recording, you can change this path in order to use a different partition. You can also use a share on another server but only if access rights are established such that this share is automatically visible to the application without the need for additional authentication. Be sure that the share is always accessible to the recorder. Avaya cannot take responsibility for failures due to network outages between the recorder and the share. To change this setting once you have already started recording, copy all folders and files beneath the old location to the new location before you make any further recordings.
- **Database Backup Path**
Enter the name of a folder that ContactStore can use as a backup destination. The contents of the call

details database are backed up to this location with a full backup every Sunday; incremental backups are added to the file the other nights of the week. You should arrange for these files (named **ContactStore.dump**) to be archived safely in case you ever need to restore the call details database. If you specify a fileshare on a remote computer, you will need to configure a fileshare to allow access to a user account and then set the ContactStore service to 'Run as...' that user. To allow ContactStore to function, you must ensure this user account has at least the same access rights as the local system account which the service uses by default.

- **Optional Internal DVD+RW Drive**

This setting shows the drive letter of the DVD+RW drive being used to archive calls. This setting is typically D if you have replaced the supplied CD drive with a DVD+RW drive. If you do not have such a drive, or do not want to use it for recording archival, leave it blank. It will show as **Not defined**.

- **Start DVD+RW volume labels with**

Each DVD+RW media to which calls are written is given a unique label. These are sequentially numbered and start with the string specified here. The setting defaults to **Calls** but can be set to any string of up to 5 characters. This field is short so that a 4-digit sequence number can be appended to it.

- If you only have a single ContactStore server, you can leave this at the default. If you have more than one ContactStore server in your enterprise, verify that each has a different string set for this label root so that media produced by each system can be clearly distinguished from each other.
- If you change this setting while a DVD is being written, the system will stop writing to that disk. Insert a new one, which will be labeled with the new name. The sequence numbers after the name will continue to increase rather than be reset to 0000.

- **Retain call details for (months)**

At some point, the size of the call details database will become either unmanageable or will fill the available disk space. Specify, in months, how long call detail records are retained before they are purged from the system. This ensures that the database stabilizes at a finite size.

- Purging is carried out at, or shortly after, 1:00 A.M. each morning and does not impact recording or replay.

Alarm Notification

- **SMTP Mail "From" Address**

Set the name from which alarm email messages originate, for example, "ContactStore Head Office."

- **SMTP Mail Server**

Enter the name of the SMTP mail server on which you have established an email account that the ContactStore can use to send email messages regarding alarms and events. If you leave this blank, the system will not send email messages when alarms occur.

- If you leave this setting blank, you can leave the remaining settings on this page blank.

- **SMTP Username**

Leave this blank unless your SMTP server requires that any sender be authenticated. If required, set the username of the SMTP account here.

- **SMTP Password**

Leave this blank unless your SMTP server requires that any sender be authenticated first. If required, set the password of the SMTP account here. The password is masked when entered in this field.

- **Send alarm/event email to**

Specify the email address (up to a maximum of 100 characters) to which alarm and event messages should be sent. Separate multiple addresses with a semi-colon (;). The email recipient can be a local system administrator, a manned help-desk and/or suppliers' support desks if you have a support agreement that includes this facility. The system sends an email message each time an alarm occurs or is cleared. It also sends an email once per day as a "heartbeat" to let you know it is still operating. Failure to receive the daily heartbeat message should be investigated; it could indicate that the server has failed.

- Emails are only sent every 10 minutes.
- Entering an incorrectly formatted email address (such as one that does not include "@") will stop all emails from being sent; this will be reported in the Alarms table, however, you will not receive email notification. Entering a non-existent but validly formatted email address, on the other hand, does not stop email reaching others in distribution list. Confirm that you are receiving emails correctly after you make any changes to these settings.

System Overview Page

The System Overview page shows summary information about the current state of the ContactStore server.

To view the System Overview page:

1. Click the link **System Overview** under the heading **Status**. The System Overview page opens.

The screenshot shows a web browser window with the title "System Overview". Below the title is a blue header bar with the text "The table below shows the current state of the ContactStore server. Click the refresh link to update the table." Below this is a table with two columns: "Item" and "Value". The table contains the following data:

Item	Value
Current DVD media	Empty
Free space on current DVD media (GB)	Not available
Total call segments recorded to date	3,149
Total call segments recorded today (or since restart if today)	0
Date of oldest call held on disk	24/08/04 15:19:30

At the bottom right of the table area is a blue "Refresh" link. The browser's address bar shows "Trusted sites" with a green checkmark icon.

The table shows the following information:

- **Current DVD media**
This entry is listed only if you have configured a DVD+RW drive for archiving on the **Server** page. Use this entry to confirm that the DVD drive has sensed, and is using, a valid disk. Use this value to label the current disk. Disks are sequentially numbered; you can label the next one prior to inserting it. If the system is not writing to a valid disk, it will show one of the values listed. In all such cases, insert a new or the latest partially filled disk so archiving can continue.
 - **Foreign** if it cannot use or recognize the disk inserted.
 - **Old** if a previously closed disk has been reinserted.
 - **Empty** if there is no disk in the drive.
- **Free Space on current DVD media**
A value is only listed if you have configured a DVD+RW drive for archiving on the Server page. Use this value to determine when to change the DVD media. A blank media shows 7.0GB free space. However the last 0.7GB cannot be used by ContactStore due to inherent limitations in the DVD+RW writing process.
- **Total call segments recorded to date**
This value shows the total number of call segments that have been recorded by the system to date.
- **Total call segments recorded today**
Use this value to confirm that recordings are being made today. If you have restarted the server today, this will show the number of call segments recorded since that restart.
- **Date of oldest call held on disk**
Until your disk has filled for the first time, monitor the available space on the drive until you have confirmed that the rate at which space is being consumed is in line with your predictions. You should be able to estimate when the disk will fill and when the first calls recorded will be deleted to make way for new calls. Once the disk has started to "wrap" and calls are being deleted daily, use this figure to monitor the online retrieval capacity. If the figure starts to fall, your disk space is being used more rapidly than before; the recording volumes are increasing, so you may need to expand the disk capacity before the duration of calls it can hold falls below your minimum requirement.

Use the **Refresh** link to update the page.

Viewing Alarms and Events

The **Alarms and Events** page shows system warnings, alarms and events. Alarms are logged to ContactStore's database and held for a month before being purged at 1 a.m. each morning.

- As long as you have set up mail account information on the Server page, an email message detailing alarms and events will be sent to the addresses listed there.

To view the Alarms and Events page:

- Click the link **Alarms and Events** under the heading **Status**. The Alarms and Events page opens.

Alarms and Events

The events shown below are in reverse chronological order. Choose the minimum level of event severity you wish to see and click on 'Refresh' to repopulate the list.

Show previously cleared events

Minimum severity level to show:

Major Alarm Minor Alarm Warning Information

[Clear selected event\(s\)](#), [Clear ALL events](#), [Refresh](#)

Select	Timestamp▼▲	Severity▼▲	Description▼▲
<input type="checkbox"/>	24/08/04 14:08:19	Warning	System restarting.
<input type="checkbox"/>	29/06/04 16:08:02	Warning	IP Office 192.168.42.1 still running on timed licence. Will expire in 37 days.

[Clear selected event\(s\)](#), [Clear ALL events](#), [Refresh](#)

Trusted sites

The controls at the top of the page allow you to view:

- Only those events that you have not previously cleared.
- All alarm and event levels
- Alarms and events above a selected severity level.

Use the links above and below the table to refresh the page and to clear some or all alarms.

The default on the page is to show all alarms and events that have not yet been cleared; you can see any new or outstanding issues on first viewing the page.

To change the set of events shown:

- Click the check box and/or radio button to specify your preferences.
- Click the **Refresh** link above or below the table.

