IP Office 9.0.3

Administering Contact Recorder for IP Office

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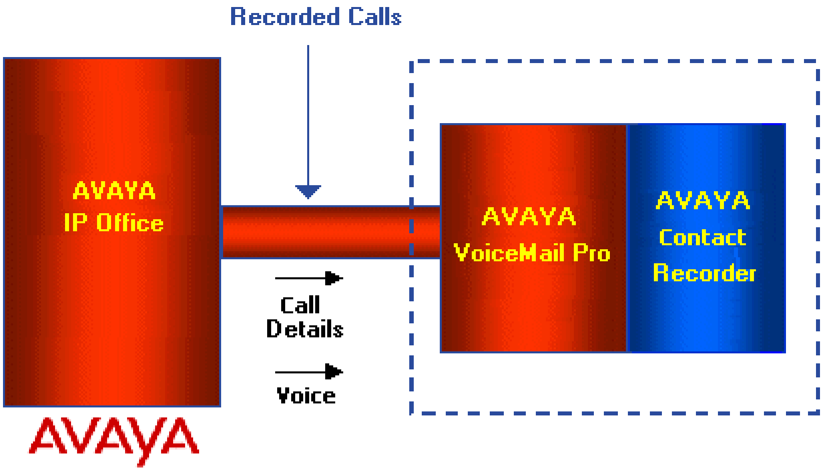
Chapter 1.

Contact Recorder for IP Office Overview

1. Contact Recorder for IP Office Overview

The standard call recording facilities provided with IP Office and Voicemail Pro can be extended further by using Contact Recorder for IP Office. Contact Recorder for IP Office 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.



Avaya Contact Recorder for IP Office is provided with the Voicemail Pro software CD set and has an inbuilt 90 day trial license. A fully featured Contact Recorder for IP Office system can be installed and used for 90 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.

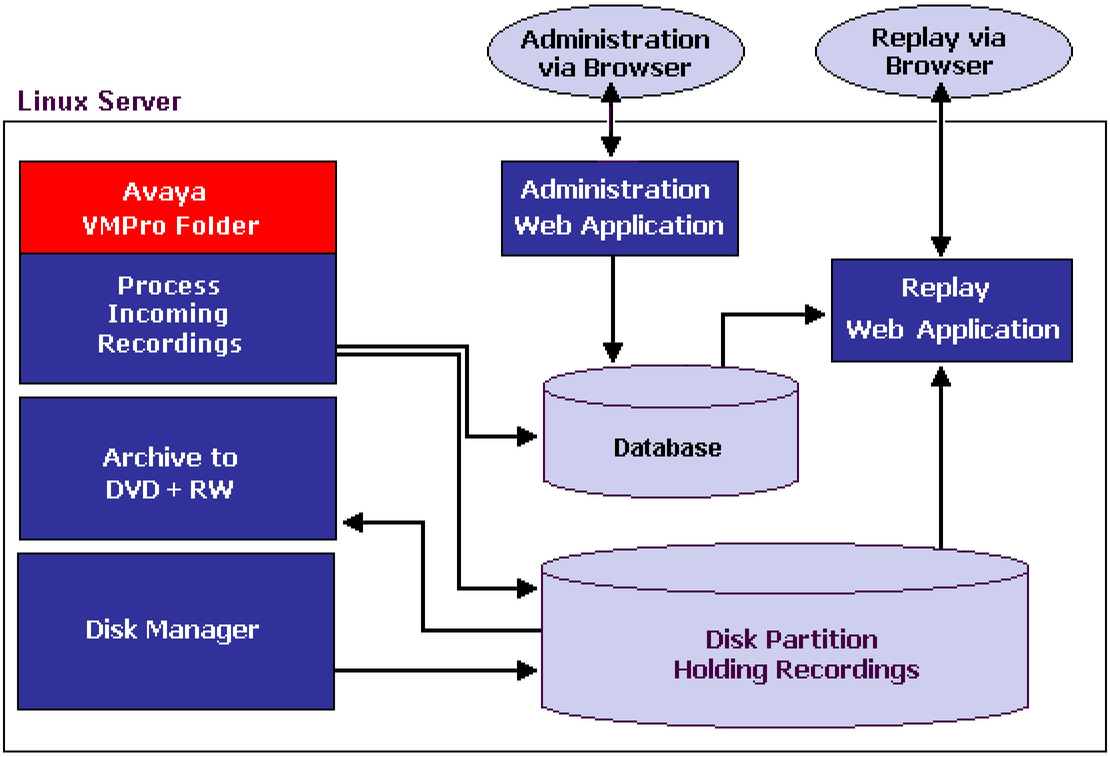
It is important to understand how the Contact Recorder for IP Office operates so that you can best maintain and update it. This section takes you from an overview diagram through to a detailed discussion of the operation of the system.

Contact Recorder for IP Office 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 Contact Recorder for IP Office. Contact Recorder for IP Office 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 the 16kbps G.726 or G.729A format.
- Stores the resultant file in the configured Contact Recorder for IP Office 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.

1.1 Functional Components

Contact Recorder for IP Office can run on the same server as Voicemail Pro or a separate one. The Contact Recorder for IP Office application contains several distinct Functional components as shown in the diagram.


Administration via Browser
Replay via Browser
Linux Server
Avaya VMPro Folder
Process Incoming Recordings
Administration Web Application
Replay Web Application
Database
Archive to DVD + RW
Disk Manager
Disk Partition Holding Recordings

The major functional components of the Contact Recorder for IP Office 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.
- A PostgreSQL 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 can be automatically written to a DVD+RW drive.

1.2 Recordings

Contact Recorder for IP Office stores recorded calls with certain security in place. Access to recordings is strictly controlled according to the security constraints configured within the System Administration tabs. Each recording has an owner; the call owner is the number of the extension that recorded the call. You can specify to which extensions 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, Contact Recorder for IP Office compresses the audio and updates the database with a record of the call. These files are stored in a hierarchy of folders beneath a root path, which you set after installing the software.

Every recording results in:

- **One .wav file.**
  The .wav file contains 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 Contact Recorder for IP Office'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 Contact Recorder for IP Office’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 use the integral DVD archiver to automatically back up these files.

Audio compression

Contact Recorder for IP Office uses the G.726 16kbps ADPCM and G.729A compression standards. You can configure Voicemail Pro to send the recordings to Contact Recorder for IP Office in:

- The G.726 format, in which case the recordings are already compressed.
- The G.711 format, in which case Contact Recorder for IP Office compresses the recordings to the G.729A format.

The latter approach gives higher quality recordings and half the storage requirement but does not support the tamper detection mechanism that Voicemail Pro applies to the recording files.

Contact Recorder for IP Office 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.

1.3 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 a database to hold this information in more readily accessible forms. This database is located on the Contact Recorder for IP Office server.

The database stores details of the recordings as well as details of the Contact Recorder for IP Office configuration.

- **Recording details**
  The call details database is stored beneath the location into which you installed Contact Recorder for IP Office, under the ***\postgresql\data*** 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. The information stored for each call includes:
  - 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 dialed digits) at the time of the call.
  - The direction of the call (incoming or outgoing).
  - The owners of the recording (an internal call, recorded by both parties will appear once but have two owners).
  - 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.

Archiving

To avoid having to repopulate these databases in the event of corruption or disk failure, you should back up the data files 54.

1.4 Licensing

The full functionality of the Contact Recorder for IP Office is available through purchasing a license which is entered into the IP Office configuration. However, Contact Recorder for IP Office will operate with a free 90-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 tabs will warn you that you are running on a timed license and that following the expiration date, Contact Recorder for IP Office 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 Contact Recorder for IP Office.

- 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 Contact Recorder for IP Office 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 Contact Recorder for IP Office 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 90 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 Contact Recorder for IP Office licenses to additional IP Offices (if your VMPro supports multiple IP Offices) at any time. These will be detected automatically by Contact Recorder for IP Office 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 90 days no further recordings are saved until the system is licensed.

1.5 Supported Languages

Contact Recorder for IP Office is supported in several languages.

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

Time Zone and Daylight Savings Time (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).

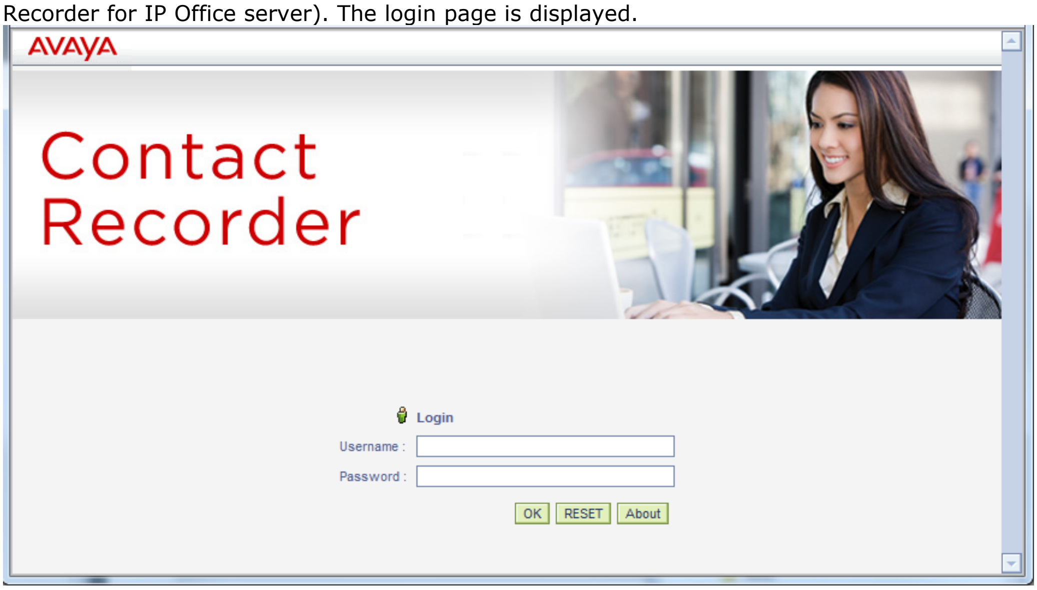
Chapter 2.

Accessing Contact Recorder for IP Office

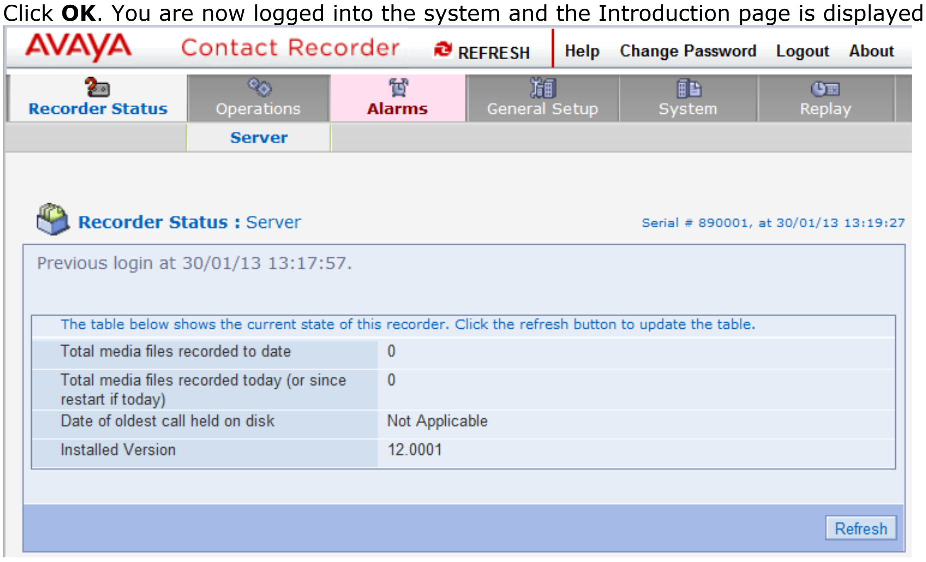
2. Accessing Contact Recorder for IP Office

If you have trouble accessing Contact Recorder for IP Office, make sure that Contact Recorder for IP Office is part of a trusted site or intranet zone within your browser's settings.

1. Open a browser window (using Internet Explorer) on any PC that can access the Contact Recorder for IP Office server.
2. Enter ***http://myservername:9888*** (where ***myservername*** is the host name or IP address of the Contact Recorder for IP Office server). The login page is displayed.


AVAYA
Contact Recorder
Login
Username :
Password :
OK
RESET
About

3. Enter your username and password. If it is the first time that Contact Recorder for IP Office has been logged into:
   a. Enter a username of your choice. Leave the password field blank as it is ignored on the initial login.
   b. 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.
   c. Leave the **Old Password** field blank and enter a password that is at least eight characters long in the **New Password** field. Enter the password again in the **Verify New Password** field.
4. Click **OK**. You are now logged into the system and the Introduction page is displayed.


AVAYA
Contact Recorder
REFRESH
Help
Change Password
Logout
About
Recorder Status
Operations
Alarms
General Setup
System
Replay
Server
Refresh

Recorder Status : Server

Serial # 890001, at 30/01/13 13:19:27

Previous login at 30/01/13 13:17:57.

The table below shows the current state of this recorder. Click the refresh button to update the table.

Total media files recorded to date	0
Total media files recorded today (or since restart if today)	0
Date of oldest call held on disk	Not Applicable
Installed Version	12.0001

5. If it is the first time that you have logged in to Contact Recorder for IP Office you can now configure the system 18.

- **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.

Chapter 3.

Configuring Contact Recorder for IP Office Settings

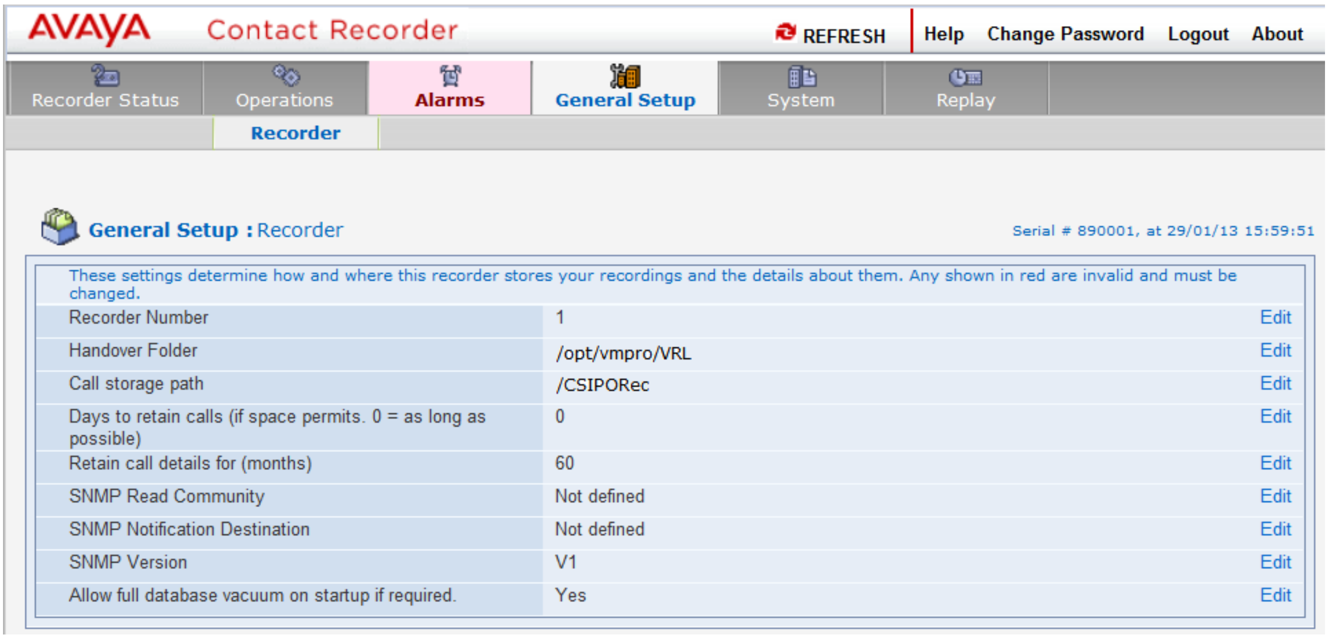
3. Configuring Contact Recorder for IP Office Settings

Use the tabs at the top of the Administration interface to set the various configuration details that you must set in order to safeguard the operation and recoverability of your system. Any configurations that cannot be left at the default settings are displayed in red under the corresponding administration tab. You must configure the configuration settings under the various tabs in the following order:

1. General Setup > Recorder 19
2. System > Email Server 21
3. Operations > Archive 22
4. Recorder Status > Server 24
5. System > Audit Trail 25
6. Alarms > View Alarms 26

3.1 General Setup > Recorder

Use the **General Setup > Recorder** tab to configure the settings for the operation of Contact Recorder for IP Office server. Update the values that are displayed in the red color and verify that all the settings are appropriate for your system.



General Setup : Recorder

Serial # 890001, at 29/01/13 15:59:51

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

Recorder Number	1	Edit
Handover Folder	/opt/vmpro/VRL	Edit
Call storage path	/CSIPORec	Edit
Days to retain calls (if space permits. 0 = as long as possible)	0	Edit
Retain call details for (months)	60	Edit
SNMP Read Community	Not defined	Edit
SNMP Notification Destination	Not defined	Edit
SNMP Version	V1	Edit
Allow full database vacuum on startup if required.	Yes	Edit

- **Recorder Number**
  Use the **Recorder Number** field to give a unique identity to an installation of Contact Recorder for IP Office. By default, the value of the **Recorder Number** field is set to **1**.
  For example, if you are using more than one installations of Contact Recorder for IP Office in your voicemail system, you can set the **Recorder Number** field to **1** for the first installation, **2** for the second installation, **3** for the third installation, and so on. Contact Recorder for IP Office generates a unique recording reference number for each recording using the value set in the **Recorder Number** field. If you set a unique value for each of the installations of Contact Recorder for IP Office, then you are able to distinguish the recordings made by one Contact Recorder for IP Office from those made by the others.

