



IP Office

ContactStore System 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/>).

Avaya Support

Avaya provides a telephone number for you to use to report problems or to ask questions about your contact center. The support telephone number is 1- 800- 242- 2121 in the United States. For additional support telephone numbers, see the Avaya Web site: <http://www.avaya.com/support>.

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Introduction

About This Guide

The *IP Office ContactStore System Administration Guide* provides details of IP Office ContactStore operation, as well as other information needed for server maintenance and updating. This guide also includes instructions for searching and replaying recordings, archiving recordings, and system troubleshooting.



Intended audience

This document is intended to be used by the Administrator of the ContactStore.

Summary of information included in this guide

Conventions used in this guide

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

To show...	This style is used	For example...
Information shown on screen	Fixed width	You should see the prompt below: login:
Characters that you should type exactly as shown	Fixed width, bold	Enter the following command: <code>mount /mnt/cdrom</code>
Characters that you should replace with appropriate information	<i>Fixed width, bold italic</i>	Browse to the new server by entering <code>http://<i>servername</i>:8080</code>
Menu selections, buttons and tabs	Bold	Click on the Install button.
Helpful hints that can improve the efficiency or effectiveness of your work	Tip:	Tip: Use a photocopy of the <i>Header List Worksheet</i> to plan each header list.
Important details that we want to make sure that you do not overlook	Note:	Note: Media Encryption may or may not show up on this form.
Advice that can help you avoid undesirable results	 Important:	 Important: If the network does not meet the three conditions listed, there will be no media resources.

To show...	This style is used	For example...
Situations that can result in: <ul style="list-style-type: none"> • Harm to software • Loss of data • An interruption in service 	⚠ CAUTION:	⚠ CAUTION: Perform this procedure only after normal business hours. This procedure restarts all links on the interface, and can cause a temporary loss of service.
Situations that can result in harm to hardware or equipment	⚠ WARNING:	⚠ WARNING: A fractured or broken ferrite is not effective for EMC control.

Additional resources

The following guides contain additional information that you may find helpful.

- *IP Office ContactStore Prerequisites Guide*
- *IP Office ContactStore Installation Guide*
- *IP Office ContactStore Search and Reply Instructions*
- *Avaya IP Office 3.2 Manager Application*
- *Avaya IP Office 3.2 Voicemail Pro Installation*
- *Avaya IP Office 3.2 License and Feature Key Guide*
- *Avaya IP Office Installation Manual*

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

Chapter 1: System Operation

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

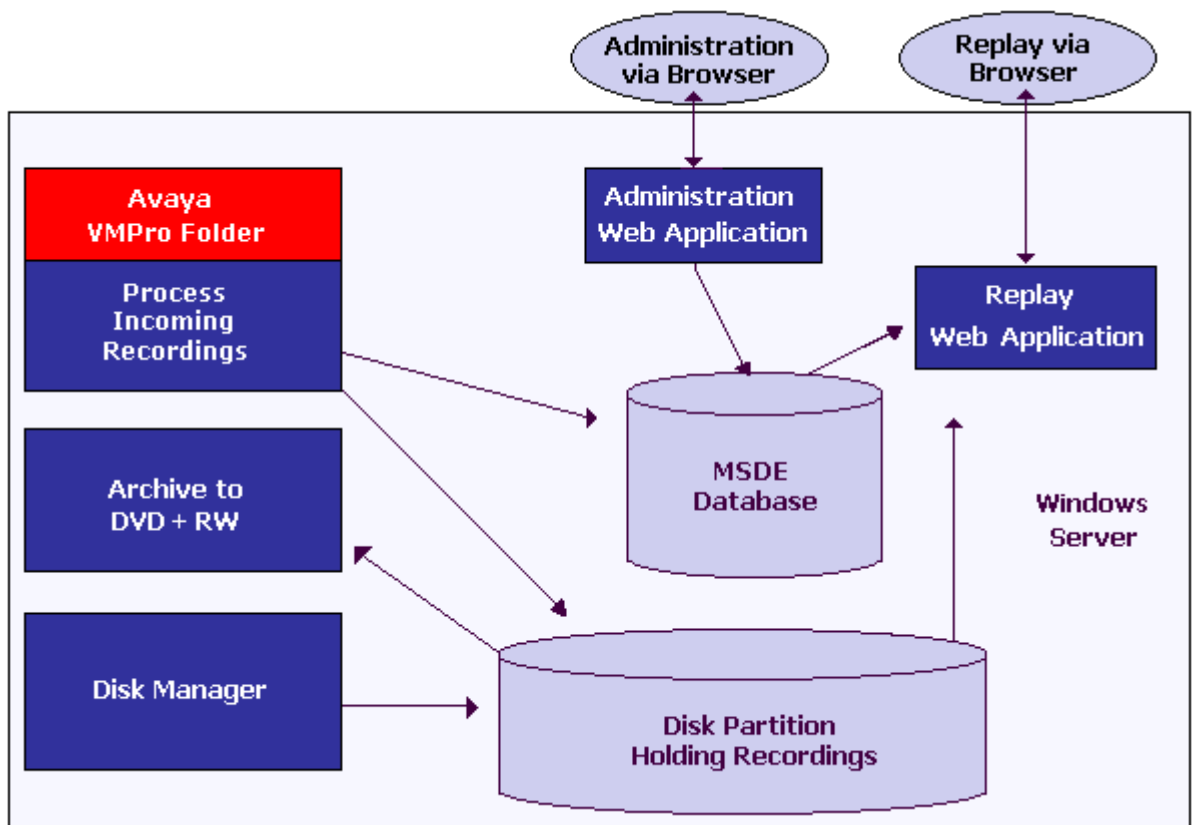
System overview

IP Office ContactStore complements the voice recording capabilities of Voicemail Pro (“Voicemail Pro”). It stores and catalogs the 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 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 to hard disk
- Updates its integral database with details of the recording
- Deletes the original .wav file from the handover directory.

IP Office ContactStore components

ContactStore is designed to run on the same server as Voicemail Pro. The ContactStore application contains several distinct components as shown in the following figure:



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 chapter provides details about these components.

ContactStore 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.

You can specify to which stations each user has replay rights; the user can search for and replay all calls "owned" by those stations. Typically an individual may be given rights to replay calls owned by their station number while managers may have rights to the station numbers of all of 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
- One .xml file

Other file types may also be present as described below.

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.

WAV files

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.

XML files

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
-

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.

ContactStore internal database

If you have retained all of the .xml and .wav files as described above, 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.

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.

Stored details

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, outgoing, or internal)
 - 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, timeouts and user authorization rights.


Chapter 2: Essential Administrative Tasks

This chapter provides an overview of procedures that you should complete to ensure that the recording solution is operating optimally and that recordings can be easily found and replayed when required.

This section includes routine operations such as:

- Distributing instructions to your users
- Including the ContactStore server in routine system monitoring with third-party software
- Performing daily, weekly and monthly preventative maintenance procedures and archive management procedures

It also addresses what do if your switch or recording system changes.

- **Note:** For comprehensive instructions on system administration, you should attend the IP Office Advanced Applications Workshop, course code AVA00484H00. Course details and registration are available through the following website. www.avaya-learning.com.
-  **Important:**
The System Administrator is responsible for completing the maintenance procedures outlined in this chapter. Avaya is not responsible for lost data.

Distributing user instructions

A template document “ContactStore IP Office User Guide.doc” is included on the Installation CD. This 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.

