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1. Introduction

1.1. Product Overview

CallRecorder is an easy to use VOIP call recording solution that implements the corporate call recording keeping policy and provides secure and easy access to call records.

It allows managers to review and score phone calls according to their work group. Users are empowered by providing them with accurate records of their calls.

CallRecorder is a self-contained software recorder which includes everything necessary to record VoIP calls (besides the Operating System and server hardware): database, web server, Java, etc.

1.2. Features and Benefits

- **Automatically Record Phone Calls** - Damage control and increased accountability in your personnel, suppliers and customers.
- **Manual (On-Demand) Control**: recording can also be initiated by the user using the browser or IP Phone Service. Both Full Call and Partial Call recording modes are supported.
- **Multiple Recording Methods**: CallRecorder supports both port mirroring (SPAN) and forked recording (SPANless). Hardware recording coming soon!
- **Monitor live calls**: Listen to a call in progress, through the browser or IP phone service. You can also whisper to the agent without being heard by the external party (IP phone service).
- **Browse Recordings by Agent**: Superb browsing interface tracks agents across multiple phone numbers.
- **Search** by caller ids, phone numbers, annotations, time, description, tags, etc.
- **Replay, Annotate and e-Mail** phone call recordings. Easy, secure access to call recordings, using a web audio player, desktop audio player or IP Phone Service.
- **Tagging & Searching** calls with customized hierarchical tags has never been easier.
- **Call Scoring & Custom Forms** - Integrated agent scoring and reporting module
- **Agent Call Statistics Reports**: the number of calls made, received, etc by each agent
- **Email Notifications**: automatically send email when a predefined number appears in a call.
- **Backup & Restore**: Archive calls on DVDs, HD-DVDs, BluRays or SANs. A single DVD can store up to 15,000 calls of 5 minutes each, due to the state-of-the-art voice compression technology incorporated in CallRecorder.
- **Reverse Caller Lookup** - Displays the caller name and business unit using the company Phone Directory.
- **Multi Site Replication**: using queued replication, you can record many network partitions and centralize recordings at the HQ. Recording and replication survive a downed WAN link.
- **Screen Recording** – Integration with Memolith Screen Recorder. See what was done on the screen while the phone call occurred.
- **Specialized Speech Compression** lowers the storage requirements 8 times over MP3 and allows 18,000 hours of phone calls storage on one 120 GB hard drive.
- **Call History** - follow a call as it is transferred, put on hold or parked
- **Audit Replays** – prevent recordings abuse by browsing the list of accesses to a call.
- **XML Phone Service** – handily review your past calls from your XML enabled phone (Cisco IP Phones 7940, 7960 & 7970). Authenticate, Browse, Play, Rewind, e-mail, mark important. You can also assign calls to folders.
- **Access Control Lists** – fine grained permission system to allow listening and acting on calls.
- **Automatic Software Update** - the easiest, fastest way to apply patches
- **Thin Client Deployment** – The administration and user tools run in all web browsers supporting Flash.
- **Integrated Support Tools** – Request & receive technical support with a few clicks, by using the integrated log packer and TeamViewer support tool.
- **Passive network sniffing** assures zero impact of recording on PBX performance and improves system reliability.
- **Try Before You Buy** – Download a fully-featured evaluation version with a friendly configuration wizard from: [http://www.call-replay.com](http://www.call-replay.com)

### 1.3. Technical Specifications

| VoIP PBX |Cisco CallManager (all versions)  
|          |CallManager Express  
|          |Avaya CM S8000 series and IP Office 500  
|          |NEC Univerge - SV8000 series, IP only  
|          |generic SIP  
|          |IPTrade turrets |
| IP Phones |All Cisco IP Phones  
|          |All SIP phones |
| Operating System |Any Windows OS  
|          |32 and 64 bit compatible |
| Hardware Requirements |Software only recording system, no proprietary cards  
|          |Industry-standard Intel compatible server supplied by customer  
|          |Network connection to voice traffic, using a hub or a mirrored port for promiscuous mode network sniffing |
| Recording Capacity |Up to 400 simultaneous calls on a single dual core CPU |
| Retention Capacity |Speech compression, VBR, Stereo, 170 hours per GB  
|          |~ 18,000 compressed talk hours on one 120GB HDD |
| Supported codecs |G.711, G.722  
|          |G.729 (extra option) |
| Recording Architecture |Passive network sniffer, Skinny Protocol  
|          |SIP trunk recorder compatible with newer Cisco phones  
|          |Stereo, each party is heard in a different channel |
| Embedded Database |PostgreSQL 9.0 |
| Security |Secure access to recordings  
|          |Managers have access to calls based on logical departments filters |
| Call records access       | • Web interface + desktop player  
<table>
<thead>
<tr>
<th></th>
<th>• Phone Service interface (on Cisco IP Phones 7940, 7960, 7970)</th>
</tr>
</thead>
</table>
| Support                  | • Technical Support includes Software Upgrades  
|                          | • TeamViewer software included                                    |
2. Prerequisites