- **Handover Folder**
  Use the **Handover Folder** field to specify the directory that Contact Recorder for IP Office checks for collecting new recordings. By default, the value in the **Handover Folder** field is set to ***/opt/vmpro/VRL***, which is a directory that is created with the necessary permissions at the time of installation of Contact Recorder for IP Office. You must configure Voicemail Pro to transfer the recording files to the ***/opt/vmpro/VRL*** directory using the **Voicemail Recording** tab in the **System Preferences** settings of Voicemail Pro Client.
  Note: Do not change the default value set in the **Handover Folder** field as the change may lead to an improper functioning of Contact Recorder for IP Office.

- **Call storage path**
  Use the **Call storage path** field to specify the directory that Contact Recorder for IP Office uses to store the recordings after collecting them from the directory specified in the **Handover Folder** field. Before you start recording, enter ***/CSIPORec*** in this field, as */CSIPORec* is the directory that is created with the necessary permissions at the time of installation of Contact Recorder for IP Office.
  Note: Do not set any other value in the **Call storage path** field as the change may lead to an improper functioning of Contact Recorder for IP Office. In case you must change the value and change it after you have already started recording, copy all the sub-directories and files in the old directory to the new directory before you resume recording.

- **Days to retain calls**
  Use the **Days to retain calls** field to specify the number of days after which Contact Recorder for IP Office can delete call recordings saved in the call storage. To disable the deletion of the call recordings, set the **Days to retain calls** field to **0**.
  Caution: If the available space on the disk keeps reducing, Contact Recorder for IP Office may delete the call recordings earlier to make the storage space available for newer recordings.
  If the disk is used to save other data also, you can reach a state where the required disk space is not available and there are no recordings to delete to make space for newer recordings. To avoid such a situation, create a separate disk partition for saving call recordings.

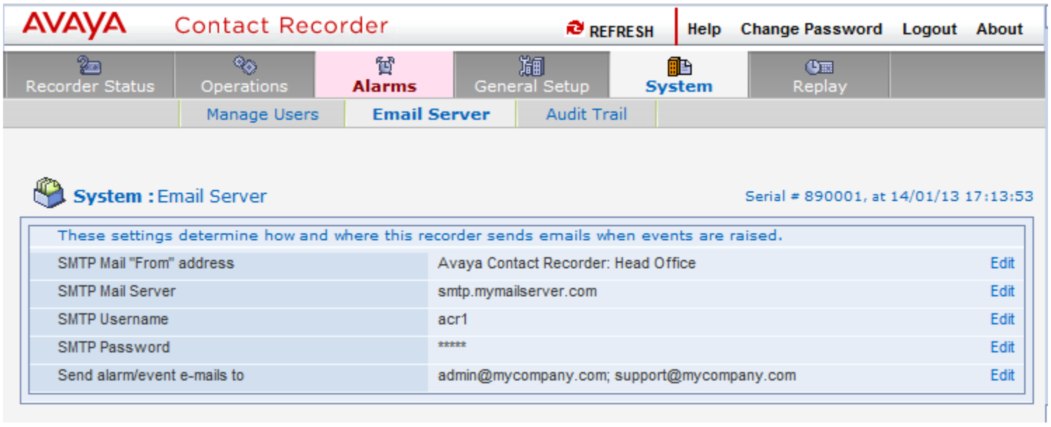
- **Retain call details for (months)**
  Use the **Retain call details for (months)** field to specify a time period after which Contact Recorder for IP Office can delete call recordings to maintain a good balance between the availability of sufficient storage space on the disk and the availability of the older call recordings. A saved call recording is purged after it completes the specified time period on the disk. Contact Recorder for IP Office purges data at, or shortly after, 01:00 hrs each morning. The purging of old data does not impact recording or replay.

- **SNMP Read Community**
  Use the **SNMP Read Community** field to set the name of an SNMP monitoring system, such as HP OpenView, which you can use to monitor Contact Recorder for IP Office. After you have set the name of an SNMP monitoring system, Contact Recorder for IP Office responds to the SNMP Get messages from the monitoring system. You can find the MIB files for the recorder-specific variables on the installation disk. For security reasons, Contact Recorder for IP Office does not:
  - Allow generic community names like private or public.
  - Respond to the SNMP Get messages until a community name has been set.
  - Use the commonly-used port 161, but uses port 2161 instead.
- **SNMP Notification Destination**
  Use the **SNMP Notification Destination** field to specify the IP address (if any) to which Contact Recorder for IP Office sends SNMP notifications.
- **SNMP Version**
  Use the **SNMP Version** field to specify the SNMP version that the SNMP monitoring system uses. Contact Recorder for IP Office supports SNMP Versions 1, 2, and 3. You must restart the recorder if you change this setting.
- **Allow full database vacuum on startup if required**
  After you receive the alert message about the pending database maintenance activities at the next restart of Contact Recorder for IP Office, use the **Allow full database vacuum on startup if required** check box to allow or defer the half-yearly database maintenance activities at the next restart of Contact Recorder for IP Office. After each restart, the check box is reset to the default selected state and you must clear it again if you want to defer the maintenance further. However, you must allow Contact Recorder for IP Office to perform the maintenance activities within one month of receiving the first alert.

3.2 System > Email Server

Configure these settings to have Contact Recorder for IP Office proactively alert you to problems via Email within a few minutes of them happening. The system sends an email message each time an alarm occurs or is cleared, but collects any further alarms for 10 minutes so as to avoid flooding your inbox. It also sends an email once per night to let you know it is still operating. Failure to receive the nightly email message should be investigated; it could indicate that the server has failed.

Confirm that you are receiving emails correctly after you make any changes to these settings.



These settings determine how and where this recorder sends emails when events are raised.

SMTP Mail "From" address	Avaya Contact Recorder: Head Office	Edit
SMTP Mail Server	smtp.mymailserver.com	Edit
SMTP Username	acr1	Edit
SMTP Password	*****	Edit
Send alarm/event e-mails to	admin@mycompany.com; support@mycompany.com	Edit

- **SMTP Mail "From" Address**
  Set the name from which alarm email messages originate, for example, "Contact Recorder for IP Office: Head Office".

- **SMTP Mail Server**
  Enter the name of the SMTP mail server on which you have established an email account that Contact Recorder for IP Office 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 and you can also then 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 emails to**
  Specify the email addresses 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 helpdesk and/or suppliers' support desks if you have a support agreement that includes this facility.

3.3 Operations > Archive

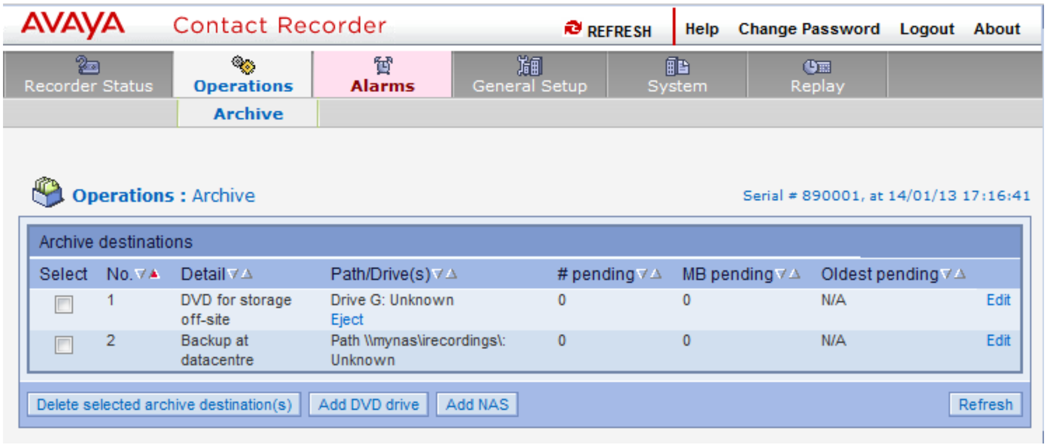
Recordings are stored beneath the folder you specified on the **General Setup > Recorder** tab. To store more recordings than this folder can hold and/or to protect your recordings, should this disk fail, be destroyed or stolen, Contact Recorder for IP Office allows you to configure additional "Archive" destinations where it will make copies of your recordings.

It does not copy each recording individually but, rather, makes larger ".tar" files containing many recordings and the details about those recordings. It writes a tar file to the archive destination when the file reaches 100MB in size (approximately 28 hours of audio) or when 24 hours have elapsed, whichever is sooner.

If you attempt to replay a recording that is no longer on your calls folder, Contact Recorder for IP Office will automatically retrieve it from the appropriate archive and, if necessary, ask you to insert a specific DVD.

TIP: It is therefore important to take regular backups of the call details database, where Contact Recorder for IP Office keeps details of which archive destination(s) hold each recording.

You can specify DVD drive(s) and/or Network Attached Storage (NAS) folders as archive destinations using this tab.



Serial # 890001, at 14/01/13 17:16:41

Archive destinations

Select	No.	Detail	Path/Drive(s)	# pending	MB pending	Oldest pending	
☐	1	DVD for storage off-site	Drive G: Unknown Eject	0	0	N/A	Edit
☐	2	Backup at datacentre	Path \\mynas\recordings\: Unknown	0	0	N/A	Edit

To add a new archive destination, click on either **Add DVD drive** or **Add NAS** as appropriate. A pop-up window will let you enter the settings for this archive destination. For a DVD Drive, enter the drive letter (on Windows) or its path (on Linux). For a file share on network attached storage, enter the UNC path of the file-share to which recordings should be archived. You can also add your own **Comment** field.

The **Advanced** button on the popup window lets you specify:

- An alternative start for DVD media labels (so you can distinguish them from those produced by another instance of the Contact Recorder application if you have one).
- Username and password credentials if required to access the file-share on NAS storage.
- That an archive is now disabled. You must not delete an archive as that would make the recordings there inaccessible. You can, however stop the recorder from archiving any more recordings to it.

Once configured, the table on this administration page shows the status of each destination and how many recordings are waiting to be written to it. Importantly, it also shows the volume label for removable media. You should label each disk with the label shown here, as it is this label that you will be prompted for when you attempt to replay a recording that is only available on this media.

3.3.1 Hierarchical File Storage Systems

The primary call storage folder should always be a locally connected physical disk drive on Contact Recorder for IP Office itself. To use a Hierarchical File Storage system to provide higher capacity, configure this as a Network Share and add a folder on it as a NAS Archive destination.

Be aware that, if your HFS system migrates rarely used files to tape or other media, then when you attempt to replay calls from files that have been migrated, there may be a delay before the call is replayed. If the delay is no more than 3 minutes, 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.

3.3.2 Removable Media

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 media 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.

Loading a disk

1. Insert a blank disk in the drive.
2. Wait 10 seconds for it to spin up and be recognized.
3. Click the **Operations > Archive** tab to confirm that Contact Recorder for IP Office has recognized the disk.

Within one minute, the **Path/Drives** column should show that the disk has been recognized. It also shows the volume label that has been assigned to the new disk and the available space (note that only 4.0GB can be used on a DVD+RW).

Note: Among the various types of writeable optical media that are available, Contact Recorder for IP Office supports only blank DVD+RW or BD-R (on Linux) media which is unused. Do not attempt to reuse old media.

Changing disks

The **Operations > Archive** tab displays 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 be completely full. If a DVD is full, subsequent calls cannot be archived until the next disk is inserted. You could lose recordings if there is a hard disk failure while a full DVD is waiting to be replaced.

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.

You can eject a disk that is still being recorded in order to retrieve calls from another disk. When you replace the partially full disk, archiving to it will continue.

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

To eject a disk, click the **Eject** link next to the details of the disk on the **Operations > Archive** tab. Before you do so, make a note of the volume label that is showing there. You must label the disk with this volume identifier using an approved indelible marker. You should also note the date and time at which you ejected the disk.

Verifying recorded disks

To verify that the contents of the disks are valid, you must first eject and re-insert the disk. After a wait of approximately 10 seconds, examine the contents of the disk from the command line or the Explorer interface.

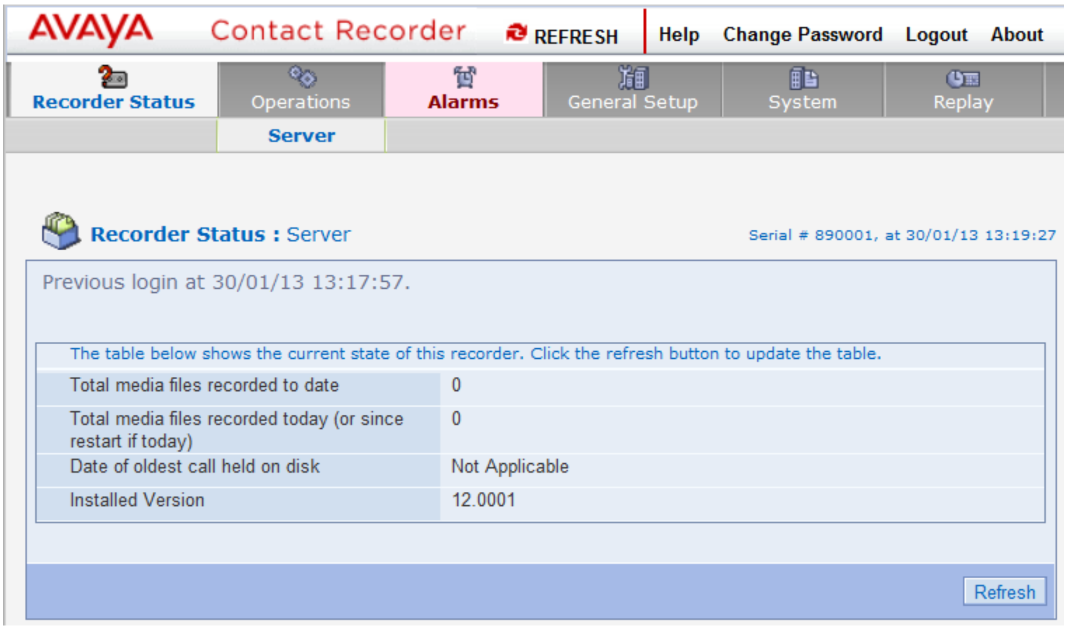
If the contents of the disk are valid, there will be a single ***.UID*** file and a set of large ***.tar*** files that contain the ***.wav*** and ***.xml*** files of the original recordings.

If you cannot resolve the problem, contact technical support for advice. Before you contact technical support:

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

3.4 Recorder Status > Server

This administration tab shows the current state of the Contact Recorder application.



Previous login at 30/01/13 13:17:57.

The table below shows the current state of this recorder. Click the refresh button to update the table.

Total media files recorded to date	0
Total media files recorded today (or since restart if today)	0
Date of oldest call held on disk	Not Applicable
Installed Version	12.0001

- **Total media files recorded to date**
  Each call recording contains one "media" file holding the audio. This value shows the total number of such recordings that have been processed by the system to date.

- **Total media files recorded today (or since restart if 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 recordings made since that restart.

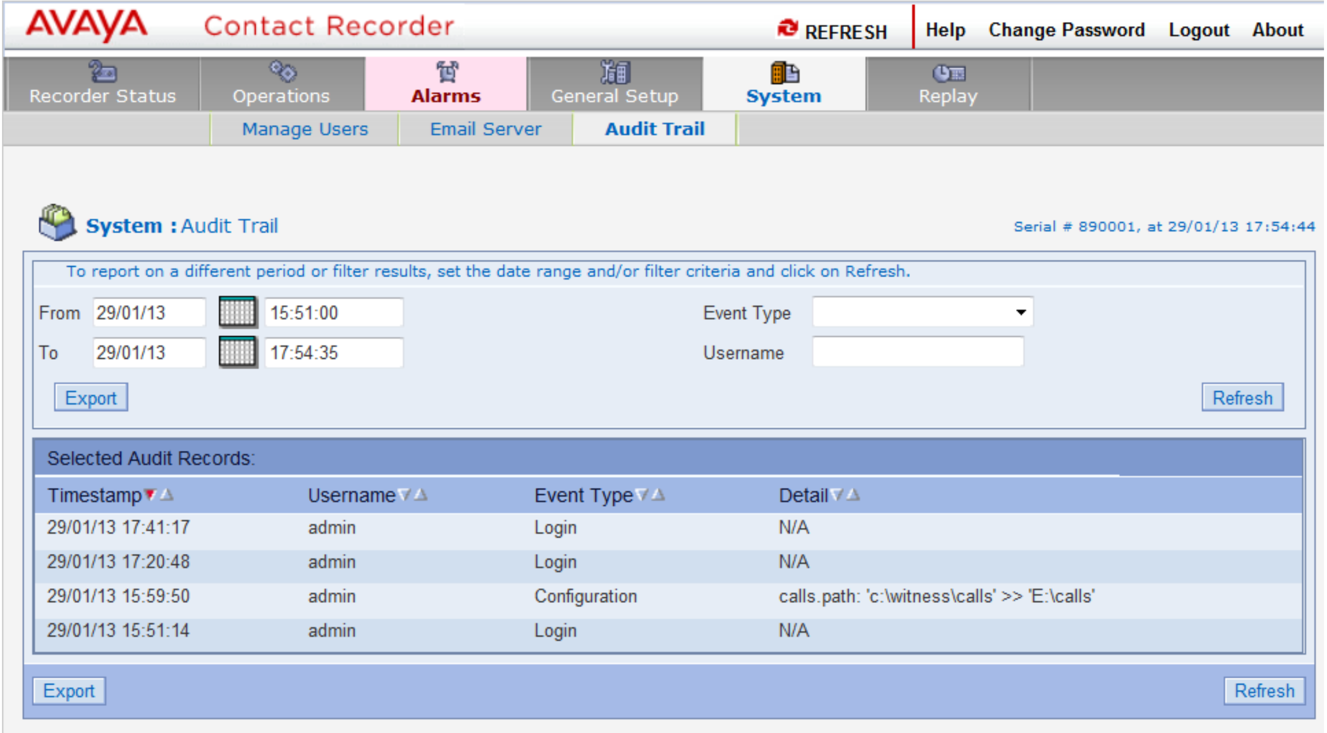
- **Date of oldest call held on disk**
  Until your disk is full for the first time, monitor the available space on the drive until you have confirmed that the rate at which space is being consumed is in line with your predictions. You should be able to estimate when the disk would be full and when the first calls recorded will be deleted to make way for new calls. Once the disk is full and the call data starts getting purged 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 (or other files are using the partition if you do not have a dedicated partition for recordings), so you may need to expand the disk capacity before the duration of calls it can hold falls below your minimum requirement.