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).

Backing up the call details database

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 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.

Restoring the call details database

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


1. Stop the ContactStore service.
2. Stop the MSSQL\$CONTACTSTORE Service.
3. Open a command window.
4. In the command window type `osql -E Sqlserveragent` to start the SQLSERVERAGENT. The command prompt "1>" is displayed.
5. Type `RESTORE DATABASE aware FROM DISK = '<path to database backup file>' WITH REPLACE`. **Note that this command is case sensitive.**
6. Press Enter.
7. At the prompt "2>" type `go`.
8. Press Enter.
9. Type `exit`.
10. Press Enter.
11. Start the MSSQL\$CONTACTSTORE service.
12. Start the ContactStore service.

Using third-party system management tools

You should consider including the monitoring of ContactStore components within your other system management regimes such as:

- Microsoft System Management Server (SMS)
- CA Unicenter
- HP OpenView

As a minimum, these tools should monitor the health and accessibility of the servers on the network. Ideally, you should also monitor the services' web log files.

-  **Important:**
The information contained in this guide was correct at the time of publication. These are industry standard tools and licenses. Avaya is not responsible for any problems that may be encountered when using these products.

Daily preventative maintenance 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.
<i>Archival (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 tasks

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 tasks

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. 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

If it appears that the load is increasing, consider increasing server specification or disk space.

- **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.

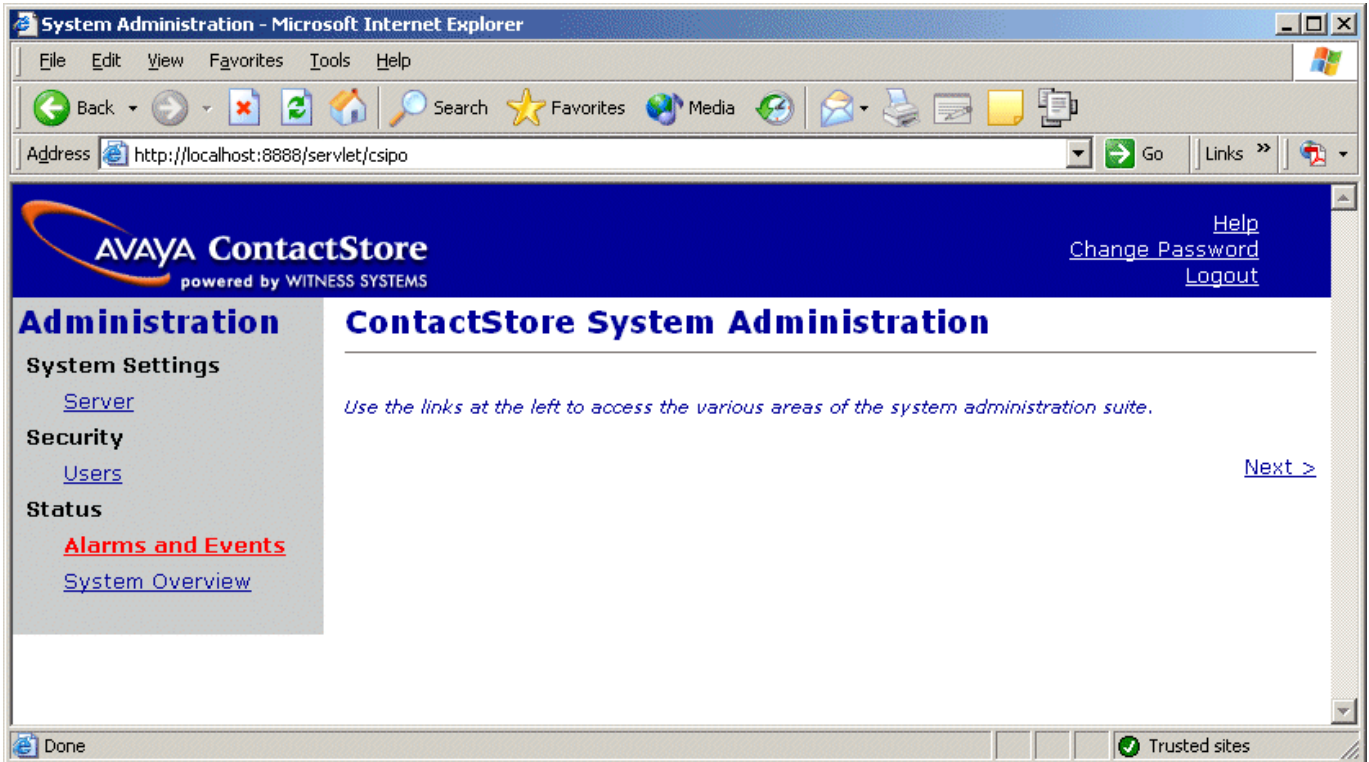
- **Recording Check.** Any changes to the system may affect the system's capabilities. To be sure that the system is functioning correctly, periodically verify that the physical setup is properly specified in the Administration application.
 - In addition, if you change the IP addresses or node names of any system components, you should perform a full commissioning test to confirm correct storage of all required calls.

Chapter 3: Using the System Administration Pages

This chapter describes how to use the System Administration web pages to maintain, update, and monitor your system.

System Administration overview

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 following screen shows a typical page of the application.



The left-hand 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.
- **Security.** Use this page to control which calls can be replayed by whom, and who can administer the system.
- **Status.** Use these pages to monitor the current state of the server.

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

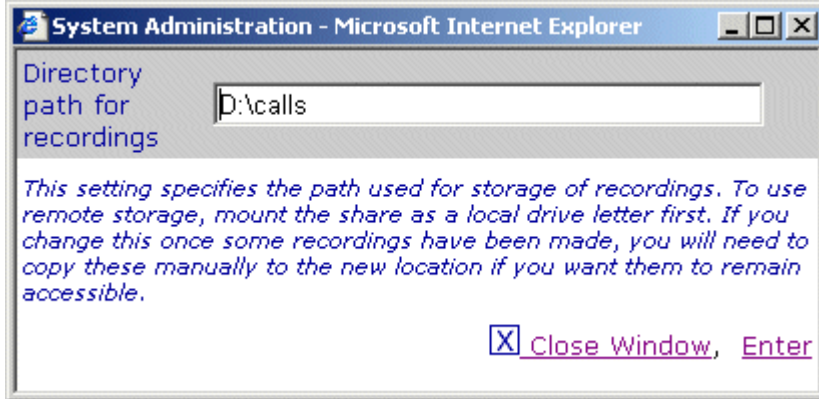
If the link to the **Alarms and Events** page is shown **in red**, it means that at least one alarm has been raised and has not yet been cleared. Click on the link to see the new alarms.

< 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-hand navigation bar.