2.1. Hardware Requirements

Network

SPAN recording requires:

- Managed network switch with port-mirroring capability (SPAN)
- At least two network interface cards are required on the recording server, one for each monitored switch, and another for the site (a monitoring port can only receive packets). Using one interface card is possible, but the administration site will only be accessible from the physical console.

Forked recording requires:

- One network interface card on the recording server, for administration site and recording
- Cisco CallManager platforms newer than 5.0. For Cisco CallManager Express please use SPAN recording.
- Selected Cisco phone models.

Server

Production server requirements for up to 250 simultaneous calls, heavy usage (call center): quad core cpu, 4 GB RAM, 2 NICs, Windows 2003 Server or newer.

Dimensioning of the recording server hardware is proportional with the total number of phones visible on the port-mirroring interface, even those which are not recorded.

This table assumes only the voice traffic is visible on the SPAN interface, that is, the general data traffic and the voice traffic are segregated into different VLANs.

<table>
<thead>
<tr>
<th>Total Number of Visible Phones</th>
<th>Minimum</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CPU</td>
<td>RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>0.5 Ghz</td>
<td>256 MB</td>
</tr>
<tr>
<td>50</td>
<td>1 Ghz</td>
<td>512 MB</td>
</tr>
<tr>
<td>100</td>
<td>3 Ghz</td>
<td>1 GB</td>
</tr>
<tr>
<td>200</td>
<td>2 x 3 Ghz</td>
<td>2 GB</td>
</tr>
<tr>
<td>400</td>
<td>2 x 3 Ghz</td>
<td>4 GB</td>
</tr>
<tr>
<td>800</td>
<td>4 x 3 Ghz, 8 GB RAM, SSD or SAN storage &gt; 5000 IOPS</td>
<td></td>
</tr>
</tbody>
</table>

Storage

1.7 KB/s means that each GB on the drive can keep about 160 hours of recordings (voice compression is 8 times better than MP3). That is, you can keep 96,000 calls of 10 minutes on one 100 GB HDD. One month of typical call
center recordings (160,000 calls) takes about 55 GB.

*Please use only redundant disks (RAID1 and over) for storing call recordings!*

### 2.2. Software Requirements

#### Server Side

**Operating System:** Any Windows Server. Desktop Windows OSes (Professional, XP, Vista, 7) can also be used, but TCP connection on these platforms are limited to 10 simultaneous sessions, limiting the number of users which can replay calls using the web site or a phone service.

**IMPORTANT:** It is recommended not to run any other server software on a production recording server! Call recording is essentially real-time. Failing to keep up with the traffic can result in lost calls. Other software can unpredictably use critical processor and memory resources which are necessary for packet capture. The application allocates computing resources according to priorities so an uncontrolled processing spike of another program may disrupt recording.

#### Client Side

- It can be used any operating system, with a browser running Adobe Flash 10.1 or later, Internet Explorer 6, Firefox 3.0 and Opera 11.x.

**Software Optimizations**

The Windows system cache is by default too large. Go to Control Pane / System / Advanced / Performance Settings / Advanced:

- set memory usage for best performance of Programs
- set processor scheduling for best performance of background services

### 2.3. Get the application and the license

**Application**

The setup automatically downloads the latest patch from our web site. If that does not happen MAKE SURE you download and apply it manually.

**License**

If you want an evaluation license, you can request it via email from info@call-replay.com or [http://www.call-replay.com/Contact](http://www.call-replay.com/Contact).
3. Setup

3.1. Welcome Screen

Make sure you have read the Prerequisites chapter before proceeding further.