As each alarm or event is generated, it is initially active.

To clear an individual alarm or event:

- Click the check box to the left of the event.
- Click the **Clear selected events** link.

Be careful using the Clear all events link. Acknowledging an alarm without consciously noting its details may lead to system problems being "hidden" without your knowledge.

- Alarms and events are generated for a variety of reasons. A list of alarms and events that may be generated and what to do about them can be found in the appendix. For more information, see Alarms.

Adding Hierarchical File Storage Support

If you intend to configure the recorder so that recordings are stored on a network share, where the ContactStore cannot or should not attempt to determine the amount of free disk space, you may need to disable the deletion of old call records. You will then need to ensure that the share does not fill (either manually or by some automated means, such as a Hierarchical File Storage system) to ensure that there is always space available for new recordings. To disable the deletion of old call records, add the following line to the properties file:

csipo.diskmanager=false

The recorder will now NOT attempt to delete old recording files; therefore, you must configure the HFS system to migrate older files to your tape library as necessary.

When attempting to replay calls from files that have been migrated to tape, there is a delay before the call is replayed. If the delay is 30s or so, then the replay application will work; longer delays may trigger a time-out. If a time-out occurs, wait a few minutes and then retry. The file may be restored by the time the second replay request is made.

A number of advanced options require that you edit the properties file `\properties\csipo.properties`. The file is located beneath the path into which you installed ContactStore. (The default path is `C:\Program Files\Witness`). You can use Notepad or any other text editor to make the changes to this file. Before editing this file it is recommended you create a backup.

- You need to create the properties file as it is not created automatically. For more information, see the Trouble Shooting section in the Appendix.

Administration of User Accounts

Changing your Password

When your account is created, it will have a blank password. You are automatically asked to change the password. You should change your password regularly.

To change the password:

1. Select the link **Change Password** at the top right of any administration page. The Change Password prompt is opened.
2. Enter your **Old Password**.
3. Enter your **New Password**.
4. Enter the new password again to **Confirm New Password**.
5. Click **OK**.

Viewing User Accounts.

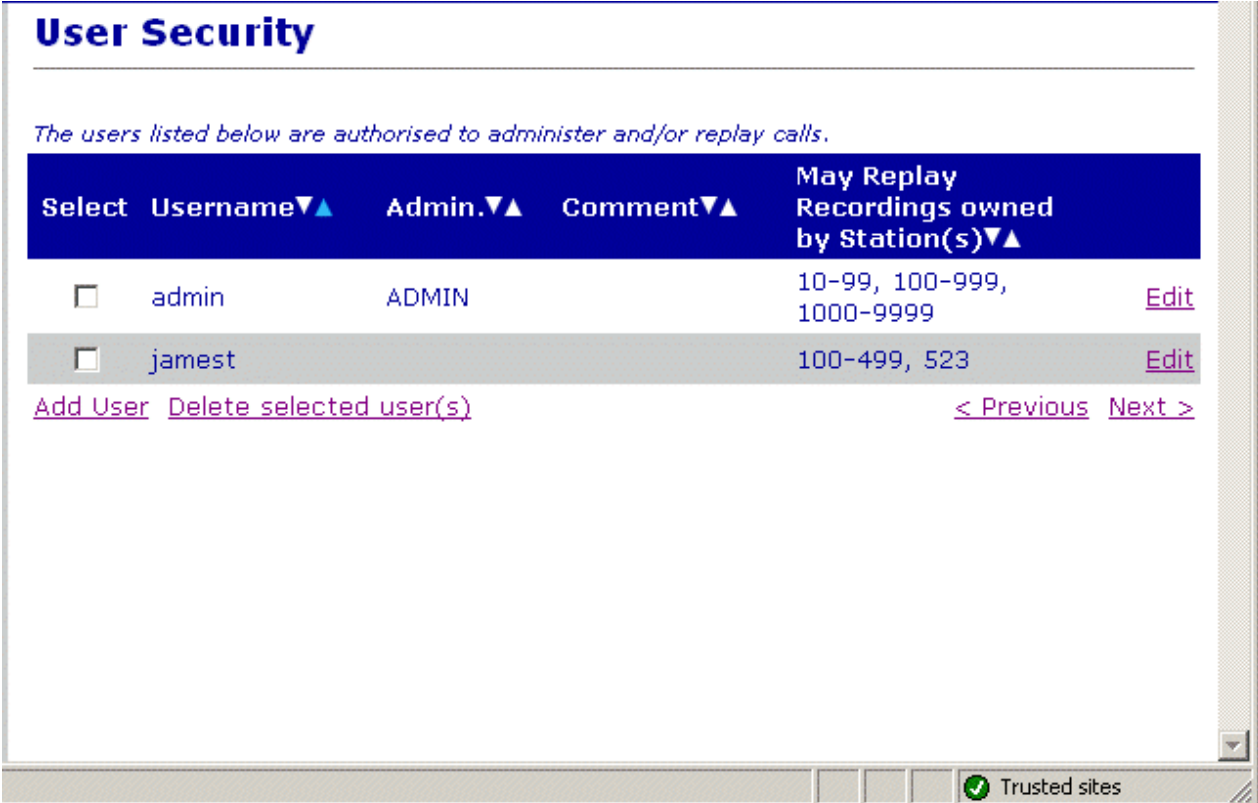
User accounts can be added, modified or deleted from the **User Security** page.

Important:

The System Administration application will run for anyone if there is no user defined with administrator rights. To avoid locking yourself out of the system by accident, first create a user record for each administrator you need, then add search and replay only users.

To view user accounts:

1. Click the link **Users** under the heading **Security**. The User Security page opens.



User Security

The users listed below are authorised to administer and/or replay calls.

Select	Username▼▲	Admin.▼▲	Comment▼▲	May Replay Recordings owned by Station(s)▼▲	
<input type="checkbox"/>	admin	ADMIN		10-99, 100-999, 1000-9999	Edit
<input type="checkbox"/>	jamest			100-499, 523	Edit

[Add User](#) [Delete selected user\(s\)](#) [< Previous](#) [Next >](#)

Trusted sites

Creating a New Account

When a user is given access to utilize ContactStore in IP Office Manager, they also require a ContactStore account.

To create a new user account:

1. Click **Add User** at the bottom left to add one or more additional user accounts. The following window opens:

The screenshot shows a web browser window titled "System Administration - Microsoft Internet Explorer". The form contains the following fields and options:

- Username:** Textbox containing "Jdoe".
- User is an Administrator:** A checked checkbox.
- Comment (optional):** Textbox containing "Sales admin".
- Is allowed to replay calls owned by these stations:** A text area containing "0900-0999, 1300, 1401-1410".

Below the text area, a note reads: "Use commas to separate station numbers and dashes to indicate ranges e.g. 1000,1030-1049,2001".

At the bottom of the form, there are three buttons: "Close Window", "Enter and Stay Open", and "Enter and Close".

2. Enter a **Username**. This can be a Windows domain qualified username (for example, corpdomain\johnd) or a local application username (for example johnd).
 - If you use the domain qualified username, Windows authentication will be performed. To allow users from other domains to log in, you must establish reciprocal arrangements between the domain controller for the domain that the ContactStore server is in and the other domain.
 - When a local user account is created, the account is initially given a blank password. The new local user is automatically redirected to the **Change Password** form the first time they log in.
3. Check the **User is an Administrator** box to assign the user administrator rights.
4. Use the **Comment** textbox to enter the full name, job title or other identifying information that will help you to administer the user's account.
5. (Optional) In the text area labeled **Is allowed to replay calls owned by these stations**, enter the list of stations or agents that this user is to be allowed to search for and replay. The initial account created when the first user logs in is automatically given replay rights to all 2, 3 and 4-digit station numbers. You can modify these rights as required.
 - Enter a comma separated list of individual station or agent numbers. You can also use a hyphen to separate the ranges. If you have several users with the same replay rights, you can select the text in this area and right-click to copy it to the clipboard. You can then paste it into the next account, saving a lot of typing and potential for error.