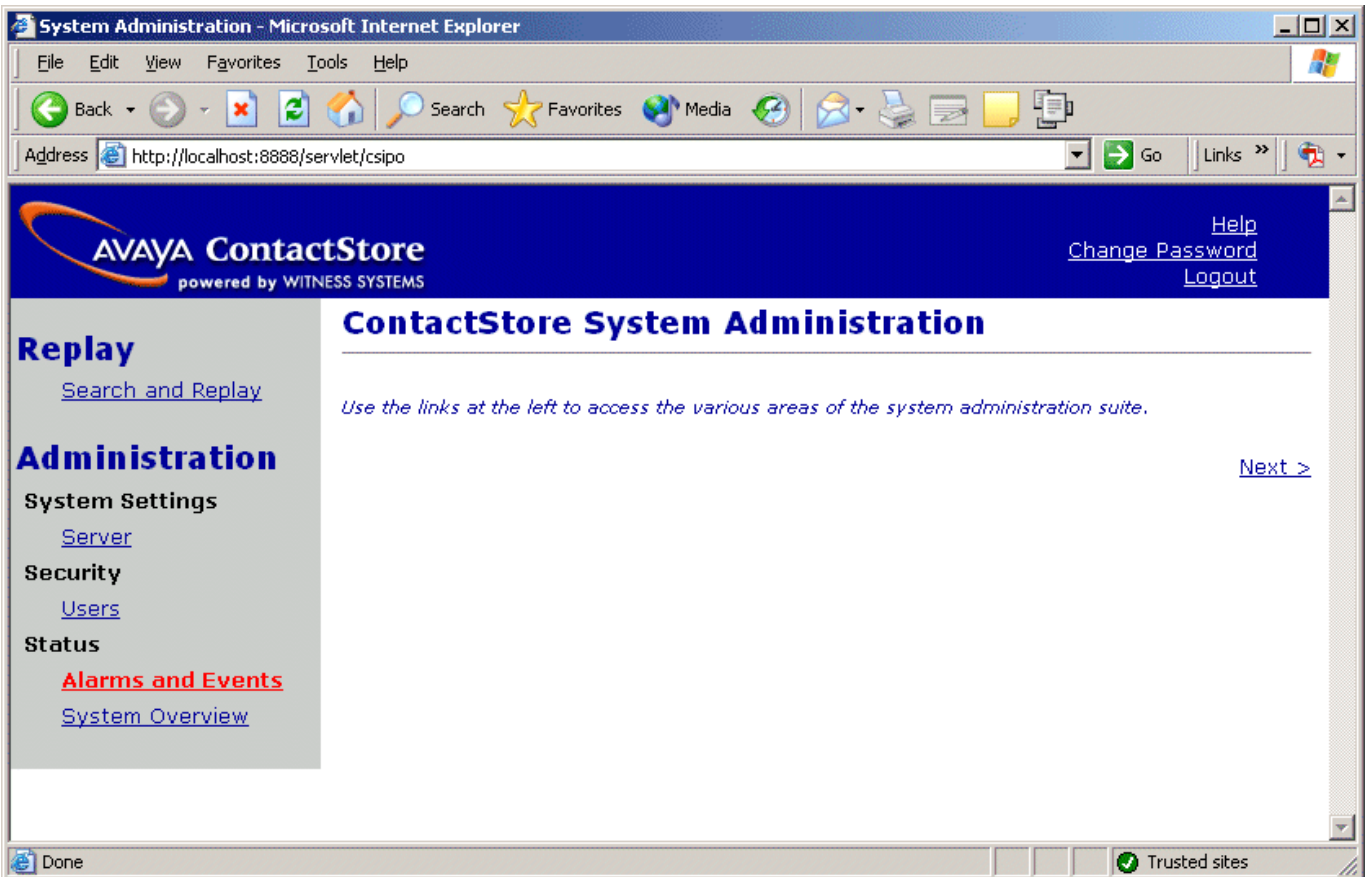
Impact of changes

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.



Administrators with replay rights

If you are logged in under an account that is both an administrator and has replay rights, the left-hand pane provides a link to the **Search and Replay** page, as shown in the following screen.



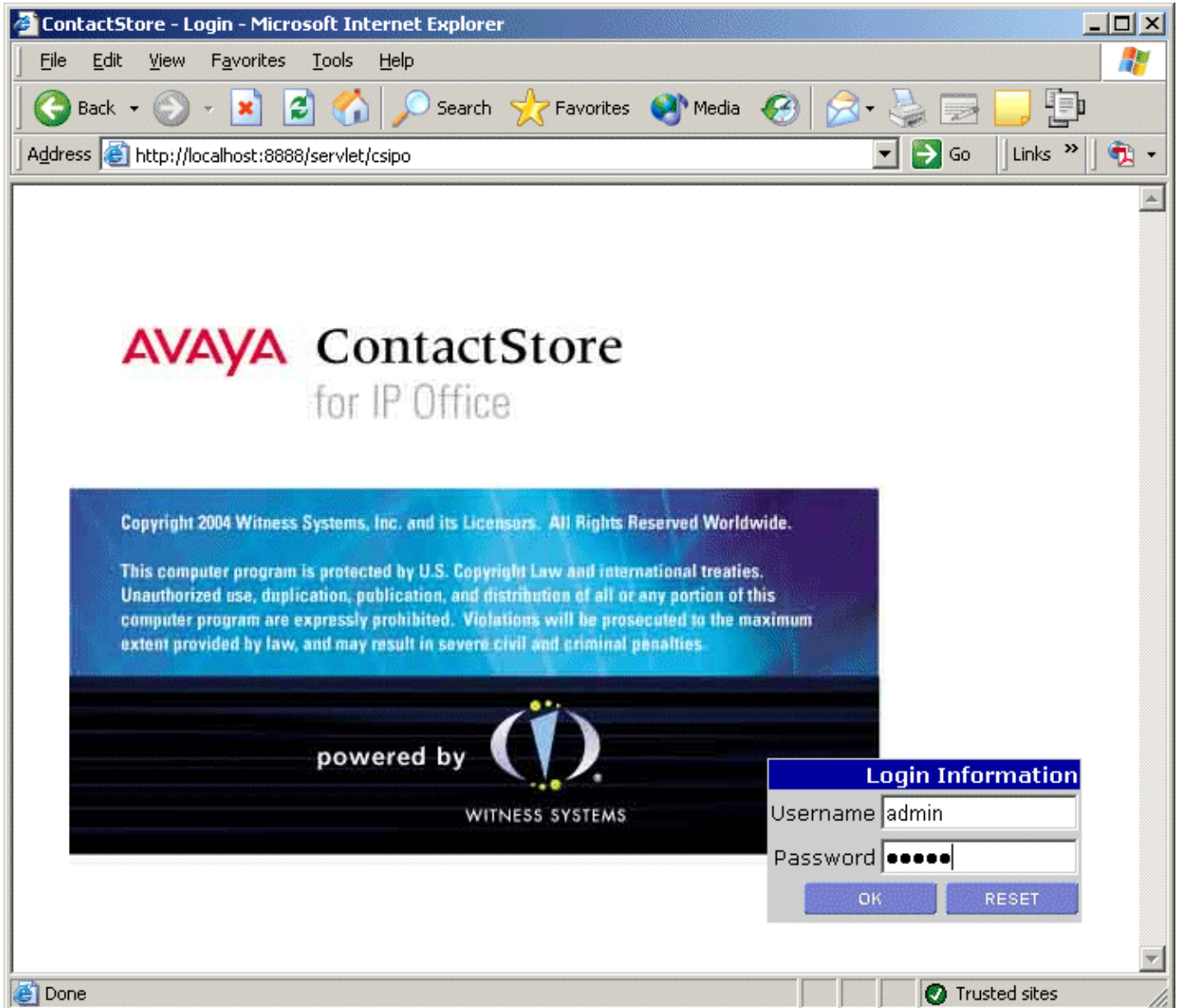
The **Search and Replay** page contains a similar link at the top left so that you can move back to the System Administration pages with a single click.