1. Check if the setup version you are running is the latest available from our web site.
2. Click Next

3.2. License Agreement

1. Click "I Accept" if you agree with our license. You may not use the software if you do not agree.
2. Click Next
3.3. Destination Folder

1. Select the destination folder for the application binaries (calls are stored separately);
2. Click Next.
3.4. Download the latest patch

It is very important to have the program up-to-date so please leave the option marked unless the firewall blocks connections to the internet. The web site used for updates is update.call-replay.com. If your computer does not have access to the Internet, deselect “Download update” and apply the patch manually after the setup has completed. To get the latest patch, go to http://www.call-replay.com/go/dl/.

![Setup window]

3.5. Data folder for storing call recordings and database files

This is the folder where all the user data, including audio files, the database, logs and licenses will be stored. Please select the disk with the maximum available free space. Use a RAID protected disk for this folder.
Site configuration

At the end of the setup, the Site configuration utility will be automatically started to assist configuring of the name, IP and port of the administration web site. You may use port 80 if it is not used by another web server. **The IP of the website is also used for licensing purposes.**

Press OK to start the administration web site.

3.6. Database Setup

This page appears only if the database does not already exists in the data folder. You have two options:

a. If this is a fresh installation (not an upgrade), the left-side panel should be used. Enter the administration account and password for the new database, then click the Create Database button.

b. When upgrading an existing installation of version 5, enter the location of MSDE database server, the name of instance, database name, user name and password, then click Upgrade Database.
3.7. Login page

Enter the user name and password. When running with an evaluation license, this page always displays the name of an administrator and a public password "eval" which works for every user.
CallRecorder Administrator's Guide

![CallRecorder Administration Login Page]

**CallReplay Login**
- User Name / Email: admin
- Password: 

**Real Login**
- User Name / Email: admin
- Password: 

Licensed to
4. Managing Licenses

Before the call recorder can be used you need to add a valid software license file. If you need an evaluation license, please send an email at info@call-replay.com or check our contact page http://call-replay.com/go/contact.

There are two kinds of license files:
- .lix is a generic license, not-activated or bound to any computer.
- .bind is an activated license file which only works on the computer where it was activated. Only production licenses need to be activated.

A license file may only be used on one computer at any given time. Loading the same license file (that is, with the same license ID) on two servers at the same time is a violation of the usage agreement. Also a violation is using the license file after it has been revoked or superseded by a newer license file.

To add a new software license file, select System / Licenses from the menu then click the Upload button. The license fill will be automatically activated if necessary and stored in the DataFolder/Licenses directory.

If the licensing software cannot contact our web site for license verification, please open the Manual Activation link (http://lix.call-replay.com/Lix/ManualActivation/) on a computer with Internet access and fill in the requested information.

If you have not a valid license, your license is expired or the application is stopped, you will see some warnings showing the problem. The application service will not be started without a valid license.
4.1. Company Wide Recording (CWR) License

This licensing model is obsolete, do not configure it unless instructed by technical support. If you have a Company Wide license type, ensure that application can contact CallManager to establish the number of registered phones.

You must supply a user name and a password in the “Company Wide Recording” tab, which is used for authentication with the CallManagers. This user must be the same on all the specified CallManagers. The password must be the same on all the specified CallManagers. You don't need to specify the password each time that you make an update in the configuration page, but only when you need to change the existing password.

If the number of phones registered in your CallManager exceeds the number of registered phones in your licenses, the application service will not be started.
5. Configuring Recording

Overview

CallReplay Call Recorder offers two methods for recording calls: Forked (SPANless) and SPAN recording.

Forked Recording (SPANless Recording) is an active recording technology, available only on Cisco CallManager platforms newer than 5.0 and selected Cisco phone models. For Cisco CallManager Express please use SPAN recording, and manually set the PBX type to Express, as auto-detection will not work.

SPAN Recording is a passive technology. It is working with all Cisco CallManagers and all kind of phones as long as are SIP or SKINNY compatible.

Forked Recording

Benefits of Forked Recording

Ease of use and management

- Establish complex network architectures not depending on SPAN ports
- Move or reconfigure complete departments with ease
- Improve control over branch locations

Economical

- Reduce OPEX with easier administration as no configuration of SPAN ports is necessary
- Reduced CAPEX – need for fewer elements at the branches

Reliable and secure

- Free-up resources for network monitoring
- Increase reliability utilizing system resources better and more manageable
- Security: Both authenticated and encrypted mode can never be recorded.
- Geo redundancy available with high bandwidth utilization

Additionally

- Internal calls recording = RSPAN, VLAN split to meet SPAN capacity
- Cisco plans support for CUCM 8.x
- Built-in support of recording notification tones

How does it work?