Some typical examples are:

- 4000 - user can only replay calls owned by agent 4000. This is a typical entry for a CSR with this Agent identifier that indicates that they can only play their own calls.
- 4000-4019 - user can replay calls owned by any agent in the range 4000-4019. This is a typical entry for a supervisor in a call center in which agent ranges are assigned to teams.
- 4000,4003,4010-4019,4124-4128 - mixture of ranges and individual numbers. This is a typical "real-world" scenario for a supervisor in a call center where the originally assigned numbering plan has been added to over the years.
- 1000-9999 - blanket coverage of all 4-digit station/agent numbers. This is a typical entry for a senior manager with search and replay rights over all recordings.

6. Click **Enter and Stay Open** to save the account definition and keep the window open to create additional user accounts.
 - Click **Enter and Close** to save the account definition and close the window.
 - Click **Close Window** to quit without changing the account definition.

Note

You do not have to allow a user any replay rights but the only practical uses for this would be:

- To provide an administration account for someone not supposed to replay any calls. However, as with most systems, the administrator is at liberty to change his own settings; you should not rely on this to restrict administrators from replaying calls.
- To temporarily disable an account. However, a better way to do this is simply to reset the password and then log in as that user and change the password to something not known to the user. This way, their replay rights are left intact and can be more easily altered if you need to re-enable the account later.

Editing an Account

Any account can be changed. For example, a user might forget their password, by editing the account you can reset their password.

- To reset a local user's password for any reason, check the box marked **Reset Password** and instruct the user to log in promptly.

You can change any of the fields except the user's name. To change this, you must delete and re-enter the user's details as this field is used as the unique key in the database. For more information, see [Deleting an Account](#).

- If you use the Windows domain qualified username, Windows authentication will be performed, so the **Reset Password** checkbox is irrelevant.

To edit an account:

1. Click the **Edit** link next to the user's entry in the list. The following window opens:

The screenshot shows a web browser window titled "System Administration - Microsoft Internet Explorer". The page displays the following fields and options:

- Username:** Admin
- Reset Password:**
- User is an Administrator:**
- Comment (optional):** [Empty text box]
- Is allowed to replay calls owned by these stations:** [Empty list box]

Below the list box, there is a note: *Use commas to separate station numbers and dashes to indicate ranges e.g. 1000,1030-1049,2001*

At the bottom of the window, there are two buttons: [Close Window](#), [Enter and Close](#)

2. Alter the user's administrator rights, comment and/or replay rights.
3. Click **Enter and Close** to save the changes.
 - Click **Close Window** to quit without changing the account definition.

Deleting an Account

Any accounts can be deleted. However, there must always be one administrator account. If you need to change the name of the administrator account you must enter a new administrator account and then delete the account no longer required.

To delete accounts:

1. Click the checkbox in the **Select** column for each user to delete
2. Click the **Delete selected user(s)** link.

Configuring VoiceMail Pro


Changing the Maximum Record Time.

VoiceMail Pro must be installed for the IP Office ContactStore to operate. You can configure a limited amount of functionality through the VoiceMail Pro, such as the maximum record time and can set access to the Voice Recording Library through the Leave Mail Action.

To change the maximum record time:

1. Open the Voicemail Pro Client application.
2. From the menu bar, select **Administration > Preferences > General**.
3. View the **General** tab.

The screenshot shows the 'General' tab of the VoiceMail Pro preferences dialog. The 'Max CallVRL Record Length (Secs)' field is highlighted with a blue box and contains the value 3600. Other fields include 'Client/Server Connection Timeout (min)' set to 5, 'Default Telephony Interface' set to 'Intuity', 'Max. Message Length (secs)' set to 120, and checkboxes for 'Play Advice on Call Recording', 'Use as Prefix', and 'Enable Fax Sub-Addressing'.

4. Set the **Max CallVRL Record Time (secs)** for the messages on the ContactStore.
5. Click **OK**.
6. Click  **Save and Make Live**

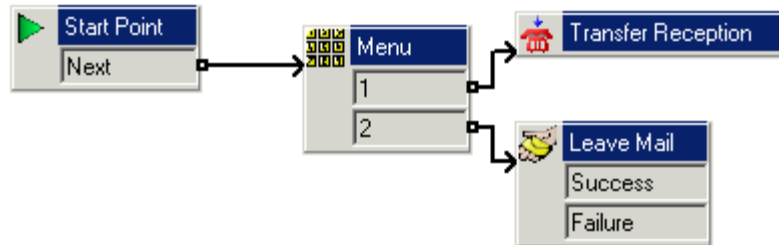
Important:











The maximum recording time supported is for 1 hour (3600 seconds).








Creating a Call Flow

A call flow can be created in VoiceMail Pro that enables a caller to leave messages in ContactStore. When the call flow is used all voicemail messages are routed to the ContactStore Voice Recording Library. The action used is **Leave Mail** where the VRL option is selected in the specific tab.

The following exercise will take you through creating a call flow where the voicemail messages are routed to the ContactStore Voice recording Library. The exercise is only an example and not intended to reflect a real-life customer call flow. When completed the call flow will look similar to the example shown.



1. From **Start > Programs > IP Office**, open **VoiceMail Pro**.
2. Right-click  **Modules** and select **Add**.
3. In the **Name** field, type **AutoAttend** and click **OK**. The Start Point is placed in the Details pane.
4. A menu needs to be added to the Start Point.
 - Click the **Start Point** action to select it.
 - Click the  **Basic Actions** icon and select  **Menu**.
 - Click the details pane to place the action.
5. The menu options 1, and 2 need to be added.
 - Right-click the  **Menu** action and select **Properties**.
 - In the **Touch Tones** tab, check **1**, and **2** and click **OK**.
6. The transfer locations of Reception group need to be added.
 - Click the  **Telephony Actions** icon and select  **Transfer**.
 - Click in the details pane to place the action.
 - Open the **Properties** for the  **Transfer** action by double-clicking on the Transfer action.
 - In the **General** tab change the **Token Name** to **Transfer Reception**.
 - Select the **Specific** tab. Type the destination as **Reception** or **301**. During this example exercise it is assumed that the hunt group Reception number is 301.
 - Select **OK**.
7. A Leave Mail action needs to be added.
 - Click the  **Mailbox Actions** icon and select  **Leave Mail**.
 - Click the details pane to place the action.
 - Open the **properties** for the  **Leave Mail** action by double clicking on the Leave Mail action.
 - In the **Specific** tab select the **VRL** option. This will route all voicemails to the ContactStore Voice Recording Library.
 - Select **OK**.

8. The actions need to be connected.
 - Click the  **Connection** icon on the toolbar and connect the Start Point **Next** result and drag to the  **Menu**.
 - The options in the Menu need to be connected to the transfer locations. Click the  **Connection** icon and connect **1** to  **Transfer Reception**.
 - Click the  **Connection** icon and connect **2** to  **Leave Mail**.
9. Click the  **Save & Make Live** icon.
 - Choose **Yes** to make the changes permanent.

This part of the example exercise, adds a system short code so that you can make test calls to the AutoAttend call flow.

1. In IP Office Manager, add a short code. The example uses ***90** but any short code can be used.
2. Save and merge the configuration to the IP Office unit.
3. Test the short code by dialing ***90** from any extension other than 301.
 - Press **1** and you should be transferred to the Reception group (in this example, extension 301).
 - Press **2** and you should be transferred to voicemail. Leave a message.
4. Check in ContactStore that the message you recorded has been stored.