- **Installed Version**
  This shows the exact patch level of Contact Recorder for IP Office that is running.

- **Refresh**
  Use the **Refresh** button to update the page.

3.5 System > Audit Trail

The **System > Audit Trail** tab displays administrator and user actions over a specific period. The default reporting period is the current day. You can also filter this report according to Event Type and Username.



System : Audit Trail

Serial # 890001, at 29/01/13 17:54:44

To report on a different period or filter results, set the date range and/or filter criteria and click on Refresh.

From 29/01/13 15:51:00

To 29/01/13 17:54:35

Event Type

Username

Selected Audit Records:

Timestamp	Username	Event Type	Detail
29/01/13 17:41:17	admin	Login	N/A
29/01/13 17:20:48	admin	Login	N/A
29/01/13 15:59:50	admin	Configuration	calls.path: 'c:\witness\calls' >> 'E:\calls'
29/01/13 15:51:14	admin	Login	N/A

To generate a report for a different period, enter the date range in the calendar controls, and click the **Refresh** button.

The Audit Trail functions track the following user actions:

- Successful user logins
- Failed user logins
- Password changes (although, for security reasons, the actual password is not stored)
- End user searches on the database
- Replay requests

It also tracks all administrator actions that affect recording, such as configuration changes and creation or deletion of user accounts.

The Detail column includes the SQL statement used in searching for calls. It also uses the internal name of a setting rather than the user-friendly, localized name. This avoids any change of meaning that could occur in internationalization.

Each report is restricted to a maximum of 1000 audit records. To report on more, break your reporting period into a number of smaller date ranges.

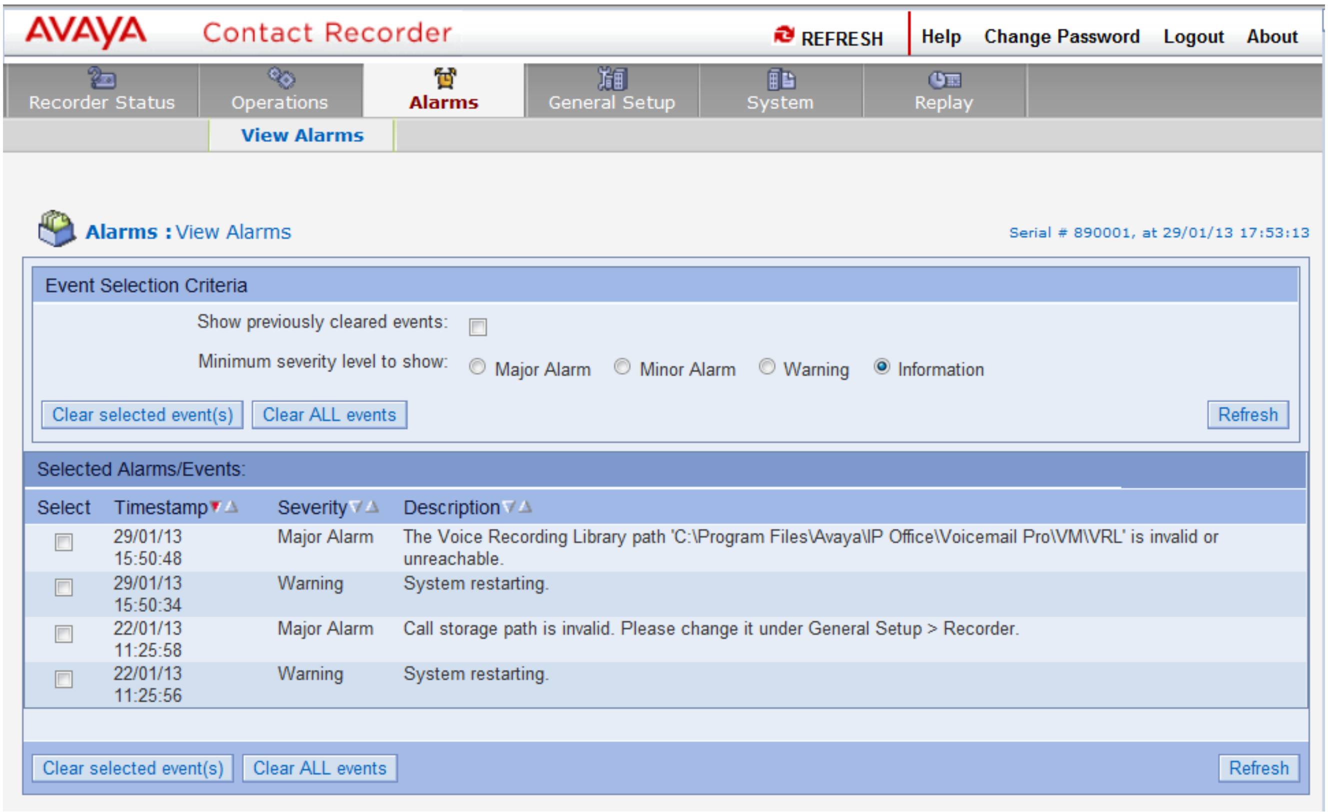
Use your browser's print, save, or email features to provide a permanent record of the details. To create a summary that presents all results on a single page, click the Show All link at the top. The Show All and Page at a Time links are not shown if the list of audit entries is less than one page long.

Configuration records (which include the audit trail) are retained for three months. Each night after that period has elapsed, a background job deletes any records older than three months.

If you want to retain the records longer, back up the database as described in Backing up the Database 54.

3.6 Alarms > View Alarms

The **Alarms > View Alarms** tab shows system warnings, alarms, and events. Alarms are logged to the database of Contact Recorder for IP Office and held for a month before being purged at 1:00 each morning. If you enter set up the mail account information on the **System > Email Server** tab, an email detailing the alarms and events is sent to the email addresses listed in the **Send alarm/event emails to** field.


AVAYA
Contact Recorder
REFRESH
Help
Change Password
Logout
About
Recorder Status
Operations
Alarms
General Setup
System
Replay
View Alarms
Alarms : View Alarms
Serial # 890001, at 29/01/13 17:53:13
Event Selection Criteria
Clear selected event(s)
Clear ALL events
Refresh
Selected Alarms/Events:

Show previously cleared events: ☐

Minimum severity level to show: ○ Major Alarm ○ Minor Alarm ○ Warning ● Information

Select	Timestamp	Severity	Description
☐	29/01/13 15:50:48	Major Alarm	The Voice Recording Library path 'C:\Program Files\Avaya\IP Office\Voicemail Pro\VM\VRL' is invalid or unreachable.
☐	29/01/13 15:50:34	Warning	System restarting.
☐	22/01/13 11:25:58	Major Alarm	Call storage path is invalid. Please change it under General Setup > Recorder.
☐	22/01/13 11:25:56	Warning	System restarting.

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

- Only those events that you have not previously cleared versus all alarms and events.
- Alarms and events above a selected severity level.

Use the buttons 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:

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

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 event(s)** link.

Be careful using the **Clear ALL events** button. 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 69.

3.7 Advanced Configuration Options

A number of advanced options require that you edit the properties file ***acr.properties***. The file is located beneath the path into which Contact Recorder for IP Office is installed (the default being ***/opt/witness/properties***). 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 can use the advanced configuration options to enable or disable the data fields on the Search and Replay page.

Chapter 4.

Administration of User Accounts

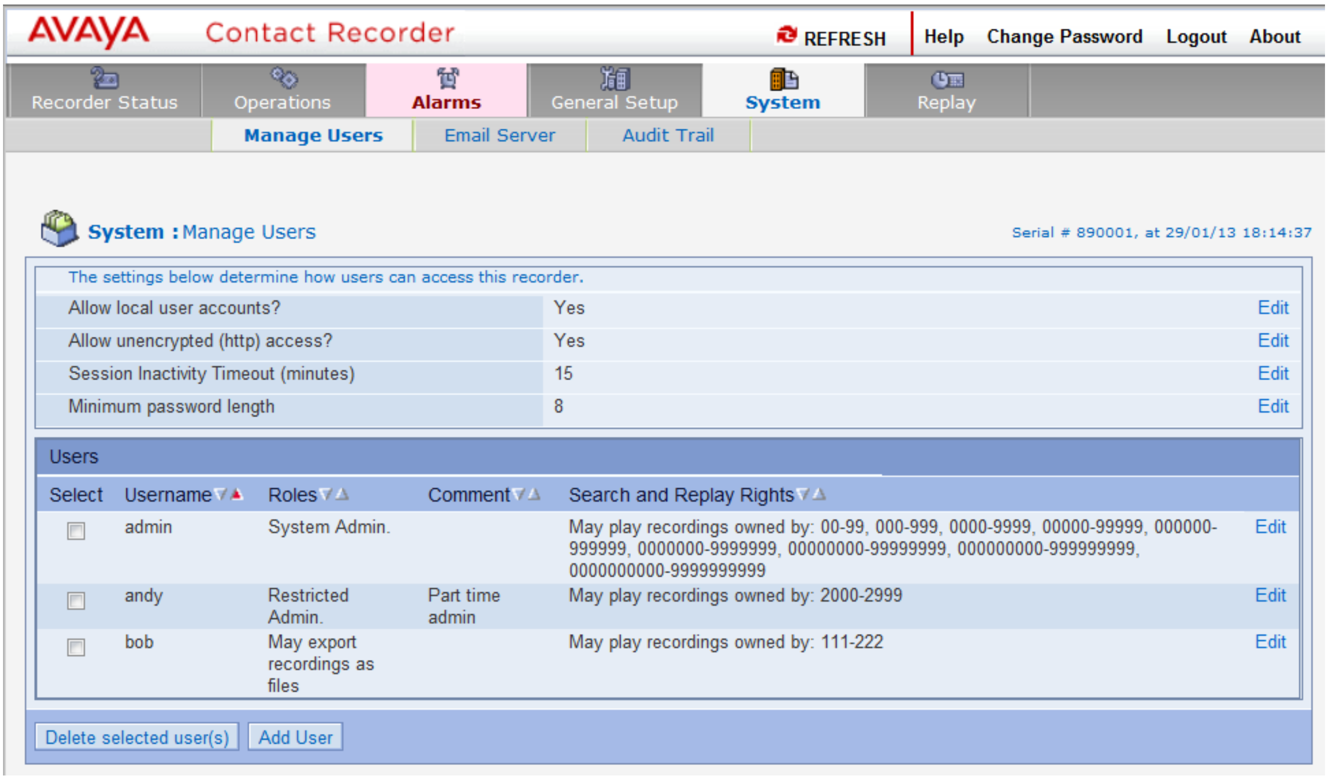
4. Administration of User Accounts

User accounts can be added, modified or deleted using the **System > Manage Users** tab.

- **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.

Viewing user accounts

1. Click the **System > Manage Users** tab.


AVAYA
Contact Recorder
REFRESH
Help
Change Password
Logout
About
Recorder Status
Operations
Alarms
General Setup
System
Replay
Manage Users
Email Server
Audit Trail
System : Manage Users
Serial # 890001, at 29/01/13 18:14:37

The settings below determine how users can access this recorder.		
Allow local user accounts?	Yes	Edit
Allow unencrypted (http) access?	Yes	Edit
Session Inactivity Timeout (minutes)	15	Edit
Minimum password length	8	Edit

Users

Select	Username	Roles	Comment	Search and Replay Rights	
☐	admin	System Admin.		May play recordings owned by: 00-99, 000-999, 0000-9999, 00000-99999, 000000-999999, 0000000-9999999, 00000000-99999999, 000000000-999999999, 0000000000-9999999999	Edit
☐	andy	Restricted Admin.	Part time admin	May play recordings owned by: 2000-2999	Edit
☐	bob	May export recordings as files		May play recordings owned by: 111-222	Edit

Delete selected user(s)
Add User

4.1 Windows Domain Authentication

You can create local user accounts within the recorder application itself. However, it is more secure to use Windows domain accounts and you may wish to enable this feature - or even restrict access so that only windows domain accounts have access to the system.

Enabling Windows Domain Authentication

1. Create a user in the Active Directory for Contact Recorder for IP Office. If you have multiple installations of Contact Recorder for IP Office, you can use the same username for all the installations. Set the password on the account, setting it to never expire, and making sure that the account is enabled.
2. Use the *setspn* command to create Service Principal Names (SPNs) for each recorder.
   setspn -A HTTP/RecorderFQDN <username>
3. Patch the encryption policy files of the recorder as described in Installing Unlimited Strength Encryption 75.
4. Encrypt the recorder account password as described in Encrypting Properties File Entries 78.
5. Ensure that the recorder and Active Directory are time synchronized.
6. Edit the properties file of each recorder and add:

   krb5.enabled=true

   krb5.username=RecorderUsername

   krb5.password=EncryptedPassword

   krb5.domain=KerberosDomain

   krb5.kdc=ADAddress
7. Create user accounts 31 like USERNAME@DOMAIN (that is, all in uppercase), for example, JSMITH@BIGCORP.COM. By default, the recorder forces usernames it receives to uppercase before comparing them with those you have entered. To change this, set *krb5.exact=true* in the properties file. You must then enter usernames and domains with exactly the same cases as stored in the Active Directory.
8. From a workstation logged into the domain as one of the users, access the recorder using its Fully Qualified Domain Name - http://RecorderFQDN:9888/

You should get straight to the recorder main page. If you see the recorder login page, something has gone wrong. Check the recorder log for errors.

Enforcing Windows Domain Authentication only

1. Enable Windows Domain Authentication as above.
2. Log in as an Administrator using a domain account.
3. On the **System > Manage Users** tab, set **Allow local user accounts?** to **No**.

- **Tip:** If users are prompted for their domain passwords when they access the web interface, make sure that the recorder is either part of the intranet zone, or make it a trusted site and configure Internet Explorer to automatically log on to trusted sites.

4.2 Use of SSL

You should consider whether you wish to enforce the use of Secure Sockets Layer (SSL) 76. By default, users can access the recorder via http (on port 9888) or by encrypted https (on port 9444). You can force users to use the secure https port, by setting **Allow unencrypted (http) access?** to ***No*** on the **System > Manage Users** tab. When you do this, any user who attempts to access the recorder through the unsecured (http) route is automatically redirected to the secure (https) address.

The application is distributed with an SSL certificate that is valid for 3 years from the date it was issued. The certificate makes it possible to give users secure access to the server. When users access it through this secure https port, the traffic between their browser and the recorder is automatically encrypted.

However, Internet Explorer will warn your users that the name on the certificate does not match the name of the server using it. You can either advise your users that this is acceptable and should be ignored or, for greater security, you may acquire and install your own SSL certificate.

4.3 Session Inactivity Timeout

If a user does not access the administration or search and replay screen for a period in minutes exceeding this setting, they will have to log in again (unless you are using Windows Domain Authentication 29).

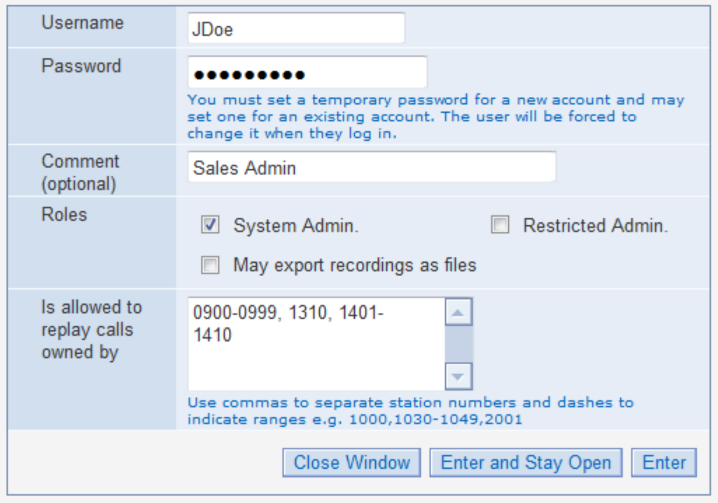
4.4 Minimum Password Length

By default, Contact Recorder for IP Office requires that passwords are at least 8 characters long. You can change this setting on the **System > Manage Users** tab.

4.5 Creating a New Account

For a user to use Contact Recorder for IP Office they need an account name and password. The account will determine what features and settings the user can access.

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



Username: JDoe

Password: ●●●●●●●●●

You must set a temporary password for a new account and may set one for an existing account. The user will be forced to change it when they log in.