The Cisco Unified Communications Manager (CUCM) interface provides two recording modes:

- Automatic recording recording all calls on line appearance. This method is invoked by CUCM.
- Selective recording allowing users to record ad-hoc or also allows recording server to record based on business rules and events.

After calling-in and routing the call to an agent CUCM automatically sends two call setup messages to the Agent device. The 1st call is the agent stream and the 2nd call is customer stream. The Communications Manager invites the recorder to both calls via SIP Trunk and the recorder accepts both calls and receives RTP streams from Agent device.
Forked recording requires:

- usage of the silent monitoring and recording interface of CUCM
- CUCM version 6.0 and higher
- the usage of 3rd generation phones
- IP Communicator 7.0(1) (and later).

Usage notes

Usage of a SPANless configuration will bring major benefits as long as the following requirements and notes are taken into account:

- The expected increase of network traffic
- For PSTN recording only GW span works as simple trunk recording
- TAP switches are able to handle high traffic in large architectures with centralized GW
- Only 3rd generation phones are supported
- There is no support for active-active redundancy
- Interruptions in recording may occur if a failure occurs during the call
- If the WAN capacity is limited, redundant recording may be refused (due to automated network intelligence)


SPAN Recording

The application service uses a network interface card functioning in promiscuous mode, in order to capture packets for the conversation recording. The host computer or the server need a network connection to voice traffic, through a non-switched hub or through a SPAN port on a switch. For more information about configuring a mirrored port on your switch, read the user manual of the switch.

You can also visit the following links:


The application works by monitoring phone traffic. There are two types of phone traffic essential to recording:

- signaling (call control), from phones or voice gateway to CallManager
- audio streams (RTP), from phone to phone, or from phone to voice gateway

To be able to record calls, the application needs to intercept both types of traffic, call control and audio streams. For more information about network sniffing please read the Wireshark FAQ: [http://www.wireshark.org/faq.html](http://www.wireshark.org/faq.html)

Virtual Environment

The difficulty in getting SPAN based/passive recording functional in a virtual environment is the SPAN itself. With the SPAN configured on a physical switch port, all communication will be directed to a physical NIC. This physical NIC MUST be bound on the VM. Thereason behind this statement is because the most virtual NIC software cannot
forward the SPAN information to the VM, so the physical NIC will be required to be bound to the VM. Because of this requirement installing application into a virtual environment may not be advisable. Allocating a physical device to a VM only requires VT-D support in the host CPU.

Implementation Options

There are two main options in configuring network monitoring:

1. **Record only external calls.** This is the easiest. All you need to do is to have the CallManager and the voice gateway in the same switch and SPAN them to application recording port. If you have them in different switches you need two monitoring NICs in the recording application server, one for each switch. **Make sure you are mirroring all the CallManagers and voice gateways, including backup ones.**
2. **Record all calls, external and internal.** For that you will need to have all the phones’ traffic monitored to the application recording port. That is, monitor all switches with phones. Usually this is done by placing all the phones in a separate VLAN, and monitoring that VLAN. Using a VLAN also has the advantage of discarding the general (PC) network traffic, which can overload the monitoring interface in both the switch and in recording application.

Because RTP traffic (green and red in the figure) travels directly between end points, without going through CallManager, in a large enterprise with multiple switches only external calls (PSTN) can be recorded in a cost effective way (one recorder for each voice gateway).

To record internal calls also, one recorder per switch with IP phones is required.

**Server Side Network configuration**
Because monitoring ports cannot usually transmit traffic, for production setups the server you are using must have a minimum of two network cards for application to function properly. One of them will be used for general network traffic and accessing Application Web Administration Interface and the other for listening VOIP related traffic. The NIC selected for website access must have a static IP address.

Important: The monitoring NIC must not have an IP address, or Windows may try to route the web site traffic through the monitoring NIC.
5.1 CallManagers (PBXs) Configuration

PBXs Configuration Page allows management of Cisco CallManagers, Avaya and other supported telephony controllers.
You can add a PBX by clicking on the Capture / CallManagers (PBXs) / Add PBX.

1. Add all the IPs of CallManagers in a cluster
2. Set its type to either Cisco CallManager, Avaya, NEC or SIP.
3. Enter the PBX version.
4. When using Cisco UCM > 5.0 you have the option to choose between passive and active (forked) call recording).