Field	Enter:
Code	*90
Feature	Voicemail Collect
Telephone Number	"AutoAttend"
Line Group ID	0
Locale	[leave blank]
Force Account Code	[leave blank]

Testing the Recording Operation

Overview

Once you have installed and configured the IP Office ContactStore, you need to verify that the recorder is storing and indexing recordings correctly.

Testing the recording operation

You are now in a position to make test calls to verify correct operation. You should, make a call using each of the stations and call types you have configured to be recorded and passed to ContactStore. This test will confirm basic setup.

You should also check the recording and tagging of any complex call scenarios to be used. These include various transfers, conferences, and so on. This test is recommended to ensure that any configuration problems are discovered early.

To test the recording operation of the ContactStore server, you must replay the recordings. ContactStore performs replay of recordings by means of a browser-based application that is accessible with Internet Explorer (IE) V5.0 and higher. The following sections describe how to set up your browser and how to access the application.

- Configuring your Browser.
- Adding ContactStore to a Zone.
- Accessing Search and Replay.

Monitoring the system

Monitor the system status regularly over the first few days of operation to confirm that utilization levels and storage volumes are in line with your expectations. You can reconfigure or add additional storage if necessary.

Configuring your Browser

The Search and Replay page downloads an ActiveX control, which it uses to decompress the audio for replay. If your default security settings prohibit downloading such controls, you need to provide a means of getting the ActiveX control to your users' desktops. Internet Explorer (IE) determines rights by putting web servers into zones and then granting those zones specific rights. To access and use the page, the zone needs the following rights:

- Run ActiveX controls and plug-ins.
- Script ActiveX controls marked safe for scripting.
- ActiveX Scripting.
- Download signed ActiveX controls.

Your Intranet zone and/or the Trusted Site zone may already be assigned these rights. If so, you need to verify that the ContactStore is in one of these zones. For more information, see [Adding ContactStore to a Zone](#).

Adding ContactStore to a Zone

You can add ContactStore to a Trusted Site or Intranet zone.

To add ContactStore to trusted sites:

1. In the Control Panel, open **Internet Options**.
2. Click the **Security** tab.
3. Click the **Trusted Sites** icon.
4. Click **Sites**.
5. Uncheck the **require HTTPS** box.
6. Enter the URL of the ContactStore server and click **Add**.

 **Important:**

Internet Explorer does not recognize that a certain Fully Qualified Domain Name (FQDN) and IP address are the same; you must add the URL to the list exactly as you type it in the address bar.

7. Click **OK**.

To verify that you have configured the Zone information correctly, the icon on the lower right side of the IE status bar should show **Trusted Site** instead of **Internet**.

To add ContactStore to a local Intranet Zone:

1. In the Control Panel, open **Internet Options**.
2. Click the **Security** tab.
3. Click the **Local Intranet** icon.
4. Click **Sites**.
5. Click **Advanced**.
6. Uncheck the **require HTTPS** box.
7. Enter the URL of the ContactStore server and click **Add**.

 **Important:**

Internet Explorer does not recognize that a certain Fully Qualified Domain Name (FQDN) and IP address are the same; you must add the URL to the list exactly as you type it in the address bar.

8. Click **OK**.

Note

You can also specify that sites that bypass the proxy server are in this Zone.

Search and Replay

Overview

ContactStore performs replay of recordings by means of a browser-based application that is accessible with Internet Explorer (IE) V5.0 and higher. The Search and Replay page includes the following features:

- Personal security restrictions. The restrictions are applied as you log into the web server.
- Criteria-based searches. Use the **Search** filter fields to perform specific searches.
- Calls matching your requested search appear in the right-hand pane.
- Replay controls. Use the replay controls to start, stop, pause, skip forward, skip backward, or to export the recording to a readily playable .wav file.
- Audio waveform display. The waveform presents a graphic representation of the audio content of the call. Use the waveform to avoid replaying static or silences, and to move easily to specific portions of a call.

Accessing Search and Replay

Internet Explorer is used to view the Search and Replay application.

To open the Search and Replay application:

1. Enter the URL for the ContactStore server in the form: **http://myservname:8888/**, replacing **myservname** with the IP address or hostname of the ContactStore.
 - To use the hostname, it must be entered into your DNS server.
2. Enter your **Username** and **Password**.
 - If you are already logged on as a Windows user and this account has been entered into ContactStore, you will immediately access the application.
 - If this is your first time logging on, or if the password has just been reset, the password field is ignored. However, before you can continue, you must change your password.
3. If your user account has administration privileges, the **Administration** page is displayed when you log in. Use the link at the top left to access the **Search and Replay** page. The Search and Replay page also provides a link to return to the administration pages. Otherwise, once you log in, the Search and Replay page is displayed:

AVAYA ContactStore
powered by WITNESS SYSTEMS

Help
Change Password
Logout

Search Filters

Call Start Range

24/08/04 00:00:00
24/08/04 23:59:59

Parties

Length

Target Number

SEARCH

Results

Call Start	Len	Parties	Type	Target
------------	-----	---------	------	--------

Trusted sites

Searching for Calls

Search filters can be used to find specific records. As you search for calls, keep in mind:

- Searching on the basis of the details of one or more of the "parties" involved in the call is the most common way to find the calls you are looking for. This will find calls to or from a station, number, or name (partial or entire) that you enter.
- You will find that **Incl** (includes) is the most useful search method when searching for calls involving specific parties.
- If you select the blank option in the drop-down box, any existing entry in the text box next to it will be retained. It won't be applied to the current search, but it makes it easy to add it back into the search criteria later.
- If a recording has a blank entry for a field, it is listed as "N/A" (not available). You cannot, however, search for such records by specifying "starts with N" or "ends with A" or "includes N/A" in the **Search** field; this tag is not present in the database.

To search for calls:

1. Use the calendar controls at the upper left to specify the date and time range. Time and date reference when the call segment started.

Search Filters

Call Start Range

24/04/04 00:00:00

24/08/04 23:59:59

Parties

Length

Target Number

SEARCH

2. Use the drop-down boxes for each criterion, for example, **Parties**, to specify the operand, such as = equals (numeric fields only).

The drop-down box lists the following operands:

Drop-down	Meaning
	No criteria
=	Equals (numeric fields only)
<	Less than (numeric fields only)
>	Greater than (numeric fields only)
Incl	Includes or Contains (string fields only)
Starts	Starts with (string fields only)
Ends	Ends with (string fields only)

3. In the corresponding textbox, enter the specific criterion, such as 3.
4. Select **Search** to execute the specified search.

Viewing Results

The example shows a typical result set. The Results list includes the following information:

- Call start time.
- Call length in hours, minutes and seconds.
- Name (where available) and number of the parties on the call.
- Call type - incoming or outgoing.
- target number (the number dialed which may not be the same as the number that answered the call).

When you view the results you can:

- Click the page indicators (1 2 3 ... 8 Next) above the **Results** table to move through the list of results.
- Click the arrows within the column headers (▲ ▼) to sort the results by that column. A blue arrow indicates the active sort field and direction

The screenshot shows the AVAYA ContactStore Administration interface. On the left is the 'Administration' sidebar with 'Administer System' and 'Search Filters' sections. The 'Search Filters' section includes fields for 'Call Start Range' (24/04/04 to 24/08/04), 'Parties', 'Length', and 'Target Number', with a 'SEARCH' button. The main area is titled 'Results' and contains a table with the following data:




Call Start	Len	Parties	Type	Target
22/06/04 15:15:53	00:19	204 (Extn204), 205 (Extn205)	Incoming	204
29/06/04 11:03:04	00:16	203 (Extn203), 228 (Extn228)	Incoming	203

The interface also includes a top navigation bar with 'Help', 'Change Password', and 'Logout' links, and a bottom status bar with 'Done' and 'Trusted sites' indicators.