Comment (optional): Sales Admin

Roles: ☑ System Admin. ☐ Restricted Admin. ☐ May export recordings as files

Is allowed to replay calls owned by: 0900-0999, 1310, 1401-1410

Use commas to separate station numbers and dashes to indicate ranges e.g. 1000,1030-1049,2001

- **Username**
  Enter a **Username**. This can be a Windows domain qualified username (for example, ***johnd@corpdomain.com***) or a local application username (for example ***johnd***).
  - To use a domain qualified username, which will be authenticated using Windows authentication, you must configure Windows Domain Authentication 29. To allow users from other domains to log in, you must establish reciprocal arrangements between the domain controller for the domain that the Contact Recorder for IP Office server is in and the other domain.
  - When a local username 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.
- **Password**
  If you are using local (non-domain) accounts, you must enter a temporary password for the account. A user will be forced to change the password when the user logs in for the first time. You must inform a new user of the temporary password for the user account.
- **Comment**
  Use the **Comment** text box to enter the full name, job title or other identifying information that will help you to administer the user's account.
- **Roles**
  Select one or more roles to grant user rights that are in addition to the basic search and replay rights:
  - **System Admin**
    This type of user has full access to the Contact Recorder for IP Office menus.
  - **Restricted Admin**
    This type of user can see the system status and alarms; eject DVDs and administer **Replay Only** user accounts. They cannot change the system configuration settings.
  - **May export recordings as files**
    This option controls whether the email and export options are available to the user.
- **Is allowed to replay calls owned by**
  Use this field to enter the list of stations or agents that this user is allowed to search for and replay. The initial account created when the first user logs in is automatically given replay rights to all 2 to 10 digit station numbers. You can modify these rights as required.
  - Note: When Contact Recorder is used to manage Outbound Contact Express recordings, some recordings might have the Agents information hidden with 31 asterisk symbols (*******************************). To display and replay such recordings, an entry with exactly 31 asterisks must be entered.
  - 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.
  - The number of digits is important. For example, giving a user rights over 0000-9999 does not give them rights over any 3, 5, 6, ..., digit numbers.
  - 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.

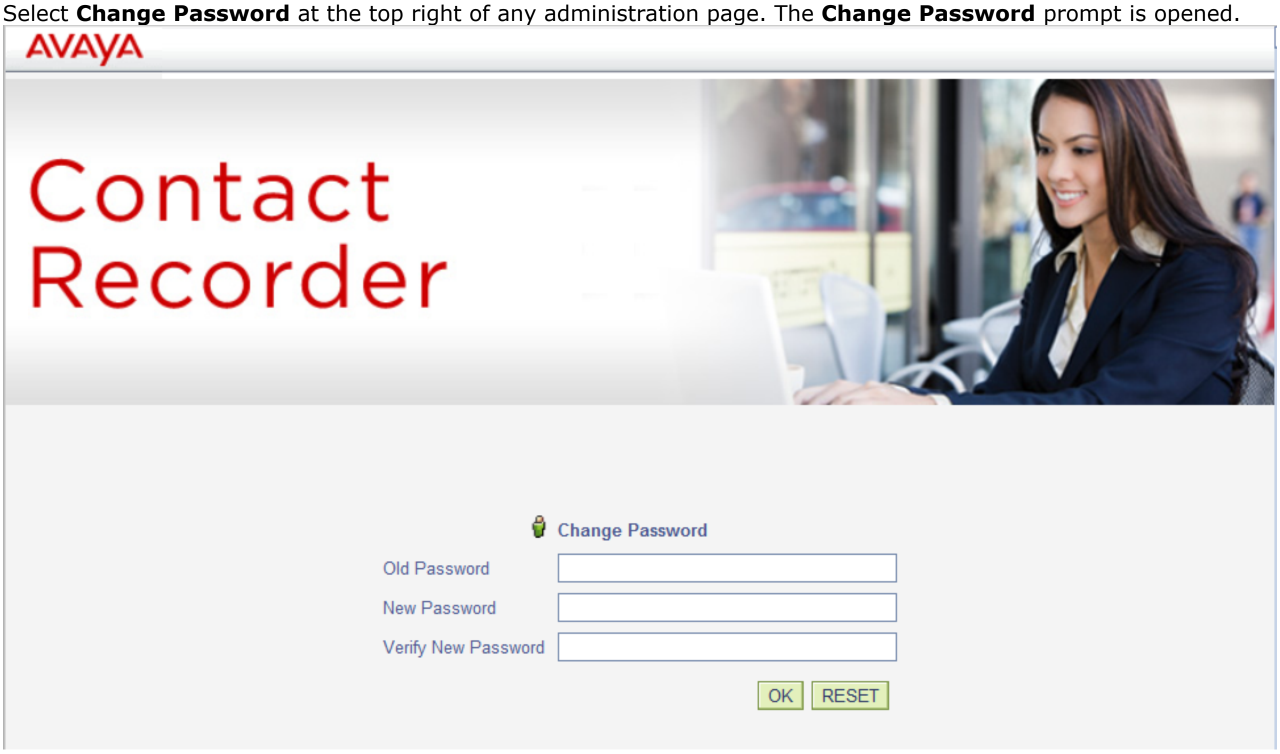
2. Click **Enter and Stay Open** to save the account definition and keep the window open to create additional user accounts. Click **Enter and Close** to save the account definition and close the window. Click **Close Window** to quit without changing the account definition.

4.6 Changing Your Password

Unless you are using an account authenticated using Windows Domain Authentication 29, your account is created with a temporary password. At your first login attempt, the system prompts you to change the password. Also, to rule out a security breach, you must change your password at regular intervals.

To change the password:

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


AVAYA
Contact Recorder
Change Password
Old Password
New Password
Verify New Password
OK
RESET

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

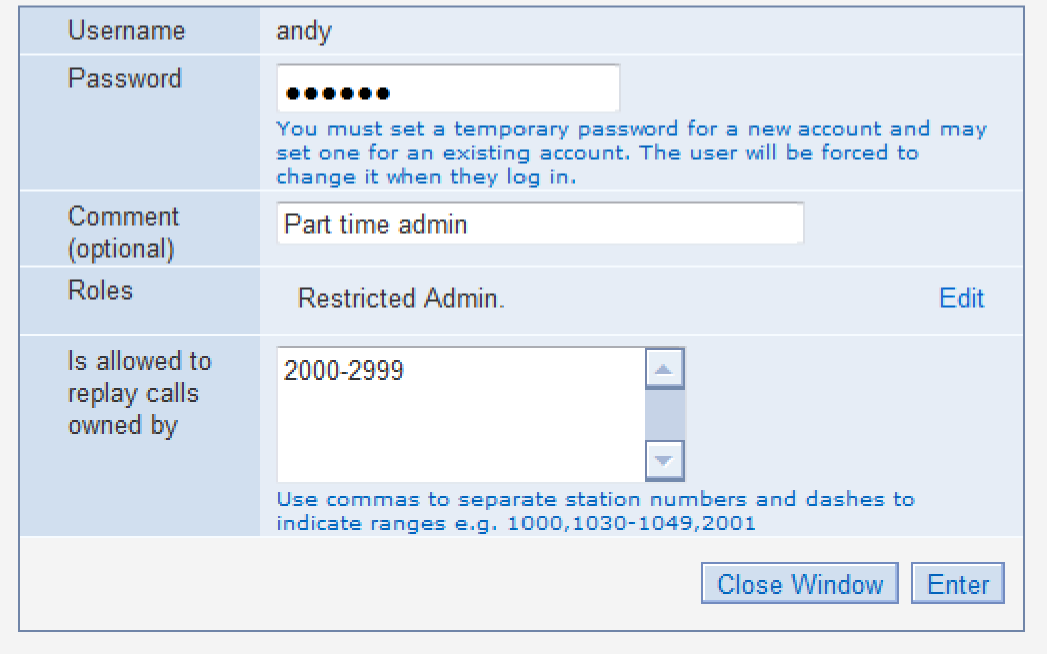
4.7 Editing an Account

Any account can be changed. You can change any of the fields except the username. To change the username, note the account details, create a new account 31 with the same details and required username and then delete the old user 34.

- To reset the password of a user account, click the **Edit** link next to the username in the list, enter a new password in the **Password** field and click **Enter**. Instruct the user to log in promptly using the temporary password. The user will need to change the password at the first login attempt after the password reset.
- For a user account that uses a Windows domain qualified username, the system uses Windows credentials for login authentication. The **Password** field, therefore, is not relevant and is not displayed.

To edit an account:

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



Username	andy
Password	●●●●●● You must set a temporary password for a new account and may set one for an existing account. The user will be forced to change it when they log in.
Comment (optional)	Part time admin
Roles	Restricted Admin. Edit
Is allowed to replay calls owned by	2000-2999 Use commas to separate station numbers and dashes to indicate ranges e.g. 1000,1030-1049,2001

2. Alter the details as required.
3. Click **Enter** to save the changes. Click **Close Window** to quit without changing the account definition.

4.8 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 that you want to delete.
2. Click the **Delete selected user(s)** button.

Chapter 5.

IP Office/Voicemail Pro Configuration

5. IP Office/Voicemail Pro Configuration

IP Office can use the Voicemail Pro server to manually and automatically record calls. When licensed, it can also be configured to pass those recordings to Contact Recorder for IP Office.

- **Conference Capacity**
  Call recording uses conferencing capacity and so is subject to the available conferencing capacity of the IP Office system.

- **Call Recording Warning** 37
  In many locations, it is a local or national requirement to warn those involved in a call that they are being recorded. The Voicemail Pro does this by playing an **Advice of Call Recording** prompt which can be switched off. On automatically recorded call, some telephones may also display a recording symbol.

- **Recording Duration** 37
  Call recording is limited to the maximum length of 1 hour.

- **Voice Recording Library (VRL)**
  Recordings are normally placed into standard mailboxes. VRL operation allows recordings to be transferred to a specialist archiving application, in this case Contact Recorder for IP Office. This allows both longer recording and the sorting and searching of recordings.

5.1 Call Recording Warning

In many locations, it is a local or national requirement to warn those involved in a call that they are being recorded. One method for doing this is to enable the Advice of Call Recording (AOCR) message provided by the Voicemail Pro server.

- The 'advice of recording' will always be played if the Advice of Call Recording message is enabled.
- It can not be guaranteed that a caller will hear an 'advice of recording' announcement when the call is using analogue trunks. Analogue trunks do not support call status signalling so the 'advice of recording' announcement is played as soon as the trunk is seized even if the call is ringing and has not been answered.
- The Play Advice on Call Recording option is **on** by default.
- This message is provided in the file ***aor_00.wav***. For each language installed on the Voicemail Pro server.

To switch the recording warning on or off:

1. From the Voicemail Pro Client, click or select **Administration** > **Preferences** > **General**.
2. Click **Play Advice on Call Recording** to switch this option on (checked) or off (unchecked).
3. Click **OK**.
4. Click **Save & Make Live**.

5.2 Configuring the Recording Display

Some Avaya terminals display **REC** when involved in a recorded call.

To hide the auto record indication

1. Open the system configuration in IP Office Manager.
2. In the navigation pane, click **System**.
3. Click the **Voicemail** tab.
4. Check **Hide auto recording**. This hides the display of **REC** of phones that support that feature when recording a call.
5. Save the configuration back to the IP Office system.

5.3 Changing the Recording Time

The maximum length of call recordings made by Voicemail Pro is adjustable.

To change the recording length:

1. Start the Voicemail Pro Client.
2. Click or select **Administration > Preferences** > **General**.
3. The **Max. VRL Record Length (secs)** setting is used only for calls being recorded to VRL. The maximum record length is 18000 seconds (300 minutes).
4. Click **OK**.
5. Click **Save & Make Live**.

5.4 Configuring Manual Call Recording

You can configure Contact Recorder for IP Office as the destination for call recordings manually triggered by a user.

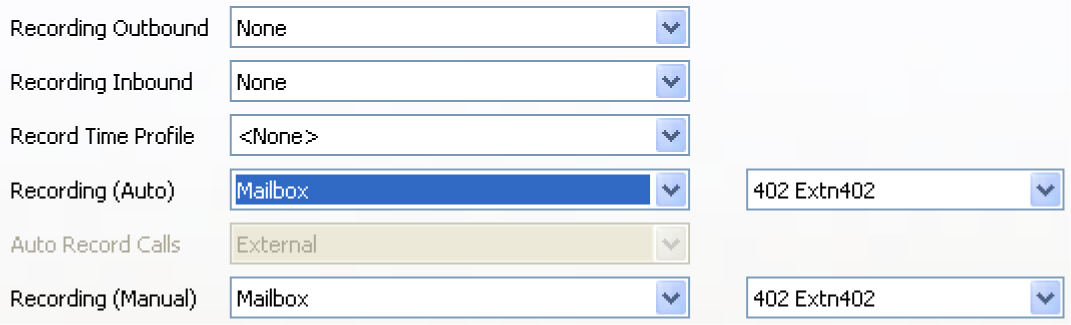
- Configuring the manual recording destination 38
- Triggering manual call recording 39
  - Using IP Office SoftConsole 39
  - Using a programmable button 40
  - Using a short code 40

5.4.1 Configurng the Manual Recording Destination

By default user's can use manual call recording at any time. They do this using a variety of methods for triggering manual call recording 39. To use manual call recording with Contact Recorder for IP Office, you must change the destination of the recording.

To configure a user's recording options:

1. Start IP Office Manager and load the configuration from the primary server.
2. Click **User** and select the individual user.
3. Select the **Voice Recording** tab.



Recording Outbound	None	
Recording Inbound	None	
Record Time Profile	<None>	
Recording (Auto)	Mailbox	402 Extn402
Auto Record Calls	External	
Recording (Manual)	Mailbox	402 Extn402

4. Use **Recording (Manual)** to specify the destination for the recordings. By default, this is a user's own mailbox.
   - **Mailbox**
     This is the default option. When selected, you can use the adjacent drop down list to select the destination user or hunt group mailbox. These files are typically 1MB per minute.
   - **Voice Recording Library**
     Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.711 format file that Contact Recorder for IP Office converts to G.729A format after the file transfer. These files are typically 60KB per minute.
   - **Voice Recording Library Authenticated**
     Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.726 format file that contains file authentication information. Any subsequent editing of the file invalidates that information. Contact Recorder for IP Office does not convert the file to G.729A format after the file transfer. These files are typically 120KB per minute.
5. Click **OK**.
6. Click to merge the configuration change back to the IP Office.

5.4.2 Triggering Manual Call Recording

There are several ways to start manually recording a telephone call.

- Using one-X Portal for IP Office 39
- Using IP Office SoftConsole 39
- Using a Programmable Button 40
- Using a Short Code 40

5.4.2.1 Using one-X Portal for IP Office

A user can use one-X Portal for IP Office to stop and start manual call recording.

To start call recording using one-X Portal for IP Office:

1. Using the ☎ **Calls** gadget on the **Main** tab, select the call tab for the connected call. It will be the tab with two connected handsets ⟷ icon on the right.
2. To start recording the call, click on the ● record button on the right. If the button displays as an ○ icon then recording is not available for some reason.
3. Once recording has started, the button changes to an ■ icon. Click on this to end recording. Call recording also automatically stops if you park, transfer or turn the call in to a conference. If you hold the call, call recording is paused while the call is on hold.

5.4.2.2 Using IP Office SoftConsole

The SoftConsole operator can manually record all or part of a current telephone call.

- Press the ● button on the toolbar. The button acts as a toggle. Press the button again to stop recording.
- Select **Actions** > **Record Call**. This action toggles and so also stops recording.
- Press **F5** to start recording. Press **F5** again to stop the recording.

5.4.2.3 Using a Programmable Button

You can program the call record function against a DSS key.

To set a DSS key for manual recording:

1. Start IP Office Manager and load the configuration from the primary server.
2. In the Navigation pane, click 👤 **User** and select the individual user.
3. Select the **Button Programming** tab.
4. Select the required DSS key and click **Edit**.
5. Click ... browse for the **Action**. The Button Programming window opens.
6. Select **Advanced | Call | Call Record**. Click **OK**.
7. In the **Action Data** field, enter the description to appear on the telephone display.
8. Click **OK**.
9. Click 💾 to save the configuration file.

5.4.2.4 Using a Short Code

The short code feature **Call Record** triggers manual call recording. The example short code (*95) can be set up as a user or system short code.

Field	Contains...
Code	*95
Feature	Call Record
Telephone Number	[Leave blank]
Line Group Id	0

To use the short code

1. During a call, put the caller on hold.
2. Dial the short code. The held call is automatically reconnected and recording begins.

5.5 Configuring Automatic Call Recording

You can configure the IP Office system to automatically record calls based on the user, hunt group, incoming call route or account code.

Trigger	Incoming	Outgoing	Duration
Incoming Call Route	Yes	–	For the call duration or up to 1 hour.
Hunt Group	Yes	–	Until ended or until transferred to a user outside the hunt group or its overflow group.
User	Yes	Yes	Until the user ends or transfers call.
Account Code	–	Yes	Until the user ends or transfers calls.

- Individual calls may match several recording criteria. In that case:
  - If the destinations for the recordings are different, separate recordings occur with the durations as indicated above.
  - If the destinations for the recordings are the same, the system makes a single recording using either the incoming call route, hunt group or user duration in that order of priority.
- Multiple recordings of the same call use multiple voicemail channels.
- Time profiles can control when automatic call recording is used.
- For inbound calls, recording will not take place if the call goes to normal voicemail to leave a mailbox message.
- If set to mandatory call recording, busy tone if returned to the caller when no voicemail ports are available to do the recording.
- Where calls have been answered using a Line appearance button, the call recording uses the voicemail setting of the original call route destination.