Observation: Cisco CallManager Express is a different type than Cisco CallManager.
### Edit PBX

<table>
<thead>
<tr>
<th>Enabled</th>
<th>IP Addresses</th>
<th>PBX Type</th>
<th>PBX Version</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
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<td>Cisco CallManager</td>
<td>Cisco CallManager</td>
<td>Avaya Communications Manager</td>
</tr>
<tr>
<td><img src="on" alt="Checkmark" /></td>
<td>Cisco Skinny</td>
<td></td>
<td>port=2000, version=4.0;</td>
<td></td>
</tr>
</tbody>
</table>

**Protocols**

<table>
<thead>
<tr>
<th>Enabled</th>
<th>Protocol</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="on" alt="Checkmark" /></td>
<td>Cisco Skinny</td>
<td>port=2000, version=4.0;</td>
</tr>
</tbody>
</table>
5.2 Forked Recording

In the Capture / PBXs page, the Forked Recording wizard button appears only when the PBX type is Cisco CallManager, version is greater or equal than 5.0 and the Forked Recording Protocol is selected in the PBX options. In this case other recording protocols should be disabled. Click the button labeled Forked Recording to start the configuration wizard.

The following configuration wizard utility will be shown:

This step is for setting the administration user name and password for PBX which will be used during configuring process. After filling both fields press Next.
In the next page leave all the fields unchanged unless instructed by technical support. The Phone Service IP address must be routable from the phones’ VLAN.
Press Next button.
This page is for enabling forked recording, configuring destination address in recording profile (also needs to be routable from a phone's IP address). Also the recorder host and port for SIP trunk can be chosen. The SIP port must be available for this application. Syn-Apps' SA-Announce also uses a SIP trunk so make sure in that case to select another port, such as 5061.

Here you have a list of a non-managed phones (left side) and the list of managed phones (right side). Select from
the non-managed list the devices you want to be recorded and add them in the managed phone list. When a managed phone has the Record check box selected it will be recorded. Otherwise the device will NOT be recorded even it is in managed phone list. Similar for Service check box. When is selected, the phone will be subscribed to CallReplay Phone Service available on the Service button (on the phone). Thus we can build a list of managed phones having phones recorded and/or subscribed to CallReplay Phone service.

Press Next button and the selection will be processed. The status of processing will be shown.
Press Close button to close the wizard configuration utility.

**Cisco CallManager - alternative configuration for Forked Recording**

We recommend the usage of CallReplay Forked wizard for configuring your Cisco CallManager. But if you do not want to use this feature follow these steps to prepare your Cisco CallManager for recording.

1. **Recording phones using forked**

You need to create by hand an application user - *CallReplay*, a new SIP profile - *CallReplay SIP profile*, a recording profile - *CallReplay recording profile* and a new trunk - *CallReplay_SIP_trunk*.

**CallReplay Application User**

In CallManager site administration go to User Management > Application User. Press *Add New* button and fill in the text fields as follow:

- **Application User Information**
  - User ID*: CallReplay
  - Password: password
  - Confirm Password: password
  - Presence Group*: select *Standard Presence group*

**Device Information**

- Add from the list of Available Devices to the list of Controlled Devices the phones who will be recorded.
  - If you use EM profiles then add from "Available Profiles" list to the "CTI Controlled Device Profiles" list the EM profiles who will be recorded.

**Permissions Information**

- Groups: press *Add to User Group* button and in list shown subscribe to the following groups: *Standard CTI Enabled*, *Standard CTI Allow CallRecording*, *Standard CTI Allow Control of Phones supporting Connected Xfer and conf* and *Standard CTI Allow Control of Phones supporting Rollover Mode*

Press Save button to create the application user.

**CallReplay SIP profile**

In CallManager site administration go to Device > Device Settings > SIP Profile. Press *Add New* button and fill in the Name* with value *CallReplay SIP profile*. Save the changes.

**CallReplay recording profile**

In CallManager site administration go to Device > Device Settings > Recording Profile. Press *Add New* button and fill in the text fields as follow:

- **Name**: CallReplay recording profile
  - **Recording Calling Search Space**: select a CSS
  - **Recording Destination Address**: xxx - the extension used by CallRecorder. The value must be an unasigned EXT and having the same number of digits as recorded extensions. If extensions in your network have 3 digits then this value must have 3 digits too.

Save the changes.