Playing a Call

When a call recording has been found you can play the recording.

To play one of the calls listed:

1. Click the radio button next to the call. The radio button is listed at the left in the column headed by the loudspeaker icon 
 - The audio is retrieved from the server and an audio wave form is shown in the top bar. 
bar.
 - Audio retrieval may take a few seconds to a few minutes depending on the bandwidth of the link between your PC and the ContactStore server.
2. Once the first few seconds of the call have been loaded, click on the audio waveform to play it.
3. Place your mouse over the audio waveform to display a small control panel that you can use to pause, skip forward, skip backward, or export the recording to a readily playable .wav file. 
 - Click anywhere in the audio waveform to play from that point in the call.
 - Click just to the left of the audio waveform to play from the very beginning of the call.

Administrative Tasks

Overview

The System Administration pages are used to maintain, update, and monitor your system. The ContactStore recording system includes an administration application that is accessible only to specified administrators. Use the pages in this web application to maintain, update, and monitor the system.

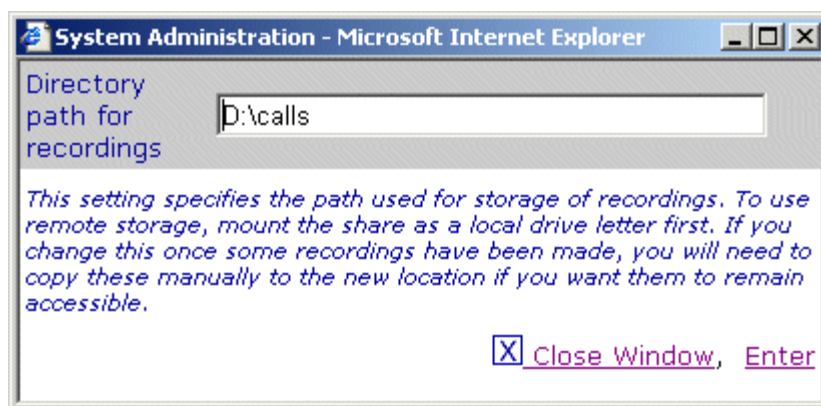
The left navigation pane on each page provides access to the following key areas:

- **System Settings.**
Use this page to view and change the configuration of the ContactStore application and how it interacts with your IP Office switch. For more information, see Changing Server Settings.
- **Security.**
Use this page to control which calls can be replayed by whom, and who can administer the system. For more information, see Viewing User Accounts.
- **Status.**
Use these pages to monitor the current state of the server. For more information, see System Overview Page and Viewing Alarms and Events.

Key points

Before using the System Administration pages, you should familiarize yourself with the following key points.

- **Invalid settings**
Any of the system's settings that are known to be invalid are shown in red. Use the information in this guide to change the settings to valid values. If you change a setting, but submit an invalid entry, a message indicates the reason that the entry is rejected and you are prompted to re-enter it. To quit without changing a parameter, click on the **Close Window** link.
- **Alarms and events**
If the link to the Alarms and Events page is shown in red, it means that at least one alarm has been raised and has not yet been cleared. Click on the link to see the new alarms.
- **< Previous and Next > links**
At the bottom right of some pages you will find links which guide you through the main configuration pages in the same order that they are shown in the left navigation bar.
- **Impact of changes**
When you change a setting, the window into which you enter the new setting explains the meaning of that setting and the consequences of changing it. The following screen shows the message displayed when you change the path for storage of recordings.



Daily Procedures

Unless you have fully automated alerting of these conditions, the following procedures should be carried out at the start of each day:

- **Alarms**
Check the Alarms and Events page for new problems.
- **Disk capacity**
Check the available disk space daily for the partition on which your recordings are stored until the disk has filled and starts to wrap. Past that point, the amount of free space should stay close to 1GB.
 - ContactStore is designed to run with the partition holding the recordings almost full. This maximizes the number of recordings that are available online to you.
 - Unless you have explicitly disabled disk management, the ContactStore's disk manager thread will delete files on a FIFO (First In First Out) basis to preserve the specified amount of free space.
- **Web Logs**
Check the contents of the web log files and examine any errors logged since the previous check. The default installation location for the web logs is in the sub-folder **logs**.
 - While the above directory holds the ContactStore's log files (**csipo.log**), you may also want to check for server errors in **tomcat5024/logs**.

Look at all error and warning messages, not just those generated by the ContactStore services.

- **System Status**
Some problems are not easily trapped automatically; check the system status regularly via the System Overview page. Verify that all figures are in line with expectations and investigate any anomalies, such as no recordings today.
The table below summarizes the values to check and what constitutes an abnormal reading.

Variable	Check this value...	If not, it probably indicates that...
ContactStore Server		
Calls recorded today	>0	Either no one is using recording or there is a major problem.
Age of oldest call	Is the date you installed the system or within acceptable bounds once your disk has filled.	The disk is filling too rapidly forcing calls to be overwritten that are younger than your planned retention period.
Archival (<i>only shows if drive is configured</i>)		
Current Media Label	Is a valid label	Drive is empty, disk is corrupt, or drive is broken.
Remaining Space	Is 0.1GB or higher	The disk should be changed.

- **Confirm recording and replay**

To confirm recording and replay:

- Check the daily recording count as listed in the table to verify that calls are being uploaded into the database.
- Use the Search and Replay page to select the most recent calls to verify that calls are accessible.
- Confirm that the start time of these calls is as you would expect. Verify that the start time corresponds to the most recent calls made on the extensions being recorded.
- Confirm that these calls are playable and that audio quality is good.

- **Archive**

If using DVD+RW archive, check the current disk's available capacity. Change the disk if capacity is less than 0.8GB of the total disk. Total disk capacity allowed is 7.0GB. However, due to limitations in the DVD+RW writing, the last 0.6GB is not available for individual files to be written to and hence cannot be used by ContactStore.

Be sure that the disks are not filled completely; there is then an indeterminate time before they are changed during which calls cannot be written to removable media.

If you change them before they fill, then calls are written to removable media as soon as a reasonable volume of recordings is available (100MB) or 24 hours have elapsed since the oldest unarchived call started.

Weekly Procedures

As you become confident of the normal operation of your recorder, you can reduce the frequency of the daily tasks. For example, if you know that the rate at which your disk is filling is much less than the available space, you can check it weekly.

Perform the following tasks each week:

- **Disk capacity-main recording store**
When ContactStore is first installed, the disk is almost empty. As it gradually fills, you should note the rate at which it is being used (at least weekly) and extrapolate to estimate when the disk will be full. At this point, the ContactStore will begin deleting the oldest calls to make room for new ones.
 - If this happens to calls that are younger than planned, check the configuration of the ContactStore to ensure the correct calls only are being recorded. Add additional disk capacity to the partition before it fills.
- **Disk capacity check-all partitions**
Check the available space on any other disk partitions. Verify that these other drives have sufficient space. Ideally, set up an alert to warn you if they drop below 100MB. Accumulated temporary files or log files that may need to be manually purged can cause this drop in available space.
 - When purging files, remember that files you delete go to the **Recycle Bin** directory and that the space they occupy is not freed until you click **Empty Recycle Bin**.
- **Call detail database purging**
If you have enabled automatic purging of aged call detail records, you should still monitor the size of the calls database during the first few months of use so that you can predict how large it will get by the time old records begin to be purged.
 - Many customers plan never to purge call detail records; they add disk capacity every year or two as the database grows. If you do this, you should upgrade your server every few years to compensate for the increasing size of the database and the reduction in search and update speed.
- **Complete Server Backup**
Changes to system configuration that affect user access rights are stored in the MSDE database, so they are backed up along with the call detail records.