To configure automatic call recording:

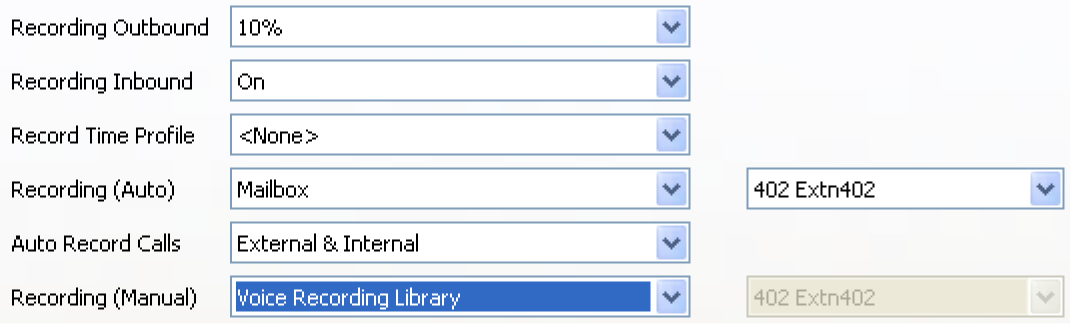
- To configure automatic user recording 42
- To configure automatic hunt group recording 43
- To configure incoming call route recording 44
- To configure account code recording 45

5.5.1 User Automatic Recording

You can automatically record calls to and from a user. You can select just external calls or all calls.

To set automatic call recording for a user:

1. Start IP Office Manager and load the configuration from the primary server.
2. In the navigation pane, click **User**. Select the required user.
3. Select the **Voice Recording** tab.



Recording Outbound: 10%
Recording Inbound: On
Record Time Profile: <None>
Recording (Auto): Mailbox — 402 Extn402
Auto Record Calls: External & Internal
Recording (Manual): Voice Recording Library — 402 Extn402

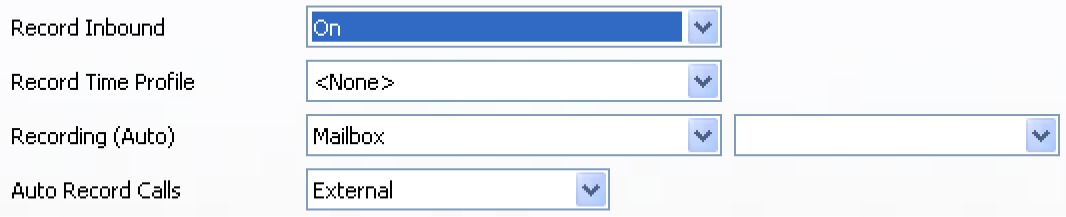
4. From the **Record Inbound** and **Record Outbound** drop-down lists, select the recording frequency.
    - **None:** Do not record.
    - **On:** Record all calls if possible.
    - **Mandatory:** Record all calls. If recording is not possible, return busy tone to the caller.
    - **xx%:** Record calls at intervals matching the set percentage. For example, for every other call select ***50%***.
    - For inbound calls, recording will not take place if the call also goes to normal voicemail.
5. Use **Record Time Profile** to select a time profile that specifies when automatic call recording is active. If not set, recording is active at all times.
6. Use **Auto Record Calls** to select whether ***External*** or ***External & Internal*** calls are included.
7. Use **Recording (Auto)** to specify the destination for the recordings. By default, this is a user's own mailbox.
    - **Mailbox**
      This is the default option. When selected, you can use the adjacent drop down list to select the destination user or hunt group mailbox. These files are typically 1MB per minute.
    - **Voice Recording Library**
      Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.711 format file that Contact Recorder for IP Office converts to G.729A format after the file transfer. These files are typically 60KB per minute.
    - **Voice Recording Library Authenticated**
      Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.726 format file that contains file authentication information. Any subsequent editing of the file invalidates that information. Contact Recorder for IP Office does not convert the file to G.729A format after the file transfer. These files are typically 120KB per minute.
8. Click **OK**.
9. Click to send the configuration back to the IP Office.

5.5.2 Hunt Group Automatic Recording

You can automatically record calls answered by any member of a hunt group. You can select just external calls or all calls.

To set automatic call recording for a hunt group:

1. Start IP Office Manager and load the configuration from the primary server.
2. In the Navigation pane, click **Hunt Group**.
3. Select the required hunt group.
4. Select the **Voice Recording** tab.



Record Inbound: On
Record Time Profile: <None>
Recording (Auto): Mailbox
Auto Record Calls: External

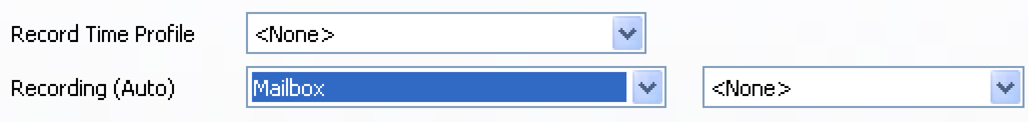
5. Use **Record Time Profile** to select a time profile that specifies when automatic call recording is active. If not set, recording is active at all times.
6. Use **Auto Record Calls** to select whether ***External*** or ***External & Internal*** calls are included.
7. From the **Record Inbound** drop-down list, select the recording frequency.
   - **None:** Do not record.
   - **On:** Record all calls if possible.
   - **Mandatory:** Record all calls. If recording is not possible, return busy tone to the caller.
   - **xx%:** Record calls at intervals matching the set percentage. For example, for every other call select ***50%***.
   - For inbound calls, recording will not take place if the call also goes to normal voicemail.
8. Use **Recording (Auto)** to specify the destination for the recordings.
   - **Mailbox**
     This is the default option. When selected, you can use the adjacent drop down list to select the destination user or hunt group mailbox. These files are typically 1MB per minute.
   - **Voice Recording Library**
     Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.711 format file that Contact Recorder for IP Office converts to G.729A format after the file transfer. These files are typically 60KB per minute.
   - **Voice Recording Library Authenticated**
     Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.726 format file that contains file authentication information. Any subsequent editing of the file invalidates that information. Contact Recorder for IP Office does not convert the file to G.729A format after the file transfer. These files are typically 120KB per minute.
9. Click **OK**.
10. Click to send the configuration back to the IP Office.

5.5.3 Incoming Call Route Automatic Recording

You can automatically record incoming external calls routed by a particular incoming call route. Note, in a Server Edition network, by default every system in the network shares the same incoming call routes.

To set automatic call recording for an incoming call route:

1. Start IP Office Manager and load the configuration from the primary server.
2. In the Navigation pane, click **Incoming Call Route**.
3. Select the required incoming call route.
4. Select the **Voice Recording** tab.



Recording Inbound: On
Record Time Profile: <None>
Recording (Auto): Mailbox <None>

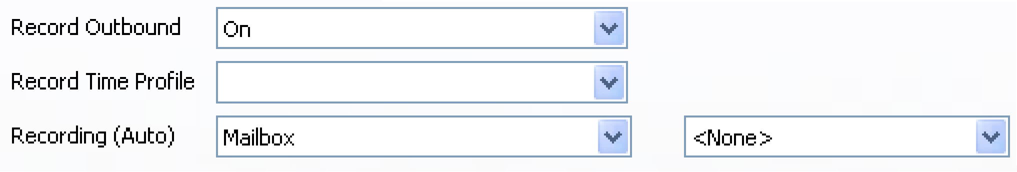
5. From the **Record Inbound** drop-down list, select the recording frequency.
   - **None:** Do not record.
   - **On:** Record all calls if possible.
   - **Mandatory:** Record all calls. If recording is not possible, return busy tone to the caller.
   - **xx%:** Record calls at intervals matching the set percentage. For example, for every other call select ***50%***.
   - For inbound calls, recording will not take place if the call also goes to normal voicemail.
6. Use **Record Time Profile** to select a time profile that specifies when automatic call recording is active. If not set, recording is active at all times.
7. Specify the destination for the recordings or select the option to place the recordings in the voice recording library.
   - **Mailbox**
     This is the default option. When selected, you can use the adjacent drop down list to select the destination user or hunt group mailbox. These files are typically 1MB per minute.
   - **Voice Recording Library**
     Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.711 format file that Contact Recorder for IP Office converts to G.729A format after the file transfer. These files are typically 60KB per minute.
   - **Voice Recording Library Authenticated**
     Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.726 format file that contains file authentication information. Any subsequent editing of the file invalidates that information. Contact Recorder for IP Office does not convert the file to G.729A format after the file transfer. These files are typically 120KB per minute.
8. Click **OK**.
9. Click to send the configuration back to the IP Office.

5.5.4 Account Code Automatic Call Recording

You can automatically record outgoing external calls that use a particular account code. Note, in a Server Edition network, by default every system in the network shares the same account codes.

To set automatic call recording for an outgoing account call:

1. Start IP Office Manager and load the configuration from the primary server.
2. In the Navigation pane, click **Account Code**.
3. Select the required account code.
4. Select the **Voice Recording** tab.



Record Outbound: On

Record Time Profile:

Recording (Auto): Mailbox <None>

5. From the **Record Outbound** drop-down list, select the recording frequency.
    - **None:** Do not record.
    - **On:** Record all calls if possible.
    - **Mandatory:** Record all calls. If recording is not possible, return busy tone to the caller.
    - **xx%:** Record calls at intervals matching the set percentage. For example, for every other call select ***50%***.
    - For inbound calls, recording will not take place if the call also goes to normal voicemail.
6. Select the **Recording Time Profile** to select a time profile that specifies when automatic call recording is active. If not set, recording applies at all times.
7. Use the **Recording (Auto)** option to select the destination for the recording.
    - **Mailbox**
      This is the default option. When selected, you can use the adjacent drop down list to select the destination user or hunt group mailbox. These files are typically 1MB per minute.
    - **Voice Recording Library**
      Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.711 format file that Contact Recorder for IP Office converts to G.729A format after the file transfer. These files are typically 60KB per minute.
    - **Voice Recording Library Authenticated**
      Use this option to have the recordings transferred to the Contact Recorder for IP Office application after recording. This option produces a G.726 format file that contains file authentication information. Any subsequent editing of the file invalidates that information. Contact Recorder for IP Office does not convert the file to G.729A format after the file transfer. These files are typically 120KB per minute.
8. Click **OK**.
9. Click to send the configuration back to the IP Office.

5.6 Pausing Recording

Sometimes it is a requirement to pause call recording. For example, when recording calls where the user asks the caller to reveal sensitive information such as a credit card number.

To do this, you can assign a pause recording button to a user's phone. The user can use the button with manually and automatically recorded calls.

The button status indicates when call recording is paused. Pressing the button again restarts call recording. The system can also automatically restart recording after a set delay.

If the voicemail system provides an advice of call recording warning 37, pausing recording triggers a *"Recording paused"* prompt and a repeat of the advice of call recording warning when recording resumes.

5.6.1 Configuring a Pause Recording Button

To pause recording, you need to configure a pause recording button for the user.

To configure a pause recording button:

1. Start IP Office Manager and load the configuration from the primary server.
2. In the Navigation pane, click **User** and select the individual user.
3. Select the **Button Programming** tab.
4. Select the required DSS key and click **Edit**.
5. Click browse for the **Action**. The Button Programming window opens.
6. Select **Advanced | Call | Pause Recording**. Click **OK**.
7. In the **Action Data** field, enter the description to appear on the telephone display.
8. Click **OK**.
9. Click to save the configuration file.

5.6.2 Setting the Auto Restart Delay

By default, the system automatically restarts a paused recording after 15 seconds.

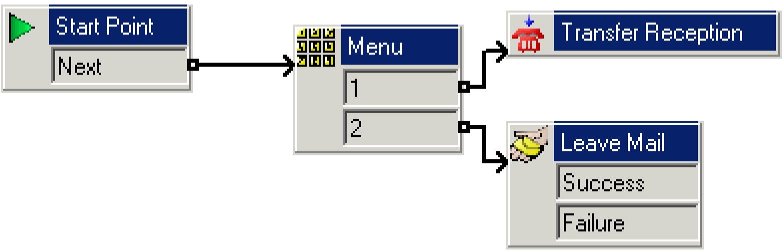
To set the auto restart delay for paused recording:

1. Start IP Office Manager and load the configuration from the primary server.
2. In the Navigation pane, click **System**.
3. Click the **Voicemail** tab.
4. Set **Auto Restart Paused Recording** to the required time in seconds or never.
5. Save the configuration back to the IP Office system.

5.7 Creating a Call Flow

A call flow can be created in Voicemail Pro that enables a caller to leave messages in Contact Recorder for IP Office. When the call flow is used all voicemail messages are routed to the Contact Recorder for IP Office 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 Contact Recorder for IP Office Voice recording Library. The exercise is only an example. 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.
    a. Click the Start Point action to select it.
    b. Click the **Basic Actions** icon and select **Menu**.
    c. Click the details pane to place the action.
5. The menu options 1, and 2 need to be added.
    a. Right-click the Menu action and select Properties.
    b. In the **Touch Tones** tab, check ***1*** and ***2*** and click **OK**.
6. The transfer locations of Reception group need to be added.
    a. Click the **Telephony Actions** icon and select **Transfer**.
    b. Click in the details pane to place the action.
    c. Open the Properties for the **Transfer** action by double-clicking on the **Transfer** action.
    d. In the **General** tab change the **Token Name** to ***Transfer Reception***.
    e. 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.
    f. Select **OK**.
7. A **Leave Mail** action needs to be added.
    a. Click the **Mailbox Actions** icon and select **Leave Mail**.
    b. Click the details pane to place the action.
    c. Open the properties for the **Leave Mail** action by double clicking on the **Leave Mail** action.
    d. In the **Specific** tab select the **VRL** option. This will route all voicemails to the Contact Recorder for IP Office Voice Recording Library.
    e. Select **OK**.
8. The actions need to be connected.
    a. Click the **Connection** icon on the toolbar and connect the Start Point **Next** result and drag to the **Menu**.
    b. The options in the **Menu** need to be connected to the transfer locations. Click the **Connection** icon and connect **1** to **Transfer Reception**.
    c. 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, 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.

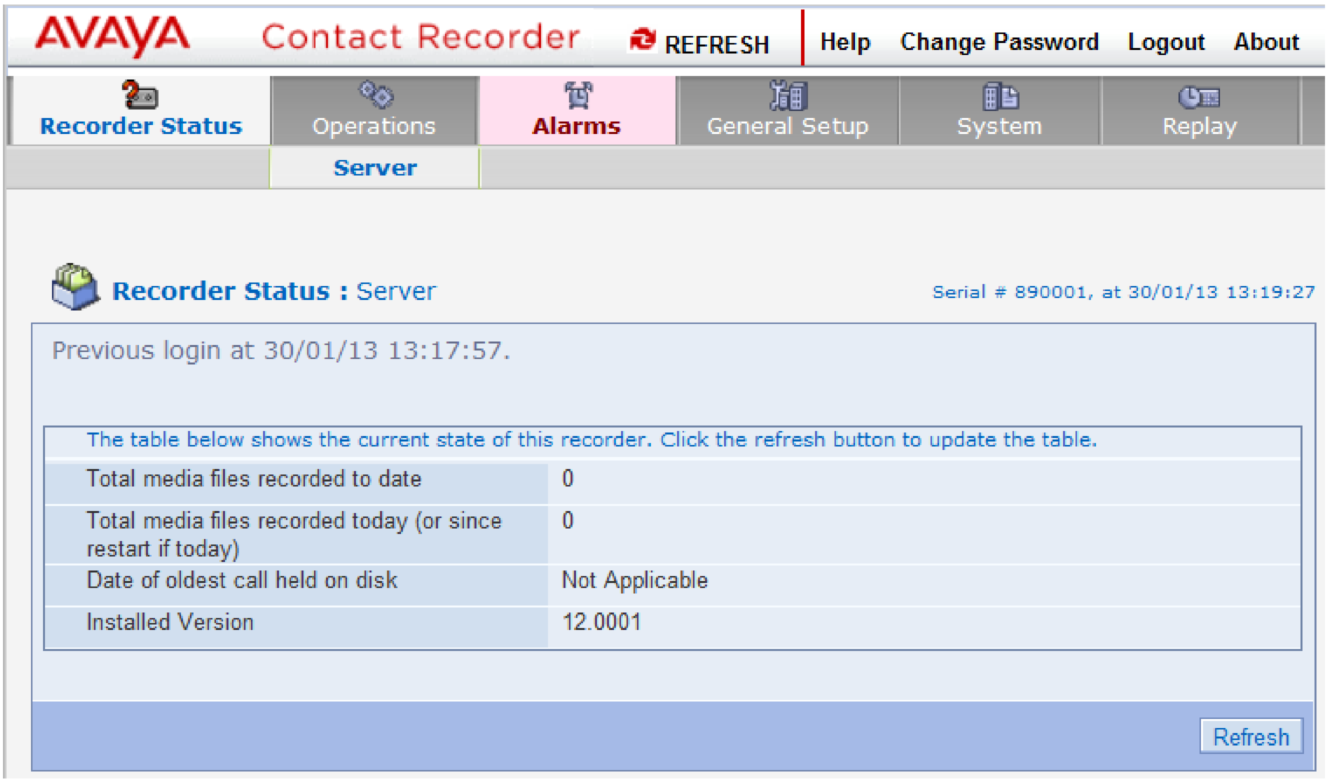
Field	Enter
Code	*90
Feature	Voicemail Collect
Telephone Number	"AutoAttend"
Line Group ID	0
Locale	[leave blank]
Force Account Code	[leave blank]

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.
4. Press ***1*** and you should be transferred to the Reception group (in this example, extension 301).
5. Press ***2*** and you should be transferred to voicemail. Leave a message.
6. Check in Contact Recorder for IP Office that the message you recorded has been stored.