Accessing the System Administration pages

To access the System Administration pages:

1. In an Internet Explorer browser window, enter the IP address or name of port 8888 on your ContactStore server, for example: <http://myContactStore:8888>
 - **Tip:** Add this URL to your Favorites list for easy access.

Unless your current Windows authentication is recognized as an authorized user, the login page will be displayed.



2. Enter your **Username** and **Password**. The password is case-sensitive.
3. Click **OK**.

- **Important:**
If you have just installed the server and no administrator accounts have been created yet, you will be granted access with any user name and any password. You will then be directed to the **Change Password** page and forced to set a non-blank password. It is very important that you configure your administrator accounts as soon as you have installed your software.

Setting and changing your password

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

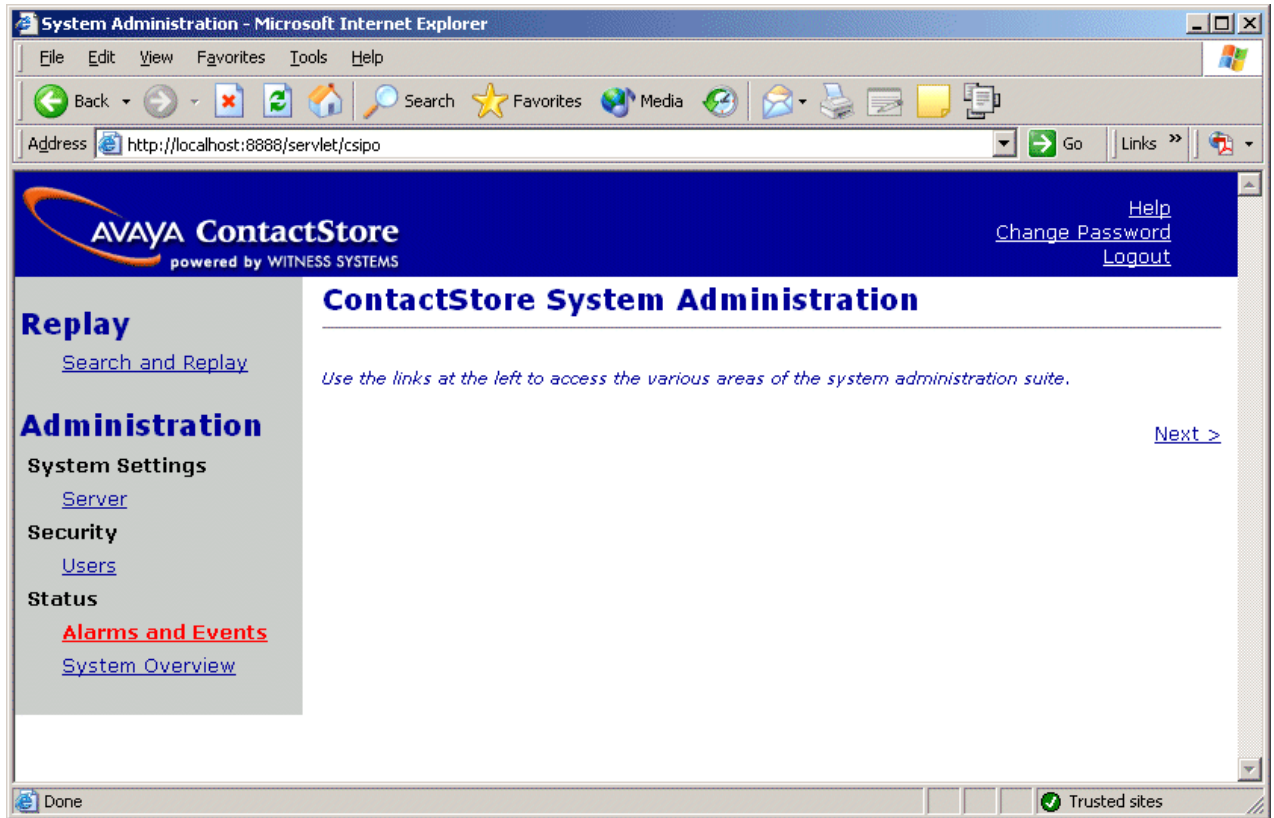
To change the password, follow these steps:

1. Select the link shown at the top right of any administration page. The **Change Password** prompt is displayed.



2. Enter your **Old Password**.
3. Enter your **New Password**.
4. Enter the new password again to **Confirm New Password**.
5. Click **OK**.

- Once you are authenticated, you are redirected to the **Introduction** page, shown in the following screen.



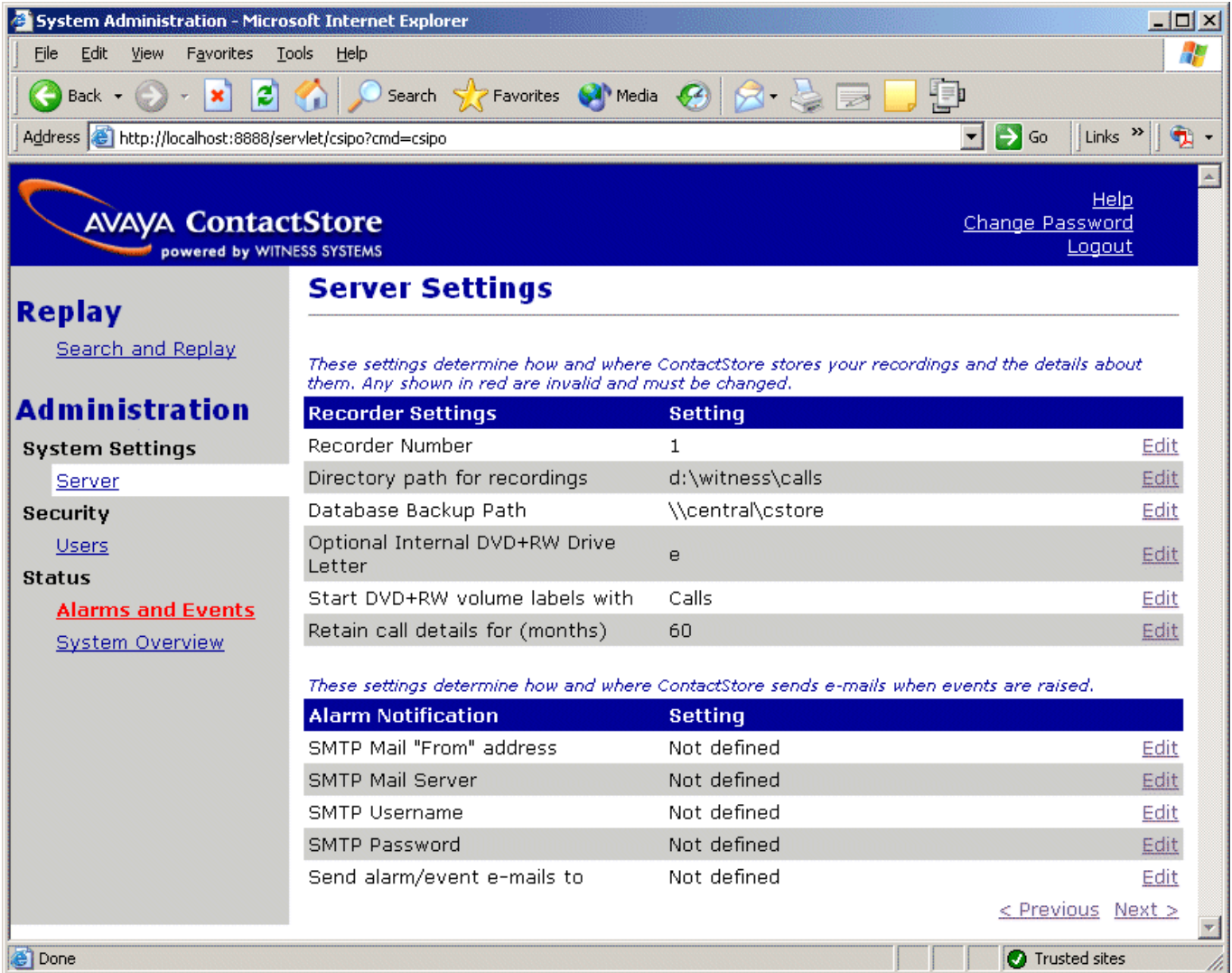
System Settings

Use the **System Settings** page to view and change a number of system-wide settings as detailed in the following section.