If you are not using RAID arrays, Avaya strongly recommends that you take a ghost image of the ContactStore server (or at least of the partitions on which your operating system and program files are installed) to allow for easy restoration in the event of catastrophic system failure.

Monthly Procedures

Check the following aspects of the system on a monthly basis:

- **Loading trends**
Note the total call volumes recorded every month to be aware of gradually increasing traffic trends. If it appears that the load is increasing, consider increasing server specification or disk space. To do this:
 - Note the number of calls recorded at the end of each month and compare with previous month's accumulated total.
 - Note the age of the oldest call on the disk (only applicable once the disk has filled for the first time).
 - Note the CPU load during busy hour.
- **Server Backup**
Back up your server on a regular basis, particularly if you make any changes to the setup of your server. Make a ghost image of the server so that you can quickly rebuild it in the event of major hardware failure.
- **Recording Check**
Any changes to the system may affect the system's capabilities. To be sure that the system is functioning correctly, periodically verify that the physical setup is properly specified in the Administration application.
 - In addition, if you change the IP addresses or node names of any system components, you should perform a full commissioning test to confirm correct storage of all required calls.

Backing up your Server

You are strongly advised to install and configure an automated backup tool to provide a recoverable image of your server. You should back up the partitions onto which you have installed ContactStore, as well as the operating system partition(s).

If you configure a Database backup path using the Administration pages, ContactStore will automatically write a backup of the database each night. The backup occurs just after 1am every morning. On Sunday mornings a full backup is made; on other days an incremental backup is added to this file. Each week, the previous week's backup file is renamed from **ContactStore.dump** to **ContactStore.old** and the previous week's file is deleted.

Therefore, you need to archive **ContactStore.dump** file every night, either before 1am or after 2am, to avoid colliding with the database backup. If you specify a fileshare on a remote computer, you will need to configure a file share to allow access to a user account and then set the ContactStore service to 'Run as...' that user. To allow ContactStore to function, you must ensure this user account has at least the same access rights as the local system account which the service uses by default.

Restoring the Call Details Database

If it becomes necessary to restore the contact details database complete the following steps:

1. Stop the **ContactStore service** and the **MSSQL\$CONTACTSTORE service**.
2. Open a command window.
3. In the command window start the SQLSERVERAGENT by typing `osql -E sqlserveragent`
The command prompt "1>" is displayed.
4. Type `RESTORE DATABASE eware FROM DISK = '<path to database backup file>' WITH REPLACE`. (this command is case sensitive).
5. Press Enter.
6. At the prompt "2>" type `go`.
7. Press Enter.
8. Type `exit` and press Enter.
9. Start the **MSSQL\$CONTACTSTORE service** and the **ContactStore service**.

Appendix

ContactStore Version

To discover the version of ContactStore that is installed :

1. From the **Start** button open the **Control Panel** menu.
2. Select **Add/Remove Programs**.
3. Select **ContactStore for IP Office**.
4. Click the **Support information** link. The Support Info window opens. The version of ContactStore installed is shown. In the example the version is 7.2.09.



Archiving

The hard disk has limited storage capabilities. When the available hard disk space is full, older recordings will be deleted, overwritten by newer recordings.

- When you have configured Archiver all your recordings will be archived. However, recordings made before archiver was configured are not archived.

To keep copies of recordings or to protect the recordings in the event of failure/theft/destruction of the hard disk on the recorder or to provide longer-term archive and replay capability, you can use a DVD+RW drive within the ContactStore server. This chapter describes the internal DVD+RW archival option.

With a DVD+RW drive installed in the ContactStore server, you can archive calls automatically. The application writes files to disk in batches as calls are recorded. It also archives the call details to the disks.

Recording files are copied to the DVD disk:

- When 14 hours of recordings have been made (equivalent to 100MB when recording in G.726 mode).
- or
- 24 hours have passed since the last write to DVD whichever is sooner.

When a recording is archived, the index and the recording are stored. The index for the file is stored as xml files in the database. When a call is deleted from the hard disk, ContactStore prompts for the DVD that is specified as part of the archive configuration.

The xml files associated with each recording are archived to the DVD along with the .wav files that contain the actual recording. The xml files describe the recording and are useful for long term identification if necessary, for example if an archived call needs to be retrieved after a number of years. If you need to retrieve an archived recording you can find the index in the database and from it find out which DVD the recording is on.

- **Tip**
It is also advisable to keep backups of the call records from the database.

Supported drives

ContactStore requires the Nero DVD tools to write to the DVD drive. You must therefore use a drive that is supported by Nero. If Nero is not bundled with your DVD drive, you must install it separately. Single-sided 4.7GB DVD+RW media are supported.

DVD+RW media control and care

To find calls easily and reliably, be sure that all media are labeled, handled and stored correctly. To ensure maximum reliability and consistent high quality recording and playback, follow these DVD+RW care procedures rigorously at all times:

- Follow the manufacturer's guidelines for cleaning the drive's lens.
- Disks exposed to temperatures outside the operating environment must be stabilized before use. Leave the cartridges in the operating environment temperature for a MINIMUM of two hours.
- Protect disks from extremes of heat. Do not store disks in direct sunlight.
- Avoid excessively damp environments; disks can be damaged by liquids and also by extreme humidity.
- Do not let disks get dirty. When not in use, store disks in their supplied protective container.
- Do not drop disks.
- Do not touch the optical media inside the cartridge.

Archival Procedures

The following section explain how to complete the basic archival procedures:

Loading a disk

To load a new disk:

1. Insert a blank DVD+RW disk in the drive.
2. Wait 10 seconds for it to spin up.
3. In the ContactStore System Administration application, click the **System Overview** link to confirm that the ContactStore has recognized the disk.

The **Current DVD media** field shows that the disk has been recognized and is being written to; it also shows the volume label that has been assigned to the new disk. The **Free Space on current DVD media** line shows 4.7GB available on a clean disk.

Changing disks

The **System Overview** page shows when the disk is full; however, you should change disks at regular intervals, for example, daily, or every Monday at 9:00 am. Do not wait for a disk to fill up completely. If a DVD is filled, subsequent calls are not archived. You could lose recordings if there is a hard disk failure when the DVD is filled.

- **Tip:** Check the state of the current disk in the drive daily, though alarms will be generated if the disk is not writable when calls are ready to be archived.

To eject a disk that is still being recorded in order to retrieve calls from another disk, replace the partially full disk and recording will continue to it.

Important:

The archival process never writes to disks out of sequence. For example, if you eject a partially full disk, then insert a blank disk on which the next set of calls is written, you cannot then reinsert the partially full disk.

Labeling a disk

As you eject each disk, label the disk itself using an approved indelible marker. Your label should indicate:

- The identifier of the ContactStore producing the disk. The identifier is **Calls** by default; you can change this value on the **Server Settings** page of the System Administration application.
- The sequential serial number of the disk.
- The date/time the disk became full.

Verifying recorded disks

To verify that the contents of the disks are valid, you must first eject and re-insert the disk. Wait 10 seconds and then open Explorer on the drive.

If the contents of the disk are valid, there will be a single UID file and a set of large.tar files that contain the .wav and .xml files of the original recordings.

If these files are not present, refer to Appendix A of this manual for troubleshooting instructions.

If you cannot resolve the problem, contact your supplier's support organization for advice. Be sure to:

- Place the disk back in its protective container.
- Store the disk in a logical order with the other recorded disks.

Reusing old disks

Disks can only be written to if they are returned to their original state, with no files or formatting information on them.

To avoid accidental or fraudulent erasure of calls, reuse of DVD+RW disks is not encouraged; it is only possible if the disk has been completely wiped clean and returned to its initial state.