Chapter 6.
Administrative Tasks

6. Administrative Tasks

The System Administration tabs are used to maintain, update, and monitor your system. Contact Recorder for IP Office includes an administration application that is accessible only to specified administrators. Use the tabs in this web application to maintain, update, and monitor the system.



Recorder Status : Server

Serial # 890001, at 30/01/13 13:19:27

Previous login at 30/01/13 13:17:57.

The table below shows the current state of this recorder. Click the refresh button to update the table.

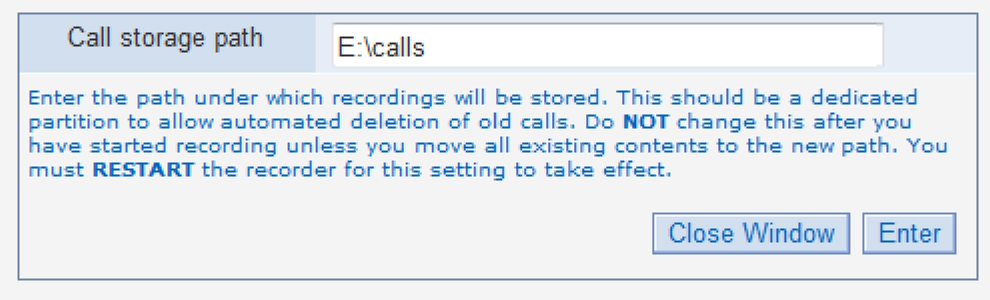
Total media files recorded to date	0
Total media files recorded today (or since restart if today)	0
Date of oldest call held on disk	Not Applicable
Installed Version	12.0001

The two rows of tabs at the top of each page provide access to the various configuration settings.

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 **Alarms** tab is displayed in red, it means that at least one alarm has been raised and has not yet been cleared. Click on the tab to view the new alarms.
- **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.



Call storage path: E:\calls

Enter the path under which recordings will be stored. This should be a dedicated partition to allow automated deletion of old calls. Do **NOT** change this after you have started recording unless you move all existing contents to the new path. You must **RESTART** the recorder for this setting to take effect.

6.1 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** tab 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.
  - Contact Recorder for IP Office is designed to run with the partition holding the recordings almost full. This maximizes the number of recordings that are available online to you.
  - The disk manager thread of Contact Recorder for IP Office deletes 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 log files of Contact Recorder for IP Office (***acr.log***), you may also want to check for server errors in ***\tomcat7\logs***.

Look at all error and warning messages, not just those generated by the Contact Recorder for IP Office services.

- **System Status**
  Some problems are not easily trapped automatically. You must check the system status regularly on the **Recorder Status > Server** tab. 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...
Contact Recorder for IP Office Server		
Total media files recorded today.	>0	Either no one is using recording or there is a major problem.
Date of oldest call held on disk.	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.

- **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**
  Check the status and available capacity of all archive destinations on the **Operations > Archive** tab. If using DVD+RW archive, check the current disk's available capacity. Change the disk if the available capacity is less than 0.8GB. Total disk capacity allowed is 4.7GB. 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 Contact Recorder for IP Office.

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.

6.2 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 Contact Recorder for IP Office 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 Contact Recorder for IP Office 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 Contact Recorder for IP Office to ensure the correct calls only are being recorded. If you do not have a dedicated partition for your recordings, check what else is using space and remove or purge these files if possible. 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. The recorder will warn you should the space on a partition it is using falls below 500MB. Accumulated temporary files or log files that may need to be manually purged can cause this drop in available space.
- **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 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 Contact Recorder for IP Office 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.

6.3 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 the system and database partitions of 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.

6.4 Backing Up the Database

You can back up the Contact Recorder for IP Office database using a command line procedure. The procedure uses the PostgreSQL ***pg_dump*** command to extract data from the database. You must execute the command while the database is running. Do not stop the Contact Recorder for IP Office service or the PostgreSQL service before you proceed.

1. Log in as the *root* user.
2. Enter the command ***su - postgres*** to get the user rights of the database owner.
3. Enter the command ***pg_dump --format=c --compress=5 eware > backupfile*** to create the backup file for the database.

Note:

1. Specify complete path for the backup file and move the backup file to an external media or another computer.
2. Compression level is a value 0 through 9:
   - A small compression level results in a faster backup process with the utilization of fewer resources but a larger backup file.
   - A high compression level results in a slower backup process with the utilization of more resources but a smaller backup file.
   - Level 0 means no compression.
   - Level 5, the default, is the moderate compression level.

6.5 Restoring the Database

To erase the default database that is created at the installation of Contact Recorder for IP Office and replace it with the database that you have backed up 54 earlier, proceed as follows:

1. Log in as the *root* user.
2. Stop the Contact Recorder for IP Office service.
3. Enter the command ***su - postgres*** to get the user rights of the database owner.
4. Enter the command ***dropdb eware*** to erase the default database.
5. Enter the command ***createdb eware*** to create an instance of postgreSQL database.
6. Enter the command ***pg_restore --dbname=eware --use-set-session-authorization <backupfile>*** to restore data from the backup file ***<backupfile>*** to the database ***eware***.
7. Start the Contact Recorder for IP Office service.

6.6 Backing Up The Voice Recordings

Contact Recorder for IP Office stores voice recordings in the path you specify on the **General Setup > Recorder** tab. This path quickly fills up with thousands of directories and millions of files. When the partition is nearly full, the server maintains only a tiny amount of free space on the partition by deleting batches of 100 recordings (and the directory that catalogued them) at a time, as it requires space for new recordings. This causes a huge churn of files every day on a large system.

Limitations of Full and Incremental Backup Procedures

On a Contact Recorder for IP Office server, two issues make it difficult to back up voice files:

- the file size
- the rate of change of the voice recording files

Together these issues make most traditional backup strategies for the voice recordings ineffective. Traditional full backups are required more frequently than normal, which wastes backup media, and incremental backups are larger than expected because of the large churn of creations and deletions. For a backup strategy to be successful, it must be easy to restore the data if necessary.

Traditional "full plus incremental" backup solutions are ineffective because these backup solutions cannot complete fully. In the event of a complete disk failure, the process restores the full backup, then the increments in chronological order. This procedure immediately overflows the disk when the restore program tries to create the increments because the partition holding the call is almost at capacity to begin with. The full plus incremental backup will fail because it runs out of disk space before it has processed the "removals" part of the procedure. Traditional restore procedures are also ineffective. If you use this solution to review a recording that has been deleted because of age, the Contact Recorder for IP Office service immediately deletes any restored file as part of its disk maintenance. Finally, traditional backup solutions often require locks on the disk while they work. This can seriously disrupt the working of the recorder.

This simplest and cheapest strategy for backing up the recordings is to use the built in the archive mechanism. This is not only fully integrated with the workings of the recorder and its search and replay mechanism, but also is well suited to the incremental recording required for a recorder. As recordings are added to the calls path they are copied to DVD or a file-share in an efficient manner. Even when they have been deleted from the hard disk, the recorder is still able to play them because it knows which archive they are on and can replay directly from DVD or file-share, without an intervening ' restoration' step. Each DVD holds about 4GB, which means it can hold about 150 channel-days worth of recordings from a busy system. For less than dollar a day, even a busy system can have limitless backup.

If you configure a NAS archive, the system stores the copies of all recordings in the archive. If the Contact Recorder has to be replaced, the new Contact Recorder can access the existing recordings from that archive using the restored database.

6.7 Moving to a New PC

If it becomes necessary to move the Contact Recorder for IP Office server to a new PC, use the following procedure:

1. Take backup of call details database 54.
2. Install Contact Recorder for IP Office on the new server PC.
3. Restore the call details database 54 to new machine.
4. Copy the calls folder used by the previous server to the location (**General Setup > Recorder | Call storage path**) set for the new server.

Chapter 7.
Search and Replay

7. Search and Replay

Contact Recorder for IP Office performs replay of recordings by means of a browser-based application that is accessible with Internet Explorer (32-bit) Release 8.0 and later. 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.

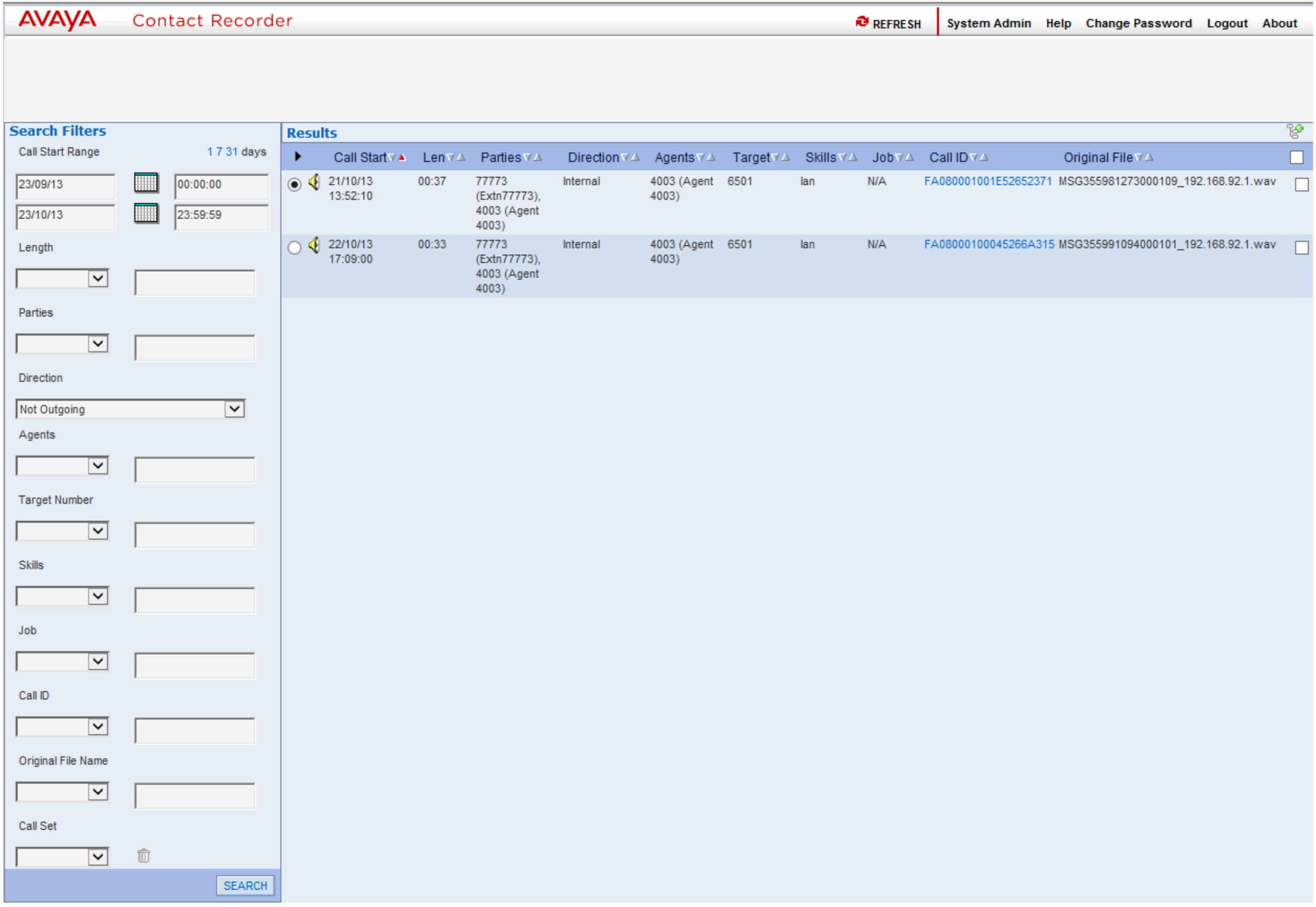
Note:

- Contact Recorder does not support Internet Explorer 11.

7.1 Accessing Search and Replay

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

1. Enter the URL for the Contact Recorder for IP Office server in the form: ***http://myservername:9888***, replacing ***myservername*** with the IP address or host name of the Contact Recorder for IP Office. To use the host name, it must be entered into your DNS server.
2. If you not are already logged in as a Windows user that Contact Recorder for IP Office recognizes, enter the username and temporary password provided by the Contact Recorder for IP Office administrator. You will be prompted to change the password at the first login.
3. If your user account has administration privileges, the **Recorder Status > Server** tab is displayed when you log in. Use the tab at the top right to access the **Replay** page. The **Replay** page also provides a **System Admin** link to return to the administration pages. Otherwise, once you log in, the **Replay** page is displayed:



Call Start Range: 23/09/13 00:00:00 – 23/10/13 23:59:59

Direction: Not Outgoing

	Call Start	Len	Parties	Direction	Agents	Target	Skills	Job	Call ID	Original File	☐
●	21/10/13 13:52:10	00:37	77773 (Extn77773), 4003 (Agent 4003)	Internal	4003 (Agent 4003)	6501	Ian	N/A	FA080001001E52652371	MSG355981273000109_192.168.92.1.wav	☐
○	22/10/13 17:09:00	00:33	77773 (Extn77773), 4003 (Agent 4003)	Internal	4003 (Agent 4003)	6501	Ian	N/A	FA08000100045266A315	MSG355991094000101_192.168.92.1.wav	☐

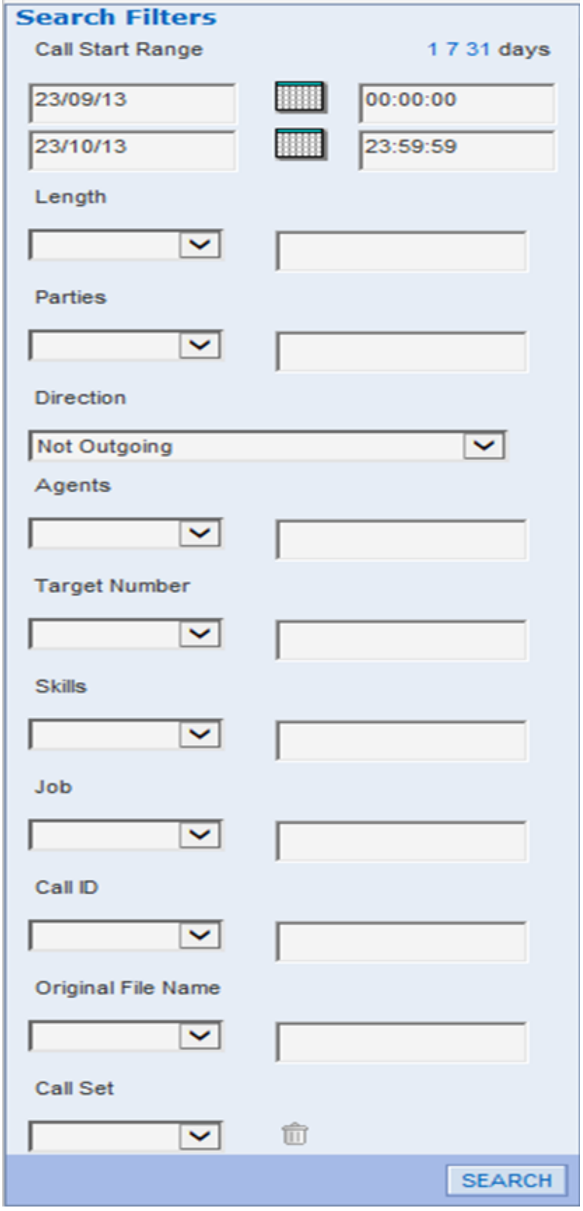
7.2 Searching for Calls

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
1 7 31 days
23/09/13
00:00:00
23/10/13
23:59:59
Length
Parties
Direction
Not Outgoing
Agents
Target Number
Skills
Job
Call ID
Original File Name
Call Set
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)
Any of	Contains any of the entered comma-separated strings (string fields only)
None of	Contains none of the entered comma-separated strings (string fields only)

3. In the corresponding text box, enter the specific criterion, such as 3.

4. Select **Search** to execute the specified search.

7.3 Viewing Results

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

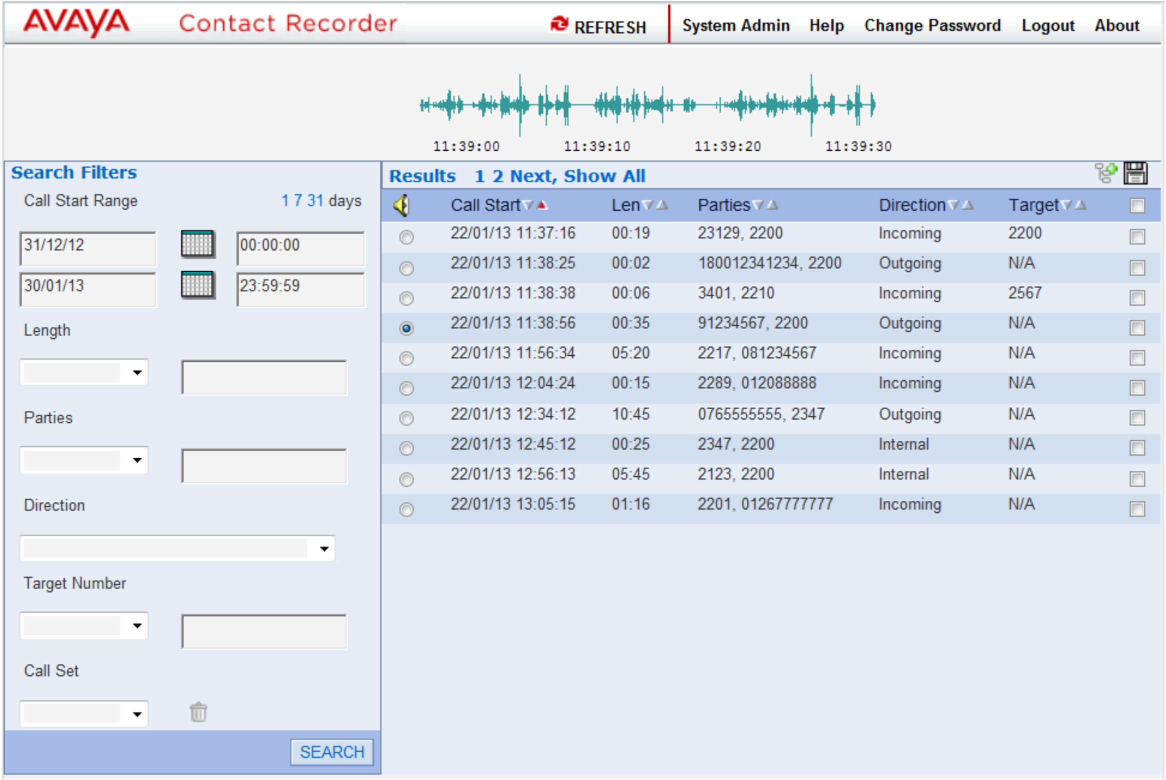
- Call start time.
- Call length in minutes and seconds.
- Name (where available) and number of the parties on the call.
- Call direction - internal, incoming, or outgoing.
- Agents - the agent taking the call, where calls are placed by an outbound dialer.
- Target number (the number dialed which may not be the same as the number that answered the call).
- Skills - the skill set used to route the call, if any.
- Job - the outbound dialer "job" that the call is part of, if any.
- Call ID - the unique identifier assigned to the call by IP Office.
- Original File Name - the file name used by VMPro when transferring the file to Contact Recorder.