Server Settings

The **Server** page determines how the ContactStore server operates. Settings are split into two groups:

- Those affecting the storage of recordings and details about them
- Those used to allow sending of alarms and events via email.



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

- **Recorder Number** - This defaults to 1. If you have more than one ContactStore 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 at 1.am 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. For more details about this backup process, see [Call details database backup](#).
- **Optional Internal DVD+RW Drive** - This setting shows the drive letter of the DVD+RW drive being used to archive calls (see [Chapter 5](#) for more details of the archive process). 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 a.m. each night and does not impact recording or replay.

- **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 user name 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. Note that 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.

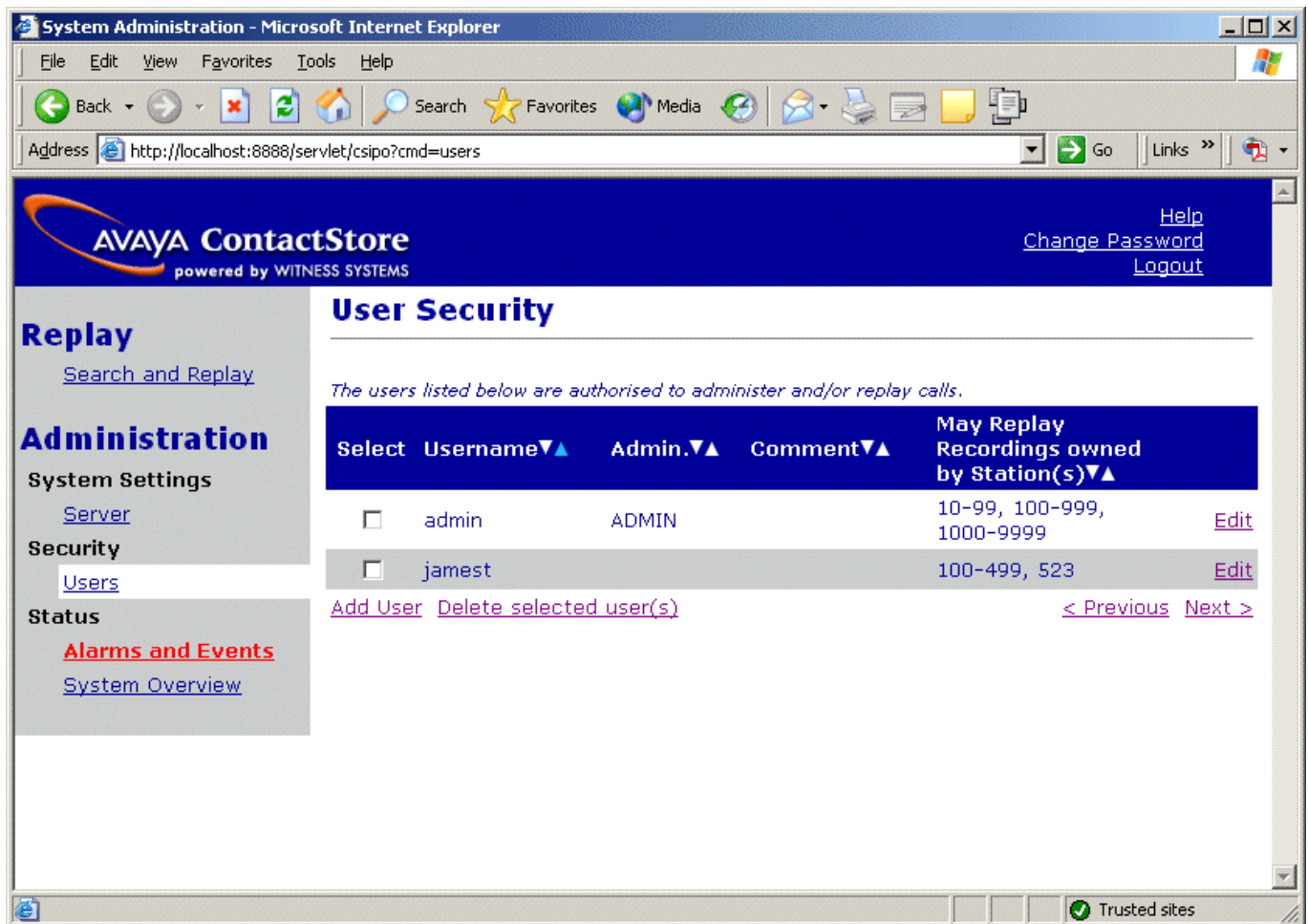
Security

The **Security** section includes only one link, **Users**.

User Security

Use the **User Security** page to add new users, delete existing users and modify users' details, such as access rights, administrator rights, or the password.

- **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.



Creating a new user 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 dialog is displayed:

2. Enter a **Username**. This can be a Windows domain qualified user name (for example, corpdomain\johnd) or an application user name (for example johnd).
 - If you use the domain qualified user name, 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 an application user account is created, the account is initially given a blank password. The new application 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 that user administrator rights.
4. Use the **Comment** box 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.
 - **Note:**
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 and/or hyphen (-) separated ranges. Some typical examples are:

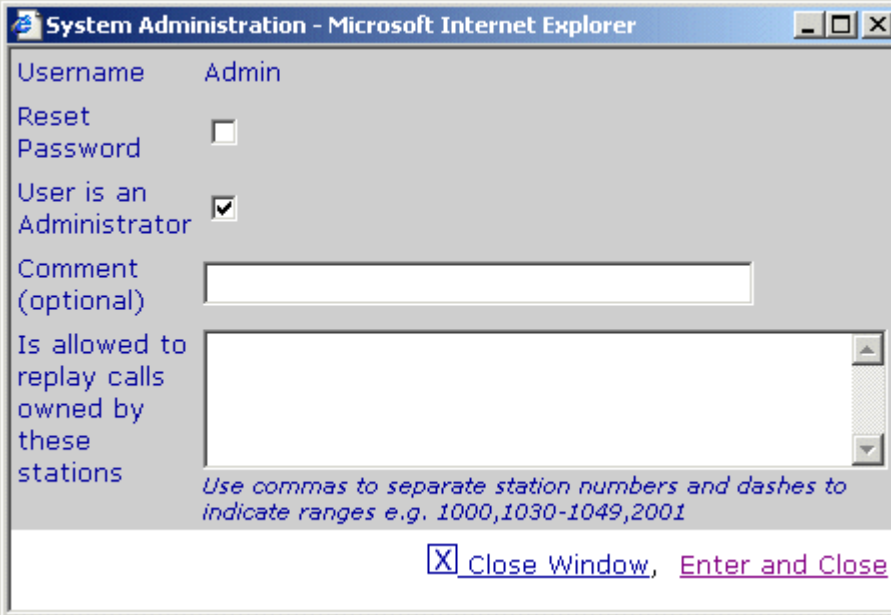
- 4000 -user can only replay calls owned by agent 4000. This is a typical entry for a CSR with this Agent identifier that indicates that they can only play their own calls.
- 4000-4019-user can replay calls owned by any agent in the range 4000-4019. This is a typical entry for a supervisor in a call 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.