To recycle disks after a period of time:

1. Strike out the old disk label.
2. Insert the disk.
3. Delete ALL FILES from the disk.
4. Confirm that ContactStore has accepted the blank disk.
If accepted, the **System Overview** page shows the new volume label and 4.7GB of free space, as it would with a new disk.

Alarms

The system will automatically generate alarms showing system warnings. Alarms are logged to IP Office ContactStore's database and held a month before being purged. The administrator can define specific email addresses for alarms to be automatically forwarded to. The email recipient could be a local system administrator, a manned help-desk and/or supplier's desks if you have a support agreement that includes this facility. The system sends an email message each time an alarm occurs or is cleared. It also sends an email once a day as a 'heartbeat' to let you know that it is still operating. Failure to receive the daily heartbeat message should be investigated; it could indicate that the server has failed.

This appendix lists the alarm conditions that may be reported and offers suggestions for clearing the alarms. The alarms listed are generated by the ContactStore server and reported in the ContactStore System Administration pages and through email. XXX and YYY in the **AlarmText** column represent a specific parameter, such as a station number, file name, and so on.

Level	AlarmText	Remarks	What to Do
Info	Daily heartbeat. System still running.	Should be received daily by email but does not appear in Alarms/Events log.	
Info	XXX Job Queue backlog reduced to acceptable level. Currently YYYms.	Performance acceptable again.	
Info	System shut down.	System shut down for some reason.	If you stopped it, no action required. Otherwise find out why. This message is displayed after a controlled shutdown.
Info	Wrote to archive disk correctly.	Previously reported archive problem now cleared.	No action required.
Info	Correct archive disk now inserted.	Now able to write to disk in drive.	No action required.
Info	Mail sent successfully.	Previously reported problem sending email resolved.	No action required.
Minor	Cannot insert details of recording XXX into database.		Check available disk space on the partition on which ContactStore is installed. Verify that MSDE services are running.
Minor	Failed to delete file XXX. Reason: YYY.		Check the VMPro's Voice Recording Library path; as long as the call is playable from ContactStore, you can delete the file manually.
Minor	Failed to copy file XXX. I/O Error: YYY.		Take copy of XXX manually.
Minor	Failed to create/write target files for recording YYY.		Take copy of XXX manually.
Minor	Failed to write XML file XXX. Reason: YYY.		Check disk space on the partition on which your calls are being stored.
Minor	Port XXX. Error playing file. Reason: YYY.	Depends on reason.	Verify that the file exists.

Level	AlarmText	Remarks	What to Do
Minor	Error processing file XXX. Reason YYY.		Depends on reason shown.
Warning	XXX Job Queue individual slow job - took YYYms.	One-off occurrence not important.	Note time of day and report if persistent.
Warning	XXX Job Queue backlogged. Delay currently YYYms but may go higher.	One-off occurrence not important.	Note time of day and report if persistent.
Warning	System restarting.	System restarted for some reason.	If you restarted it, no action is required. Otherwise find out why. Power failure?
Major	Error displaying alarm tag.	ContactStore bug.	Report problem.
Major	Bad or wrong type of archive disk inserted.		Insert blank DVD+RW
Major	Unable to write to archive file XXX. Reason: YYY. Check Troubleshooting Guide.		Insert a new blank DVD+RW.
Major	No disk available for calls archive.		Insert blank DVD+RW.
Major	Previously closed archive disk inserted.		Insert blank DVD+RW.
Major	Error displaying ContactStore state tag.	ContactStore bug.	Report problem.
Major	Error purging database. Reason: XXX.	Check PostgreSQL service running.	Depends on reason shown.
Major	Error sending email.		Check all email settings. Send test email to verify this account.
Major	Authentication failed attempting to send email.		Check account name and password for email account.
Major	Error in IterateSettingsTag	ContactStore bug.	Report problem.
Major	Invalid settings group requested in IterateSettingsTag	ContactStore bug.	Report problem.
Major	Error in SettingTag	ContactStore bug.	Report problem.
Major	Unrecognized field request in SettingTag	ContactStore bug.	Report problem.

Trouble Shooting

Installation Problems

My install CD doesn't autorun in Windows

Use Explorer to view the contents of the CD. Double-click the **setup** icon to start the program.

Resource Problems

When problems occur, check the following:

- **Emailed Alarms and Events.**
If you have been using the email settings to have alarms and events forwarded to one or more email addresses, you should check these carefully. As well as checking the contents of messages you have received, also check for days when the daily heartbeat message has not been received.
- **Alarms and Events Page.**
This page within the administration application provides a wealth of information on problems that the system has detected.

Review the alarms carefully. If the problem is not immediately apparent, consider viewing all alarms-including those that have previously been cleared. It may be that someone has cleared an alarm without addressing it or realizing its significance.

- **Web Log Files.**
Check for errors being reported in log files within the following directories beneath the installation path on the ContactStore server:
 - **\logs**
 - **\tomcat5024\logs**

The following table gives more details about these log files.

Log File	Naming convention	Default Level	Levels Supported	To change level
csipo.log	Current day's file is csipo.log and previous days are date stamped.	INFO	DEBUG, INFO, WARN, ERROR	Permanently, from next time service starts: <ol style="list-style-type: none"> 1. Edit the file (or create it if it does not exist): \properties\csipo.properties 2. Add the line: log.level=DEBUG replacing <i>DEBUG</i> with any of the levels supported as shown to the left. 3. Reboot the server or restart the ContactStore service to have this setting take effect.

System Administration Page Problems

You may encounter problems as you access and use the System Administration application. This section lists those problems and provides steps to take to correct them.

Cannot access the System Administration pages

If you cannot access the System Administration pages, try the following:

- Ping the server to confirm that connectivity is possible. If not, trace the network connections between client and server and double-check the server's IP address, default gateway etc.
- Use the numeric dot notation IP address instead of the hostname. If this works, then the hostname is wrong or cannot be translated by your DNS services. You may need to use a fully qualified node name, such as contactstore.bigco.com.
- Use the browser on the server itself to access http://localhost:8888. If this works, then the problem is in the network between server and client. If it does not work, then the problem may be with the Tomcat web server which runs as a Windows service called 'ContactStore'. Check that the service ContactStore is running.
- Verify that the MSDE database service is running on the server.

Cannot log in

If you have trouble logging in, double-check the state of Caps Lock and ensure the password is being entered with the correct case

If you can log in under another account, reset the password of the account that is having problems.

Change Password page appears but not Contents Page

If you managed to set a new password you will need to use this for all subsequent logins, even if you did not reach the main Administration page.

Web pages appear "untidy"

If the forms on the System Administration pages and/or Search and Replay page appear to be out of alignment; fields are truncated; headings or lines that, according to the screens shown in this document, should be on one line actually split across two lines, check your desktop properties. If set to **Large Fonts (120dpi)**, this will impact all website accesses not just the ContactStore pages.

To correct display issues:

1. Right-click your desktop and select **Properties**.
2. On the **Settings** tab, click **Advanced** and set the **DPI Setting** to 96dpi.

On new laptops, especially those with 1400x1050 resolution screens, the DPI is often set to 120dpi. Using too small a window or too large a type (**View > Text Size** in Internet Explorer) can make the columns and headings on the web pages wrap where they would not normally.

Email Alarm Problems

Invalid entries in any one of the parameters used to define the email settings will result in errors.

To check for invalid entries:

1. Use the settings from ContactStore to set up a standard mail client.
2. Send a message using the account specified to prove that the settings in ContactStore are valid.

If email messages have been working and then stop without any of the settings having changed, verify that nothing has changed on the mail server. This problem occurs, for example, if your password has been reset or changed on the mail server.

If the ContactStore is not sending email messages, it may not be able to access the SMTP server or POP server. Check the network connections to the ContactStore.