**CallReplay SIP trunk**
In CallManager site administration go to Device > Trunk and press *Add New* button to define a new trunk. Fill in the text fields:

**Device Information**
- **Device Name**: `CallReplay_SIP_trunk_xx.xx.xx.xx` where `xx.xx.xx.xx` is the IP of CallRecorder server.
- **Device Pool**: select the device pool where the recorded phones are registered

**SIP information**
- **Destination Address**: the IP of the CallRecorder server
- **Destination Port**: the port where CallRecorder is listening (default value 5061)
- **SIP Trunk Security Profile**: select security profile accordingly
- **SIP Profile**: select CallReplay SIP profile (created before)

Save the changes.

2. **Subscribe phones to the CallReplay Call Recorder Phone Service**

Create CallReplay Call Recorder phone service

In CallManager site administration go to Device > Device Settings > Phone Services and press *Add New* button to define a new phone service. Fill in the text fields as follow:

- **Service Name**: `CallReplay Call Recorder`
- **ASCII Service Name**: `CallReplay Call Recorder`
- **Service Description**: `CallReplay Call Recorder`
- **Service URL**: `http://IP:PORT/CallRecorder/phoneService` (you can get these values from CallReplay Site Configuration);
- **Service Category**: select XML Service
- **Service Type**: select Standard IP Phone Service
- **Enable**: `True`

Save the changes.

Subscribe devices

In CallManager site administration go to Device > Phone and perform the following operations:
- select a device;
- select from Related Links dropdown list option Subscribe/Unsubscribe Service and press Go button;
- in the new windows select CallReplay Call Recorder service
- press Next and after that Subscribe button;
- close the window;

After the phone reset the CallReplay Phone Service becomes available for use.
5.3 SPAN Recording

Because monitoring ports cannot usually transmit traffic, for production setups the server you are using must have a minimum of two network cards for application to function properly. One of them will be used for general network traffic and accessing Web Administration Interface and the other for listening VOIP-related traffic.

By clicking Capture / Network Interfaces, you can choose which NIC is used for VOIP traffic and which one is used for web administration and general traffic.

**Important:** The two NICs must not be in the same scope of the net mask, or Windows may try to route the web site traffic through the monitoring NIC. Remove the IP address of the monitoring NIC.

We assume that you have already configured your network switches in order to mirror all VOIP traffic from VOIP LAN to the monitoring NIC of CallReplay otherwise no calls will be recorded because.
6. Testing the Installation

Make sure there are no pending alerts below the menu bar, by clicking on each alert and solving them.

6.1. Playing a Call

Make a test call

Place a call to an external number. Recording internal calls requires a special network configuration, please see the Network Configuration chapter.

Playing a call

1. From the menu, choose Recordings / Replay Calls as shown below:
2. If there are no calls displayed please skip to the "Troubleshooting" chapter.
3. Click the More button (green plus sign on the right side of every call), choose Properties and a new window, named "Call Details" will appear, as shown below.

This page contains all information about a call like caller party, called party, duration of call, file size, file format. In the Advanced tab, you will get information about RTP traffic (ip address and port used in recording call).

In the Description tab, you can provide a description for that call. In the Export tab by pressing "Save Call" you can save the call under Wav format or speex format. You can email that call by pressing "Send Email" button.

1. Click on Play Button.
2. A pop-up will be open and the recording will start playing.
Attention You must have a valid G.729 license to play a G.729 recording, otherwise an error will be displayed.
7. Troubleshooting

7.1. Analyze Packets captured

By clicking Capture / Troubleshooting, you can see the amount of TCP or UDP Packets captured from and to an IP Address.

7.2. Analyze the Network Configuration

Install Wireshark

Wireshark is a free, open source packet analyzer.

1. Download the latest version from http://wireshark.org/download
2. At installation, be sure to not select the "Install WinPcap" option (as it is already installed by CallRecorder) or
the "Start WinPcap service "NPF" at startup" option.

Capture a Call
1. Go to the Capture menu and select Interfaces
2. In the interfaces window select the same network card you configured for monitoring in CallRecorder.
3. Press the Capture button
4. Start a call
5. Talk a few seconds. In the capture window you should see the number of udp and tcp packets growing. If not, you either configured SPAN incorrectly or captured on the wrong NIC.
6. Stop the call.
7. Stop the network capture.

Usually there should be about 100 udp packets per second, so if this number is much smaller, then your server may not be capturing the voice stream.

Verify Call Control
In the main Wireshark window, set the filter to:
ip.addr == {TEST_PHONE_IP} \&\& skinny.messageid == 0x8a

and press Apply.