- **Tip:**
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.
 - **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 for an application account 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.
6. To quit without changing the account definition, click **Close** Window.
- To save the account definition and keep the window open to create additional user accounts, click **Enter and Stay Open**.
 - To save the account definition and close the window, click **Enter and Close**.

Editing an existing user account

To edit an existing account:

1. Click the Edit link next to the user's entry in the list.



The screenshot shows a web browser window titled "System Administration - Microsoft Internet Explorer". The page displays the details for a user named "Admin". The fields are as follows:

- Username:** Admin
- Reset Password:** A checkbox that is currently unchecked.
- User is an Administrator:** A checkbox that is currently checked.
- Comment (optional):** An empty text input field.
- Is allowed to replay calls owned by these stations:** A large text area with a scrollbar, currently empty. Below it 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 form, there are two links: [Close Window](#) and [Enter and Close](#).

2. Alter the user's administrator rights, comment and/or replay rights.
3. 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.
 - To reset a user's password for any reason, check the box marked **Reset Password** and instruct the user to log in promptly.
 - If you use the Windows domain qualified user name, Windows authentication will be performed, so the **Reset Password** checkbox is irrelevant.
4. Click Enter and Close to save the changes.
 - Click Close Window to quit without changing the account definition.

Deleting a user account

To delete one or more user's account(s):

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

You cannot delete the last administrator account once you have set one up. You must enter a new administrator account before you can delete the (previously only) other.

Status

These pages show how the system is currently performing or has performed.

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.

- **Note:**
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 address(es) listed there.

AVAYA ContactStore
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[Help](#)
[Change Password](#)
[Logout](#)

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](#)

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.

Refer to [Appendix B: Alarms](#) for a list of alarms and events that may be generated and what to do about them.

Viewing alarms and events

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:

1. Click the check box and/or radio button to specify your preferences.
 2. Click the [Refresh](#) link above or below the table.
-

Clearing specific events

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

To clear an individual alarm or event:

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

Clearing all events

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.

Refer to [Appendix B: Alarms](#) for a list of alarms and events that may be generated and what to do about them.

System Overview

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

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[Help](#)
[Change Password](#)
[Logout](#)

System Overview

The table below shows the current state of the ContactStore server. Click the refresh link to update the table.

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

[Refresh](#)

Replay
[Search and Replay](#)

Administration
System Settings
[Server](#)
Security
[Users](#)
Status
[Alarms and Events](#)
[System Overview](#)

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 following values:
 - **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.

In all such cases, insert a new or the latest partially filled disk so archiving can continue.

- **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.

Chapter 4: Using Search and Replay

This chapter discusses the Search and Replay functions in ContactStore and explains:

- Search and Replay features
- How to configure your system to enable Search and Replay
- How to access the Search and Replay page
- How to use the Search and Replay page

Search and Replay page 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.

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
- Active 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.

Adding ContactStore to a Microsoft Internet Explorer zone

You can add ContactStore to the Trusted sites or Local intranet zones.

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 the local Intranet:

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.

Accessing the Search and Replay page

To access the Search and Replay page using Internet Explorer:

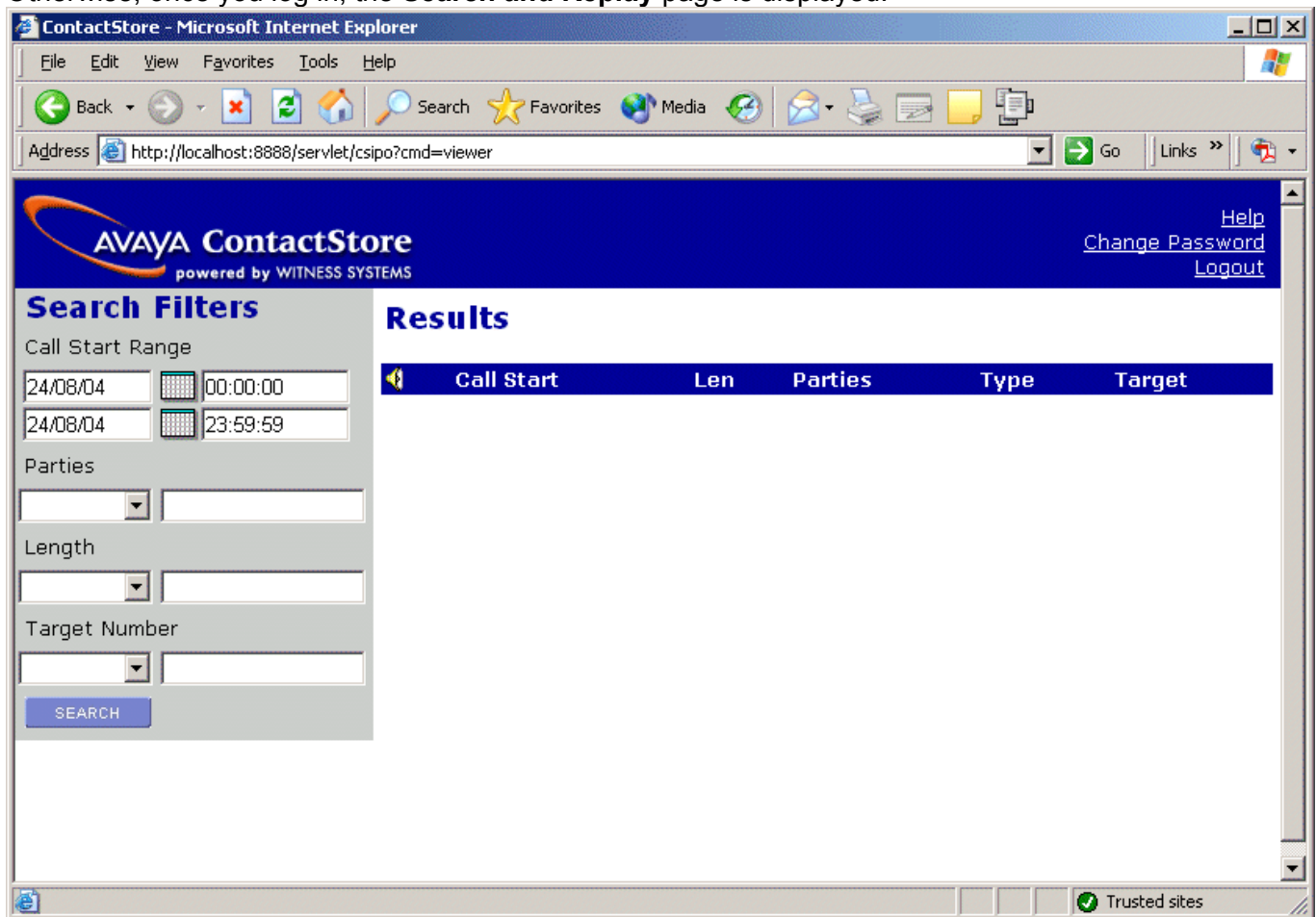
1. Enter the URL for the ContactStore server in the form:

<http://myservername:8888/>

Replace **myservername** with the IP address or hostname.