ContactStore to VoiceMail Pro Problems

ContactStore continually polls the folder into which VoiceMail Pro places recordings. ContactStore identifies this folder from the following registry key:

HKEY_LOCAL_MACHINE\SOFTWARE\Network Alchemy\Voicemail\Directories\VRLDir

If there seems to be a problem between ContactStore and VoiceMail Pro:

- Verify that the registry key exists and is set to the expected folder.
- During recording, check the folder <VoiceMail Pro installation folder>/VM/VRL to see if VoiceMail Pro is writing files to the correct folder.
- Make the Voice Recording Library on the VMPro server visible as a network share and that the ContactStore service can read and write to this share.

Search and Replay Problems

For most problems with Search and Replay, consider the following diagnostic approaches to narrow down the cause of the problem:

- Search for a different call, for example, one that is more recent or older; shorter or longer.
- Log in as a different user with different replay restrictions.

Specific issues are listed below.

Cannot access the application

If you cannot get to the login page:

- Try accessing the page from a machine on the network that is closer to the ContactStore:
 - On the same LAN if you are having problems with WAN access.
 - From the same sub-net if having problems from a different sub-net.
 - From the console if having problems from the same sub-net.
- Try using a different browser or a different version of the same browser.
- Try accessing the page from the other side of a firewall.

Problems downloading ActiveX control

If you see error messages relating to ActiveX controls being downloaded-or blocked from being downloaded, your security settings may be too restrictive. For more information, see [Configuring your browser](#).

Problems displaying ActiveX control

If the ActiveX control downloads but displays a red cross on white background at the top of the page, upgrade to Internet Explorer 6.0. These symptoms have been seen on Internet Explorer 5.0.

Cannot log in

If you see the login page but cannot get past it:

- Verify that Caps Lock is off and that you are entering the password with the correct case.
- Log in as a different user
- Confirm the spelling of your log in name with the system administrator and check that your account is still configured in the administration pages.
- Ask the system administrator to reset your password. Log in with a blank password and change your password when redirected to the **Change Password** page.

Search returns no calls

If you get to the search page but no calls are returned when you perform a search:

- Broaden your search criteria to confirm that you can at least find some calls. Start by requesting calls from any parties for today. If that shows no calls, extend the time period. Try setting the date range back to at least the time you know you have seen call records for in the past.
- Check that the system administrator has given you access to the correct calls. Your search and replay restriction may be wrong or too narrow for the search you are attempting.
- Confirm that calls are being recorded. Follow the troubleshooting guidelines for recording problems if you suspect that the system is not actually recording or processing any calls.

Calls missing from the database

Calls might need to be re-imported if MSDE was not working when the recordings were processed. To have the system try again to add one or more recordings to its database:

1. Create a text file named "redo.txt" e.g. in Notepad. Enter the 15 digit Index Number (INum) e.g. 800000123456789 of a call to be reprocessed. Repeat for other calls, taking a new line for each call.
2. Place this file into the handover directory (as defined by the Registry key HKEY_LOCAL_MACHINE\SOFTWARE\Network Alchemy\Voicemail\Directories\VRDir)

Calls listed but cannot play them

If you can see the list of calls that matched your search criteria, but cannot actually play them, look at the area at the top of the browser page where the "graph" of the audio normally shows and match your symptoms to one of the following:

1. **No Audio "graph"** - This means that the call has not been retrieved from the recorder or DVD disk or has not reached the client PC.
 - Check the server logs for errors.
 - Note the call's 15 digit reference number. (This number is shown as the default file name if you click on the Export button). Search for that .wav file in the recording storage path.
 - Check connectivity and available bandwidth to the client PC.
 - Check the Multimedia on your PC.
2. **Audio graph stops in mid call** - This implies that the transfer of data from the ContactStore server to your client PC has been stopped or interrupted.
 - Request the same call again. There may have been a temporary network problem.
 - Request a different call. If the problem is only with one call, you may have a corrupt file on your hard disk.
 - Request the problem call from another PC on the same network. If the other PC can retrieve it successfully, assess the differences between the two client PCs; the problem is most likely at the client end.
 - Request the problem call from different sub-nets, ideally working closer to the ContactStore.
 - Request the call from the ContactStore server's own browser. If this works and the others don't, then the problem is likely to be in the network between server and clients.
3. **Audio graph appears but no sound** - The audio file has reached the client PC successfully; the problem is most likely to be with the PC's multimedia setup or current settings.
 - Verify that the PC has a sound card.
 - Play a .wav file through Media Player or similar application to verify that the sound card is set up correctly.
 - Set any hardware volume and/or mute controls on the speakers/headphones to maximum volume.
 - Double-click the icon in the system tray at the bottom right-hand corner of the screen to verify that the PC's software volume controls are not set to mute or very low.
 - Ensure you are not running any other programs that may be locking the sound card exclusively. If in doubt, shut down all other programs.
 - Try another similar PC. If that works, look for differences in the multimedia setup of the two PCs.

4. **No New Recordings Playable** - If you can replay old recordings but not newly made calls, there may be a problem with the recording and/or storage components of the system. Follow these steps:
 1. On the **System Overview** page of the ContactStore System Administration application, look at the counts for total calls recorded and calls recorded today.
 2. Make a test recording.
 3. Complete the recording and hang up.
 4. Return to the **System Overview** page and note the **New Total Call Count** and **Daily Call Count**. These counts should have increased by at least one, the recording that you just made. If the counts have increased, the ContactStore is processing recordings. This is probably a search/replay problem. See earlier sections for help.

If these counts have not increased, the recording has not been successfully compressed and stored on the ContactStore server or inserted into the call details database. Do the following:

- Look for alarm messages that indicate problems with file read/write. The error message should indicate whether disk space or a directory access problem is the cause. Check that .wav files are appearing in the latest folder beneath your calls storage path (\calls by default) as recordings are made.
- Check disk space in all partitions. If any of these is 0 or less than 50MB, this may be the problem. Check for build up of log files. Check that the call details database hasn't exceeded the available space. Consider reducing the number of months of calls kept-use the purge settings on the Server configuration page to adjust this.
- Check that the Tomcat server is running. This runs as Windows service 'ContactStore'
- Check for messages in the web log files.
- Reboot the ContactStore server and watch for error messages on startup.

Partial recording problems

Since no hardware component in the system is dedicated to specific ports, any hardware problem is likely to affect all recordings equally. Therefore, if some calls are being recorded and are playable but others are not, the problem is probably in the recording configuration of VoiceMail Pro.

Glossary

A

ANI: Short for Automatic Number Identification. ANI is a service that provides the telephone number of an incoming call.

C

CLI: Short for Calling Line Identifier. CLI is a service that provides the telephone number of an incoming call. It is the European equivalent of ANI.

ContactStore Server: the Windows server running the ContactStore for IP Office application, which provides recording, storage, search and replay and administration functions.

D

DNIS: Short for Dialed Number Identification Service. DNIS is a service that provides the receiver of a call with the telephone number that was dialed by the caller.

F

FQDN: Fully Qualified Domain Name

I

IP: Internet Protocol. IP specifies the format of packets and the addressing scheme for internet data. The IP, as with the postal system, enables you to address a package and drop it in to the system. The packet will transverse the multiple networks on the way to its ultimate destination.

N

NIC: Network Interface Card. A NIC is an expansion board that you insert in to a computer so that 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.

R

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.

U

UTC: A time scale that couples Greenwich Mean Universal Time Coordinated. 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 in to UTC. UTC, like Greenwich Mean Time, is set at 0 degrees longitude on the prime meridian.

V

VoIP: Voice over IP. The technology used to transmit voice conversations over a data network using the Internet Protocol (IP).

VPN: Virtual Private Network. Private, or restricted, communications networks that use encryption and other security measures to transmit information through a public network, such as the Internet, and avoid unauthorized use.

VRL: Voice Recording Library

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