Note:

- Contact Recorder populates the Skills and Agent details only for the inbound/outbound contact center calls. For other calls, Contact Recorder displays the target name and the answering party details respectively.
- When you use Contact Recorder to manage Outbound Contact Express recordings, the customer information on an outbound call is captured in the Parties column.
- When you use Contact Recorder to manage Outbound Contact Express recordings, some recordings might have the Agents information hidden with 31 asterisk symbols (*******************************). To display and replay such recordings, you must update the Search and Replay Rights for the account to include the agents that are represented by 31 asterisks. You must add exactly 31 asterisks.

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 red arrow indicates the active sort field and direction.



Call Start Range 1 7 31 days

31/12/12 00:00:00

30/01/13 23:59:59

Length

Parties

Direction

Target Number

Call Set

Results 1 2 Next, Show All

	Call Start	Len	Parties	Direction	Target	☐
○	22/01/13 11:37:16	00:19	23129, 2200	Incoming	2200	☐
○	22/01/13 11:38:25	00:02	180012341234, 2200	Outgoing	N/A	☐
○	22/01/13 11:38:38	00:06	3401, 2210	Incoming	2567	☐
●	22/01/13 11:38:56	00:35	91234567, 2200	Outgoing	N/A	☐
○	22/01/13 11:56:34	05:20	2217, 081234567	Incoming	N/A	☐
○	22/01/13 12:04:24	00:15	2289, 012088888	Incoming	N/A	☐
○	22/01/13 12:34:12	10:45	0765555555, 2347	Outgoing	N/A	☐
○	22/01/13 12:45:12	00:25	2347, 2200	Internal	N/A	☐
○	22/01/13 12:56:13	05:45	2123, 2200	Internal	N/A	☐
○	22/01/13 13:05:15	01:16	2201, 01267777777	Incoming	N/A	☐

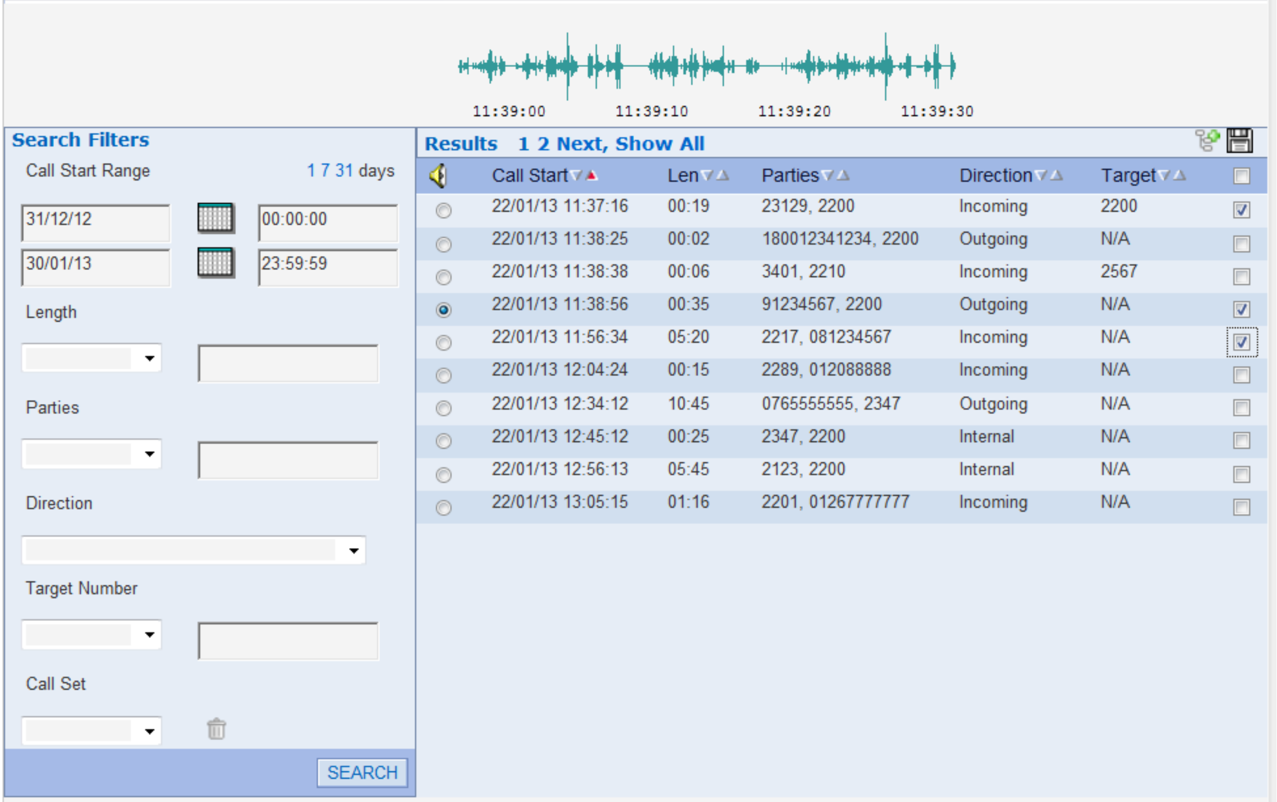
- **Note**
  By default Contact Recorder for IP Office only returns the first 100 matching call records. This limit can be increased, however setting the limit too high may slow down the return of results. To set a limit, add the string ***viewerx.limit=N*** to the file ***acr.properties*** 26, replacing ***N*** with the maximum number of records required.

7.4 Call Sets

Call sets allow you to save the results of a search and to then be able to re-access that set of calls by name. You can then remove files from the call set or use other searches to add additional calls to the call set.

Creating a call set

1. Perform a search.
2. Within the results, for those calls that you want included in the call set, select the check box on the right.

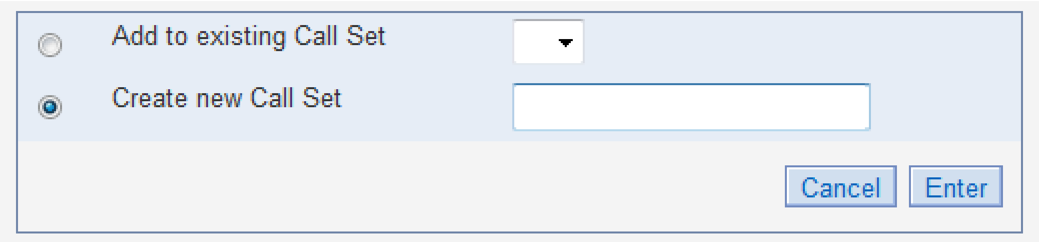

AVAYA
Contact Recorder
REFRESH
System Admin
Help
Change Password
Logout
About
11:39:00
11:39:10
11:39:20
11:39:30
Search Filters
Call Start Range
1 7 31 days
Length
Parties
Direction
Target Number
Call Set
SEARCH
Results 1 2 Next, Show All

31/12/12	00:00:00
30/01/13	23:59:59

	Call Start	Len	Parties	Direction	Target	☐
○	22/01/13 11:37:16	00:19	23129, 2200	Incoming	2200	☑
○	22/01/13 11:38:25	00:02	180012341234, 2200	Outgoing	N/A	☐
○	22/01/13 11:38:38	00:06	3401, 2210	Incoming	2567	☐
●	22/01/13 11:38:56	00:35	91234567, 2200	Outgoing	N/A	☑
○	22/01/13 11:56:34	05:20	2217, 081234567	Incoming	N/A	☑
○	22/01/13 12:04:24	00:15	2289, 012088888	Incoming	N/A	☐
○	22/01/13 12:34:12	10:45	0765555555, 2347	Outgoing	N/A	☐
○	22/01/13 12:45:12	00:25	2347, 2200	Internal	N/A	☐
○	22/01/13 12:56:13	05:45	2123, 2200	Internal	N/A	☐
○	22/01/13 13:05:15	01:16	2201, 01267777777	Incoming	N/A	☐

- **Note:**
  The Search and Replay screenshots in this document show a system configured with a typical subset of search filters and results columns. Your system might show more or fewer fields of the full set shown in Accessing Search and Replay 59.

3. Click on the icon.


Cancel
Enter

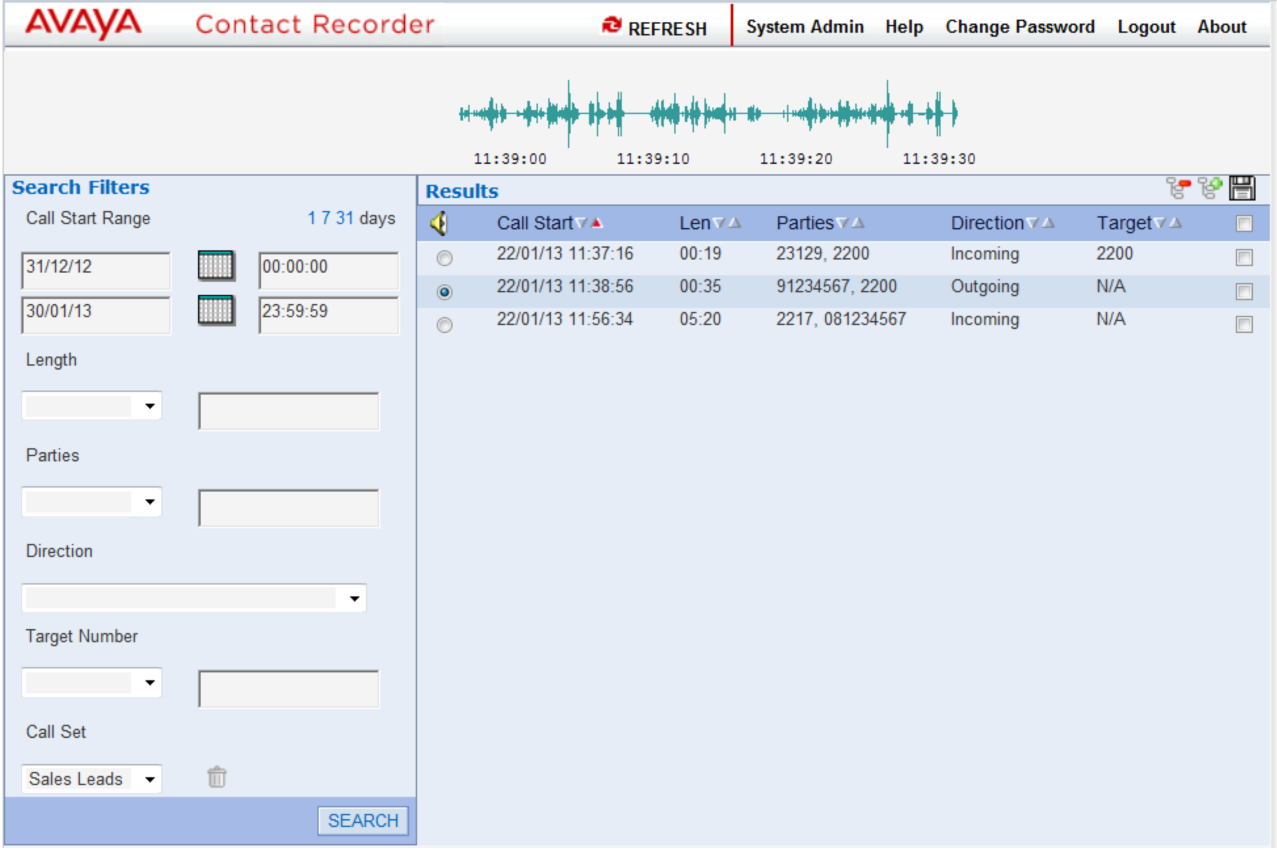
○ Add to existing Call Set

● Create new Call Set

- To add the selected calls to an existing call set, select **Add to existing Call Set** and use the drop down list to select the call set. Click **Enter**.
- To add the selected calls to a new call set, select **Create new Call Set**. Enter a name for the call set and click **Enter**.

Viewing and Editing a Call Set

1. To display an existing call set, select the call set name from the **Call Set** drop down at the bottom left of the screen and click **SEARCH**. The calls in that call set are then displayed.



AVAYA
Contact Recorder
REFRESH
System Admin
Help
Change Password
Logout
About
11:39:00
11:39:10
11:39:20
11:39:30
Search Filters
Results
SEARCH

Call Start Range: 1 7 31 days
31/12/12 00:00:00
30/01/13 23:59:59
Length
Parties
Direction
Target Number
Call Set: Sales Leads

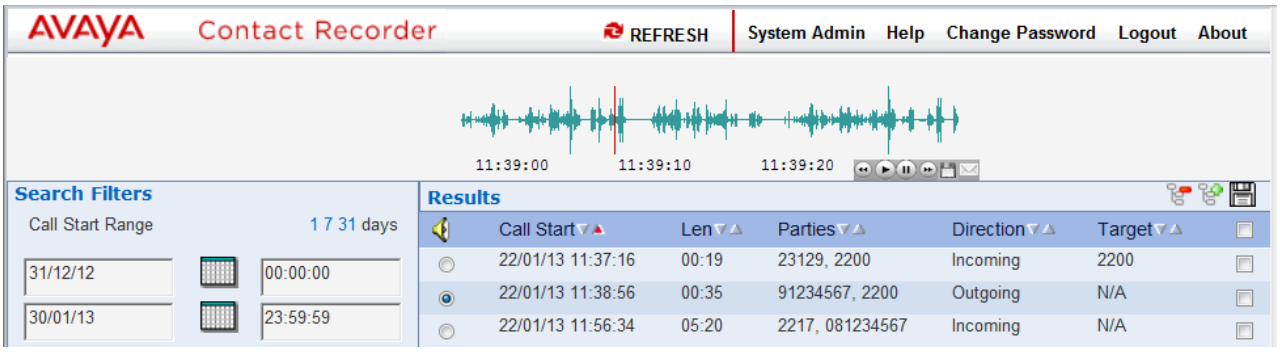
	Call Start	Len	Parties	Direction	Target	☐
○	22/01/13 11:37:16	00:19	23129, 2200	Incoming	2200	☐
●	22/01/13 11:38:56	00:35	91234567, 2200	Outgoing	N/A	☐
○	22/01/13 11:56:34	05:20	2217, 081234567	Incoming	N/A	☐

2. To remove calls from the call set, select the check box next to the calls to be removed and then click on the icon.

7.5 Playing a Call

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

1. Click the radio button to the left of the call you want to play, ie the column with the ▶ icon.
2. The audio is retrieved from the server and an audio wave form is shown at the top of the screen. Audio retrieval may take a few seconds to a few minutes depending on the size of the file.