- **Note:** To use the hostname, you need to have entered it into your DNS server.
3. Unless you are already authenticated with a Windows account recognized by the ContactStore, the logon page is displayed.
 - Enter your **Username** and **Password**.
 - If this is the first time you have logged on, or if the password has just been reset, the password field is ignored. However, before you can continue, you must change your password.
 - If your user account has administration privileges, the **System Administration** page is displayed when you log in.
 3. Use the **Search and Replay** link at the top left to access the Search and Replay page. The **Search and Replay** page provides a link to return to the administration pages.

Otherwise, once you log in, the **Search and Replay** page is displayed:



Searching for calls

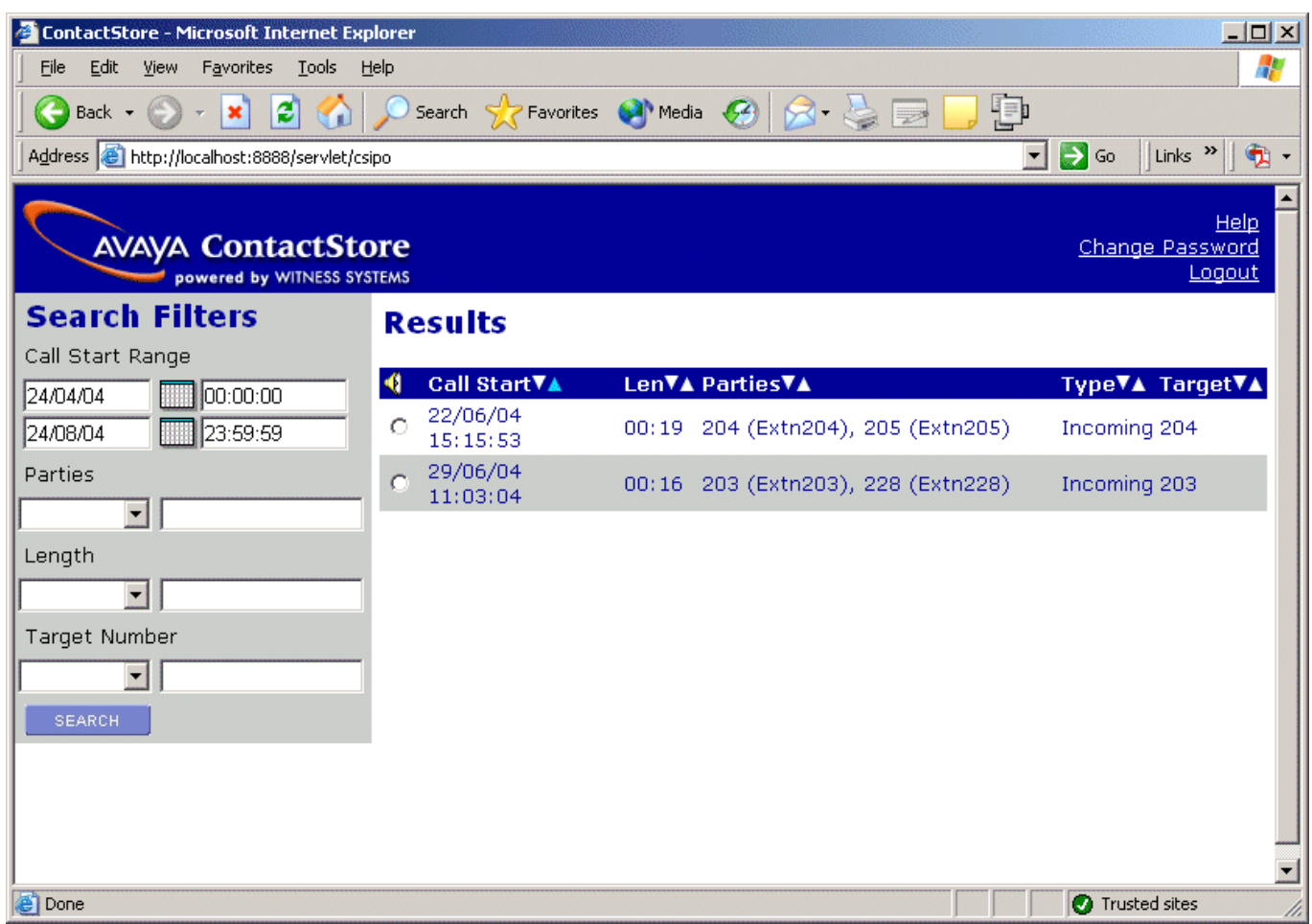
Once you access the Search and Replay page, you can use the Search Filters, available on the left side of the page to find the calls you need. The following sections provide instructions for using these filters.

Searching for calls by date and time

To find calls within a specific date and time range:

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.
2. Select **Search**.

The results are automatically restricted to those calls that your account is entitled to play. A sample result set is shown below.



Searching more selectively

To make searches more selective:

1. Use the drop-down boxes for each criterion, for example, **Parties**, to specify the operand, such as **Incl** (includes).

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)

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

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.
- **Incl** (includes) is the most useful search operand 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.

Viewing results

The following screen shows a typical result set.

The screenshot shows the AVAYA ContactStore web application interface. On the left, there is an 'Administration' section with a link to 'Administer System' and a 'Search Filters' section. The 'Search Filters' section includes fields for 'Call Start Range' (with date and time pickers), 'Parties' (with a dropdown), 'Length' (with a dropdown), and 'Target Number' (with a dropdown). A 'SEARCH' button is located below these filters. The main content area displays a 'Results' table with the following data:

Call Start	Len	Parties	Type	Target
20/08/04 16:07:57	00:16	203 (Extn203), 204 ()	Incoming	204
21/08/04 12:18:01	00:11	203 (Extn203), 204 ()	Incoming	204
21/08/04 12:19:30	00:15	203 (Extn203), 204 ()	Incoming	204
21/08/04 12:21:52	00:36	203 (Extn203), 204 ()	Incoming	204
21/08/04 12:23:12	49:59	203 (Extn203), 204 ()	Incoming	204
21/08/04 13:22:30	01:32	203 (Extn203), 204 ()	Incoming	204
21/08/04 13:43:43	00:29	203 (Extn203), 204 ()	Incoming	204
21/08/04 13:57:10	00:00	203 (Extn203), 204 ()	Incoming	204
21/08/04 13:57:53	00:00	203 (Extn203), 204 ()	Incoming	204
23/08/04 12:41:11	00:11	123 (), 204 (Extn204)	Outgoing	123

Click on the page indicators (1 2 3 ... 6 Next) above the Results table to move through the list of results.

Click on the arrows within the column headers (▲ ▼) to sort the results by that column.

A **blue** arrow indicates the active sort field and direction.

Playing a call


To play one of the calls listed, click on 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 waveform is shown in the top bar.