The StartMediaTransmission and OpenReceiveChannelAck messages are critical for recording to work.

If you don’t see any skinny packets after applying this filter, then your call control stream was not captured. To fix it, you should configure SPAN to your computer, in order to forward traffic from CallManager.

Verify the Voice Streams

In the main window, set the filter to:

ip.addr == {TEST_PHONE_IP} \&\& udp

and press Apply
If you don't see any RTP packets after applying this filter, then your voice stream was not captured. To fix it, you should configure span to forward traffic from your phones to your computer.

If you are only interested in external calls, you should only forward traffic from your voice gateway to your computer.

### 7.3. GET Remote Technical Support

The recording application has a number of powerful support utilities included. **Team Viewer** for eg., is a screen sharing utility which allows us to assist you. It is a firewall friendly application.

1. In order to get RTS, you must contact us ([http://www.call-replay.com/Contact](http://www.call-replay.com/Contact)) and let us know what problem you met. We recommend to reach us by instant messenger or email.
2. **Windows Start / Programs / CallRecorder / Support / Team Viewer**

![TeamViewer QuickSupport](image)

Send to technical support, by email or instant messenger, your ID and Password

Wait for the connection to be established. The program will not work if the support technician was not notified to open his side.

### 7.4. Sending Logs to Technical Support

To enable technical support to understand the cause of a problem, the recording application keeps extensive logs of all the actions it does. To send them to us:

From application menu **Help / Send Logs**
1. Describe the problem as detailed as possible, including the phone numbers and IP addresses with issues.
2. Fill in the problem date correctly, or the logs will not be copied from the correct period.
3. Contact Information. Please enter your name, e-mail address and telephone number. As for the method of sending the resulting archive, we recommend using the Upload to FTP option.
4. Click Submit report.
8. Users Management

You can organize your agents, supervisors and organizational hierarchy by clicking on System / Users. This page is only available for users with “Is Admin” permission.

![Users Management](image)

8.1. Adding a new department

Click on the parent department of the new department then click the Add button and choose Add Department.
8.2. Adding a new user

Click on the parent department of the new user then click the Add button and choose Add User.

General Tab

User ID: account ID used for login.
PIN: short numerical password used only from the phone.
Departments: select one or more departments to which the user belongs.
Associating phones to users

By associating a phone to a user, you can easily filter the calls in “Replay Calls” Page, by selecting the respective agent node in the left-side tree. Association can be done by phone number, ip address, or mac address. We recommend you to use MACs because they are the most reliable.

Also, the phones associated to user and PIN from General tab are used as extensions and PIN in Phone Service menu in order to listen recordings or monitoring calls (see User Guide - Phone Service Menu).

Filtering by MACs does not work in WAN environments, where there are routers between the recorder and phones.
Granting permissions

The values for each permission can be Inherit (keep the role permission), Allow or Deny.

Call Permissions are for:

- Replay Calls on a specific department and its sub-departments.
- Is Admin: the administrator has all the permissions and may perform any operation.
- Replay All Calls: see all the calls, regardless of user’s phone settings.
- Delete Calls: may delete the calls he sees.
- Edit Tags: may define new tags or edit existing ones.
- Assign Tags to Calls: may label the calls with one or more existing tags from the Replay page.
- Login and replay own calls: without this permission a user may not login.
- Export calls: may save or email the call recordings.
- Audit calls: may open the audit page.
- Assign tags to calls.
- Edit Quality Standard: may define or edit quality standards.
- Fill Questionnaires: may use existing quality standards.
- View quality reports.
Roles

Roles are collections of permissions similar to Windows user groups.
The application has 3 built-in roles: Administrators Group, Supervisors Group and Agents Group.

<table>
<thead>
<tr>
<th>Supervisors</th>
<th>can replay his own calls and the calls in all the departments and their sub-departments.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agents</td>
<td>can only access his own calls</td>
</tr>
</tbody>
</table>

An administrator can also configure the application so that a manager can only replay calls, with the exception that a manager can view all calls within the filter set.
The administrator account settings are made in application web site.
Adding or editing a role

Press the Add button and set permissions for this new generic role.
The permissions for existing role can be changed – press Edit button and set the values accordingly.

8.3. Authentication Methods

The application allows two authentication ways: DB authentication and Active Directory/LDAP authentication. AD authentication is used to verify the password against a Windows domain controller. The user and its permissions must still exist in the call recorder database.
8.4. Phone Directory

This feature allows to identify the caller and destination phone numbers of a call when caller ID is not available. You can organize your contacts hierarchically on organizations and sub-departments by clicking on System / Phone Directory.
Adding External Organization / Department

Press Add button and choose Add Directory for adding new directory.