Call Start Range 1 7 31 days

31/12/12	00:00:00
30/01/13	23:59:59

	Call Start	Len	Parties	Direction	Target	☐
○	22/01/13 11:37:16	00:19	23129, 2200	Incoming	2200	☐
●	22/01/13 11:38:56	00:35	91234567, 2200	Outgoing	N/A	☐
○	22/01/13 11:56:34	05:20	2217, 081234567	Incoming	N/A	☐

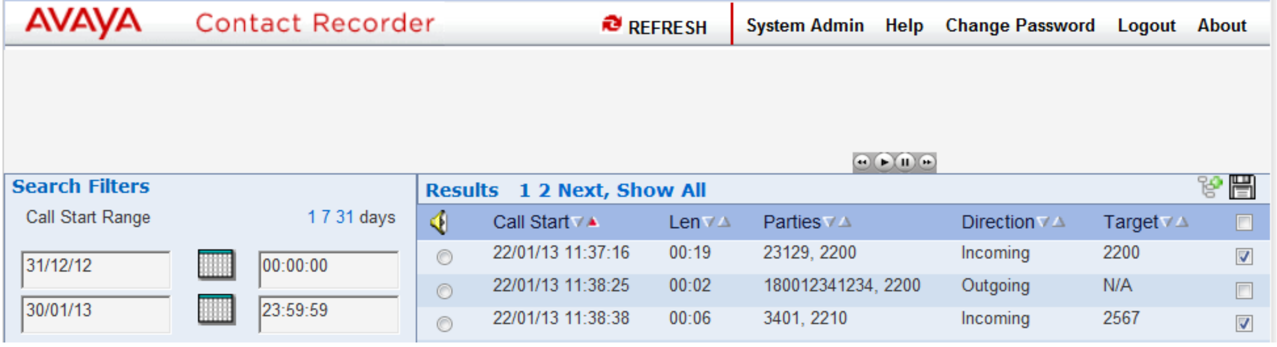
3. Click on the audio waveform to play it. Click anywhere in the audio waveform to play from that point in the call. Click just to the left of the audio waveform to play from the very beginning of the call.
4. Placing your mouse over the audio waveform displays a small control panel that you can use to control playback and to perform other actions:

- **Skip back.**
- **Play.**
- **Pause.**
- **Skip forwards.**
- The following additional options are only available for users who have **May export recordings as files?** enabled in their user account settings. These users can also export multiple calls 66 at the same time.
  - **Save as .wav file.**
  - **Email as .wav file.**

7.6 Exporting Multiple Calls

Users who have the **May export recordings as files?** option enabled in their account can export calls. They can export an individual call while playing it. 65 They can also export multiple calls, which are placed in a folder of your choice, along with an html file that shows the details of the recordings and allows you to play them from within a browser.

1. Perform a search.
2. Within the results, for those calls that you want included in the export, select the check box on the right.


AVAYA
Contact Recorder
REFRESH
System Admin
Help
Change Password
Logout
About
Search Filters
Results 1 2 Next, Show All

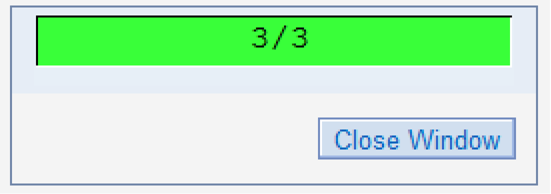
Call Start Range 1 7 31 days

31/12/12 00:00:00

30/01/13 23:59:59

	Call Start	Len	Parties	Direction	Target	☐
○	22/01/13 11:37:16	00:19	23129, 2200	Incoming	2200	☑
○	22/01/13 11:38:25	00:02	180012341234, 2200	Outgoing	N/A	☐
○	22/01/13 11:38:38	00:06	3401, 2210	Incoming	2567	☑

3. Click on the icon.
   A menu will appear for you to browse to the folder location where you want the files exported.
4. Select a location and click **OK**.
5. The progress of the export is displayed.

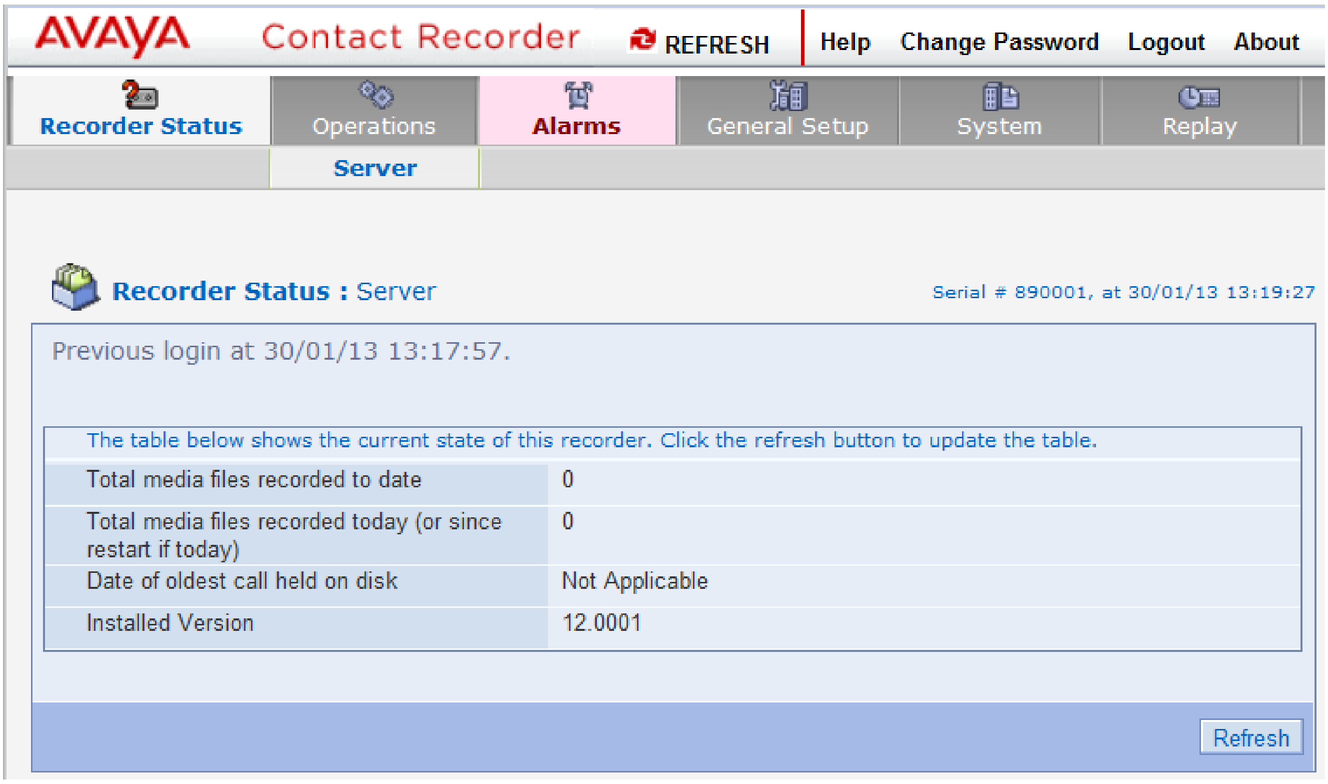

3/3
Close Window

Chapter 8.
Appendix

8. Appendix

8.1 Version

To discover the version of Contact Recorder for IP Office that is installed click on the **Recorder Status** tab at the top left of the Administration screens. The **Installed Version** is displayed at the end of the table.


AVAYA
Contact Recorder
REFRESH
Help
Change Password
Logout
About
Recorder Status
Operations
Alarms
General Setup
System
Replay
Server
Recorder Status : Server
Serial # 890001, at 30/01/13 13:19:27
Refresh

Previous login at 30/01/13 13:17:57.

The table below shows the current state of this recorder. Click the refresh button to update the table.

Total media files recorded to date	0
Total media files recorded today (or since restart if today)	0
Date of oldest call held on disk	Not Applicable
Installed Version	12.0001

8.2 Alarms

The system will automatically generate alarms showing system warnings. Alarms are logged in the database of Contact Recorder for IP Office and held for a month before being purged.

The administrator can define specific email addresses to which alarms are automatically forwarded. 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.

When configured, the system sends an email message each time an alarm occurs or is cleared up to a maximum of every 10 minutes. It also sends an email once a night to let you know that it is still operating. Failure to receive the overnight 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 Contact Recorder for IP Office server and reported in the Contact Recorder for IP Office 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	**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.
Major	**Job thread XXX stalled.**	XXX references one of the configured archives.	Check for the surrounding error messages that can explain why archiving has stalled. Check the status of the archive on the **Operations** > **Archive** page. Install a fresh disk, if required.
Info	**Job thread XXX running OK.**	XXX references on of the configured archives.	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 Contact Recorder for IP Office is installed. Verify that the PostgreSQL service is running.
Minor	**Failed to delete file XXX. Reason: YYY.**	–	Check the Voicemail Pro's Voice Recording Library path; as long as the call is playable from Contact Recorder for IP Office, 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	**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 the system, no action is required. Otherwise, find out why. Power failure?
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.

8.3 Trouble Shooting

8.3.1 Trouble Shooting Tools

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 nightly message has not been received.

- **Alarms 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 Contact Recorder for IP Office server:
  - ***/opt/witness/logs***
  - ***/opt/witness/tomcat7/logs***

The following table gives more details about these log files.

Log File	Naming convention	Default Level	Levels Supported	To change level
acr.log	Current day's file is acr.log and previous days are date stamped.	INFO	DEBUG, INFO, WARN, ERROR	a) Permanently from next time service starts: 1. Edit the file (or create it if it does not exist) ***acr. properties*** 26 2. Add the line ***log.level=DEBUG***, replacing ***DEBUG*** with any of the levels supported as shown to the left. 3. Reboot the server or restart the Contact Recorder for IP Office service to have this setting take effect. b) Temporarily, until you change it again or the service restarts: 1. Log in to the admin application. 2. Go to: ***http://myservername:9888/log?level=DEBUG*** replacing ***DEBUG*** with any of the levels supported as shown to the left.

8.3.2 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 Contact Recorder for IP Office.bigco.com.·
- Use the browser on the server itself to access http://localhost:9888. 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 'Contact Recorder for IP Office'. Check that the service Contact Recorder for IP Office is running.
- Verify that the PostgreSQL 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.

8.3.3 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 Contact Recorder for IP Office to set up a standard mail client.
2. Send a message using the account specified to prove that the settings in Contact Recorder for IP Office 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 Contact Recorder for IP Office is not sending email messages, it may not be able to access the SMTP server or POP server. Check the network connections to the Contact Recorder for IP Office.

8.3.4 Contact Recorder for IP Office to Voicemail Pro Problems

Contact Recorder for IP Office continually polls the folder into which Voicemail Pro places recordings. If there seems to be a problem between Contact Recorder for IP Office and Voicemail Pro:

- Verify that the **Handover Folder** setting on the **General Setup > Record** tab is set to the folder that Voicemail Pro is using.
- 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 Contact Recorder for IP Office service can read and write to this share.

8.3.5 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 Contact Recorder for IP Office:
  - 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 browser security settings may be too restrictive.

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**.
- On Windows Vista you must also clear the **Enable Protected Mode** checkbox.

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 user name and 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 the PostgreSQL database 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 Folder** (as defined on the **General Setup > Recorder**) tab.

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 pops up if you hold the mouse cursor just to the right of the radio button used to select the recording.) 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 Contact Recorder for IP Office 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 Contact Recorder for IP Office.
   - Request the call from the Contact Recorder for IP Office 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:
   a. On the **Recorder Status > Server** tab of the Contact Recorder for IP Office System Administration application, look at the counts for total media files recorded and media files recorded today.
   b. Make a test recording.
   c. Complete the recording and hang up.
   d. Return to the **Recorder Status > Server** tab and note the new **Total media files** count and daily count. These counts should have increased by at least one, the recording that you just made. If the counts have increased, the Contact Recorder for IP Office 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 Contact Recorder for IP Office 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 (as defined on the **General Setup > Recorder** tab) 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 **General Setup > Recorder** configuration page to adjust this.

- Check that the Contact Recorder for IP Office service is running. (The service runs as "cscm" on Linux.)

- Check for messages in the web log files.

- Reboot the Contact Recorder for IP Office 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.

8.4 Advanced Security

8.4.1 Installing Unlimited Strength Encryption

To support key sizes larger than 128 bits, you will need to replace the standard Java Jurisdiction Policy Files using the following instructions:

1. Using your browser, go to the following link: http://www.oracle.com/technetwork/java/javase/downloads/index.html.
2. Follow the link entitled: **Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 7** at the bottom of the page.
3. Download and unzip the files.
4. Follow the instructions in the readme.txt. (The path for installation on Linux is ***/usr/lib/jvm/jre-openjdk/lib/security***.)
5. You should note the instruction to back up the existing jars that will be replaced.

8.4.2 Changing the Tomcat Port Numbers

You can change the default http and https ports (9888 and 9444 respectively) by editing ***<install_directory>/tomcat7/server.xml***.

Locate the two **Connector** elements on roughly lines 20 and 30 and change 9888 to the chosen plain port number and 9444 to the chosen secure port number.

You must also set the following property in the properties file acr.localport=nnnn specifying the replacement for 9888.

- **Note:** If you change the https port from the default of 9444 and you do not allow http access, you must also set the following line in the properties file so that attempts to use http are redirected to the correct https socket.

  https.socket=nnnn

The server.xml may be overwritten on subsequent upgrades. You should keep a copy of the file after editing it so that this can be compared with any changed version and the appropriate set of merged changes determined after the upgrade.

8.4.3 Installing a Signed SSL Certificate

If you want to install your own SSL certificate, you must replace the certificate distributed with the application. Your replacement certificate must be specific to your installed server.

Selecting a Certificate Authority (CA)

If you do not already use a certificate authority, you can use:

- http://www.freessl.com/starterssl/starterssl.html
  FreeSSL requires that the web server has a fully qualified domain name (e.g. contactrecorder.bigcorp.com or contactrecorder.division.bigcorp.com) and needs to be able to send an email to an address like ssladmin@bigcorp.com or administrator@division.bigcorp.com. The list of addresses can be found on their website, and it includes admin, ssladmin, root, and administrator. This provides a free 30 day trial after which you will have to purchase RapidSSL.

- http://www.instantssl.com
  InstantSSL is more flexible and allows intranet addresses (such as WINS names and IP addresses) as well as fully qualified domain names.

Backing up the Keystore file

In the instructions which follow, replace ***<installdir>*** with the location into which you installed Contact Recorder for IP Office.

The certificates and keys are stored beneath your installation folder in the file:

<installdir>/keystore/keystore.jks

Because this file contains the original, distributed certificate, it is important to make a backup of it. You will delete this file during the remaining steps. Should it be necessary to restore the original certificate, you can copy the backup to the original filename.

Creating the new Certificate

If you would like to test this implementation, you can practice this procedure with a certificate authority's 30-day trial certificate. Then, to implement real certificates, you can start over from this point.

1. Create a new certificate with the real URL of Contact Recorder for IP Office.
2. Log onto the server and change directory as follows:

   cd <installdir>/keystore

3. Remove the original keystore file

   rm keystore.jks

4. Run the java keytool utility with

   /javadirectory/bin/keytool -genkey -keystore keystore.jks -alias tomcat -keyalg RSA -keysize 1024

5. Fill in the Keytool prompts with the following:

   Password: Contact5tor3

   Note: You must type this password, exactly as shown. It is case sensitive.

   a. First & Last Name: enter the FQDN, IP address or intranet name
   b. Organizational Unit: enter your division
   c. Organization: enter your company name
   d. City/Location: enter your location
   e. State/Province: enter your state
   f. Country Code: enter the ISO 2 letter code for your country (for example, GB is the code for United Kingdom)

6. Enter yes if the information is correct.
7. Hit enter when prompted for the second password.
8. Restart the Contact Recorder for IP Office service.
9. Access the Administration pages using HTTPS.
10. Check that the certificate matches the information entered.
11. Double click the padlock icon. Internet Explorer should warn you that the certificate is unsigned. However, it should no longer display a message that indicates the certificate does not match the web server name.

Tip: If you do get a warning that the certificate does not match, check that the Common Name matches the URL. Double click the padlock, select the details tab, and click the Subject line. This displays the Common Name.

Generating a Certificate Signing Request

You need a Certificate Signing Request (CSR) as the first step of the signing process. When you have it, paste it into the Certificate Authority's web page. To generate a CSR:

1. Re-run the keytool command

   ```
   /javadirectory/bin/keytool -certreq -keystore keystore.jks -alias tomcat
   ```

2. Enter the password - which is Contact5tor3.
3. Copy and paste the output into the CA's web page. (Include the BEGIN and END lines.)
4. Complete the verification process
5. Reply to the verification emails and other verification steps until you obtain a signed certificate back from the CA.

Importing the CA's certificates

Before you can import your certificate reply, you need to import the certificate authority's root certificate and any intermediate certificates between their root and your certificate.

To acquire these certificates:

1. Download these certificates from the certificate authority's website.
2. Save the root as rcert.crt and any intermediate as icert.crt. If you have more than one intermediate certificate, give them separate filenames.

To import all your certificates:

1. Import the root certificate by running keytool:

   ```
   /javadirectory/bin/keytool -import -keystore keystore.jks -alias root -file rcert.crt
   ```

2. Enter the password - which is Contact5tor3.
3. Import the intermediate (if required).

   ```
   /javadirectory/bin/keytool -import -keystore keystore.jks -alias inter -file icert.crt
   ```

   - If you have more than one intermediate certificate, import them as inter1, etc.

4. Import your signed certificate.
5. Save the file the CA sent as cert.crt.
6. Import with the keytool.

   ```
   /javadirectory/bin/keytool -import -keystore keystore.jks -alias tomcat -file cert.crt
   ```

7. Restart the Contact Recorder for IP Office service.
8. Access the administration pages using https.
9. Double click the padlock icon and ensure that Internet Explorer no longer displays a message that the certificate is unsigned.

Backing up the keystore file

The keystore file now contains:

- the random private key that is unique to this web server
- the signed certificate you just paid for

These two are linked and cannot be regenerated, so it is important to back up the keystore file. If either one of these components is lost, you must regenerate the certificate and pay again to get it signed.

8.4.4 Encrypting Properties File Entries

Use the WitsBSUserCredentials tool to encrypt your passwords so that you can save the passwords safely in properties files. You can download the WitsBSUserCredentials tool from the Avaya support site at https://support.avaya.com and can use the tool, for example, to change the postgresql password.

To encrypt a password for use in a properties file

1. Open the WitsBSUserCredentials tool.
2. Select **Other** in the application type field.
3. Enter a dummy username (the username is not used) and the password to be encrypted.
4. Use the encrypted password in the properties file.

Chapter 9.
Document History

9. Document History

1st July 2014	02m	- Removal of references to SAN (Storage Attached Network) as a supported file storage option.

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