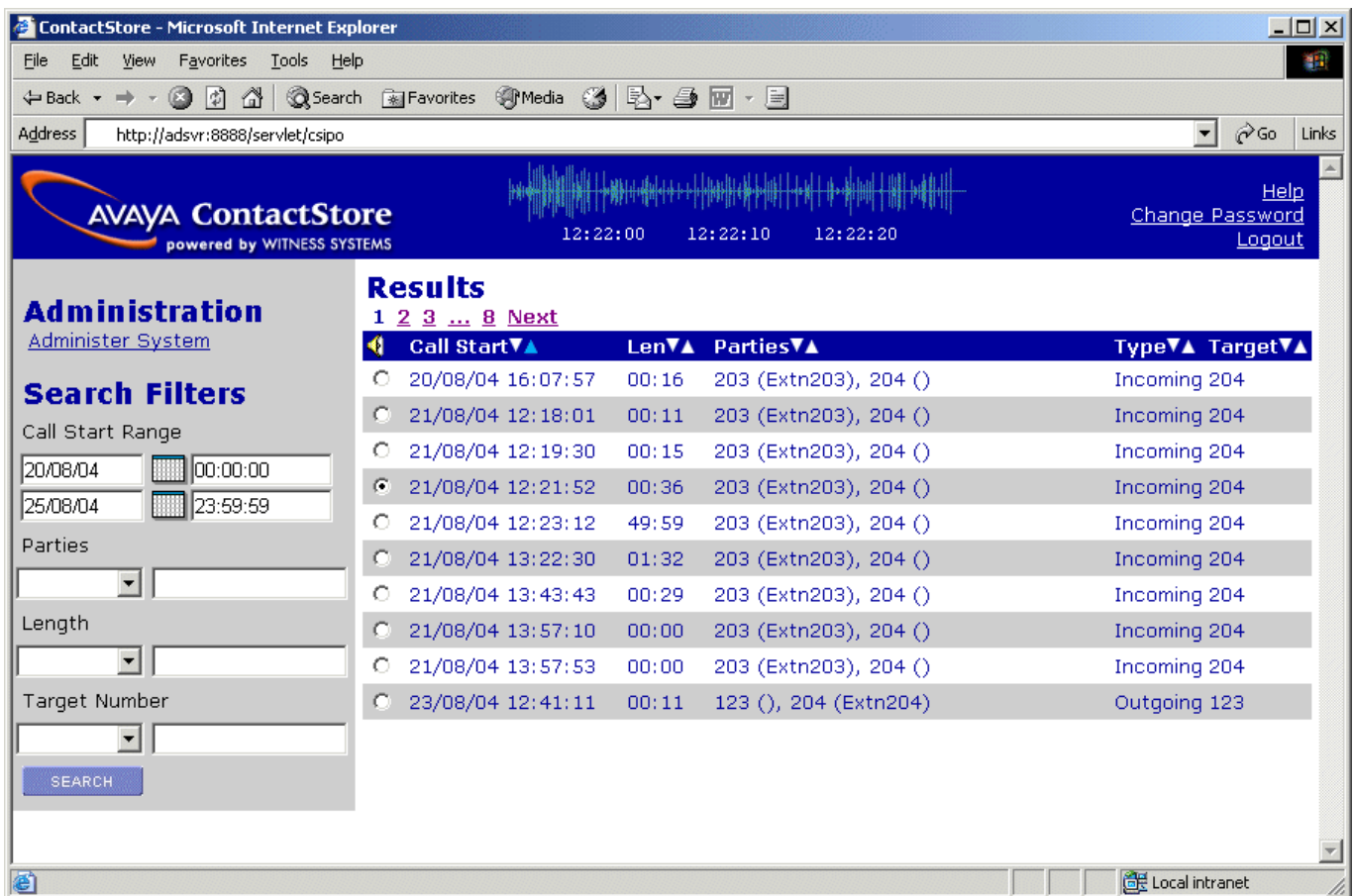
Audio retrieval may take a few seconds to a few minutes depending on the bandwidth of the link between your PC and the ContactStore server.

Once the first few seconds of the call have been loaded, click on the audio waveform to play it.

Place your mouse over the audio waveform to display a small control panel that you can use you 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.




The screenshot shows the AVAYA ContactStore web interface. The top navigation bar includes the AVAYA logo, "ContactStore powered by WITNESS SYSTEMS", a waveform visualization, and links for "Help", "Change Password", and "Logout". The main content area is divided into two sections: "Administration" and "Results".

Administration
[Administer System](#)

Search Filters
 Call Start Range
 20/08/04 00:00:00
 25/08/04 23:59:59
 Parties
 Length
 Target Number
 SEARCH

Results
 1 2 3 ... 8 Next

	Call Start	Len	Parties	Type	Target
<input type="radio"/>	20/08/04 16:07:57	00:16	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	21/08/04 12:18:01	00:11	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	21/08/04 12:19:30	00:15	203 (Extn203), 204 ()	Incoming	204
<input checked="" type="radio"/>	21/08/04 12:21:52	00:36	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	21/08/04 12:23:12	49:59	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	21/08/04 13:22:30	01:32	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	21/08/04 13:43:43	00:29	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	21/08/04 13:57:10	00:00	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	21/08/04 13:57:53	00:00	203 (Extn203), 204 ()	Incoming	204
<input type="radio"/>	23/08/04 12:41:11	00:11	123 (), 204 (Extn204)	Outgoing	123

Chapter 5: Archiving Recordings

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

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.

Overview of DVD+RW archival and retrieval

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 sections explain how to complete the basic archival procedures:

- Loading a disk
 - Changing disks
 - Labeling a disk
 - Verifying recorded disks
 - Reusing an old disk
-

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.

Appendix A: Support and Troubleshooting

This appendix describes how to diagnose and correct problems with ContactStore. Issues are divided into the following categories:

Troubleshooting resources

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	<p>Permanently, from next time service starts:</p> <ol style="list-style-type: none">1. Edit the file (or create it if it does not exist): \properties\csipo.properties2. 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. <p>Temporarily, until you change it again or the service restarts:</p> <ol style="list-style-type: none">1. Log in to the admin application.2. Go to: http://myservername:8888/servlet/test?log=DEBUG replacing <i>DEBUG</i> with any of the levels supported as shown to the left.

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 check that the service ContactStore is running.

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.

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 this:

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\VRLLDir

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.

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. 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 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:

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.

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.

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.

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.

Contacting technical support

If you are having trouble using Avaya software, you should:

1. Retry the action. Carefully follow the instructions in written or online documentation.
2. Check the documentation that came with your hardware for maintenance or hardware-related issues.
3. Note the sequence of events that led to the problem and the exact messages displayed. Have the Avaya documentation available.
4. If you continue to have a problem and you require further support you should make contact with your system maintainer.

Appendix B: Alarms

This appendix lists the alarm conditions that may be reported and offers suggestions for clearing the alarms.

The alarms listed below 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.

Table B-1: ContactStore Alarms

Level	AlarmText	Remarks	What to Do
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.
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.	
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.
Minor	Port XXX. Error playing file. Reason: YYY.	Depends on reason.	Verify that the file exists.
Minor	Error processing file XXX.		Depends on reason shown.

Level	AlarmText	Remarks	What to Do
	Reason YYY.		
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.
Warning	System restarting.	System restarted for some reason.	If you restarted it, no action is required. Otherwise find out why. Power failure?
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

Level	AlarmText	Remarks	What to Do
			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.

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.

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 traverse multiple networks on the way to its ultimate destination.

N

NIC: Network Interface Card. A NIC is an expansion board that you insert into 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 Time, which is based solely on the Earth's inconsistent rotation rate, with highly accurate atomic time. When atomic time and Earth time approach a one second difference, a leap second is calculated into UTC. UTC, like Greenwich Mean Time, is set at 0 degrees longitude on the prime meridian.

V

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

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

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