Adding a new external contact

Press Add button and choose Add User for adding new contact. Each contact can have one or more phones. After adding an external contact, each call with that contact will have it colored in blue, with a tool-tip when hovering the cursor over the contact name.
9. Email configuration

1. Enter your SMTP server credentials (SMTP server, Authentication User, password).
2. The Admin Email Password is also used for critical alerts.
3. Click Save.
10. Master / Slave Replication

Replication Page allows to configure calls info and audio files replication from slave systems to master (System / Master Slave).
To add a slave to a master, select server role as Slave, enter the master host name and click Save.
### Master / Slave Replication

**Server Role:** Master

**Replication Status:** 9/0

<table>
<thead>
<tr>
<th>Channel</th>
<th>Status</th>
<th>Channels</th>
<th>Exclusive</th>
<th>Description</th>
<th>Max Bandwidth</th>
<th>Replication Lag</th>
<th>Last Known IP</th>
<th>Upload Type</th>
<th>SW Version</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>ionum</td>
<td>0</td>
<td>1</td>
<td>No</td>
<td>Unlimited</td>
<td>10.1.100.3</td>
<td>Call Information and Audio</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. Recording Policy

This is the place for you to describe which calls will be recorded and how to prioritize your licensed recording resources. It is accessible from the Capture / Recording Policy menu. There are 2 licensing resource allocation types: Reserved Channels, Dynamic (Unnamed) Channels. Rules from each tab are evaluated in order and if a match is done the next rules are not evaluated. Each licensing allocation type can be triggered automatically or manually (On-Demand).

11.1. Reserved Channels

Reserved channels tab contains the list of phones for which the recording will start automatically. Each such guaranteed recording resource will consume one licensing channel. It is recommended that you add reserved phones by MAC address. To disable recording of phones which are not in the reserved list, set Automatic Channels to 0 in the Dynamic Channels page.

11.2. Dynamic Channels

Dynamic (Unnamed) Channels tab allows you to set the number of channels used for recording First Come First Served recording channel allocation.
11.3. Advanced tab

Dynamic Channels are recorded on a first-come-first-served basis and may not be recorded when all channels are busy.

Dynamic On Demand Channels are recorded only when the user requests recording from the IP Phone Service and there are available channels.

Dynamic Automatic Channels are automatically recorded when free channels are available.

- Dynamic On Demand: 2
- Automatic: 7

Save
License expires in 3 days.

### Recording Policy

<table>
<thead>
<tr>
<th>Reserved Channels</th>
<th>Dynamic Channels</th>
<th>Advanced</th>
</tr>
</thead>
</table>

- **Record unlicensed calls**: 
- **Record inbound calls**: ✔
- **Record outbound calls**: ✔
  - **Always record parked calls**: ☐ (even if Record outbound calls is disabled)
- **Record internal calls**: ✔
- **Call demand retention**: Full Call

*you must configure the PSTN Gateways in PBX Configuration to get Inbound / Outbound / Internal identification*
12. Silence compression (Voice Activity Detection)

Accessible from Capture / Silence Compression menu entry.

Voice Activity Detection is used with IP Trade Turrets to trigger call recording based on the voice signal intensity. It can also be used with Radio Gateways and other analog-to-IP equipment with no call signalling.

VAD Sensitivity: the level of voice activation detection from which the signal is not considered silence. The default value is Normal (40 dB). Other values are Low (30 dB, noisy environment) and High (50 dB, Catch every breath).

Silence Compression: keep or not to-keep the silence within recordings

VAD separation interval: it is enabled when silence is removed within recordings. This is the length of the silence
inserted between active signals.
Recording prolog duration: it means the length of the interval recorded before the moment of active signal.
Silence before stopping VAD calls: after specified value of silence the recorded call will be stopped.
13. Storage Management

Recording Path Configuration

Storage Volume Page allows to set the folder where the calls are stored. You can add new folders by clicking Add New Volume button. You can have multiple volumes that store calls on separate drives, which will be used in a round-robin order.

To move calls from one folder to another:

- Edit the volume and change its path to the new destination path.
- Move the files of the old volume to the new volume path using Windows Explorer.
14. Retention Policy

To modify policy click on Storage / Retention Policy.

In this page you can modify policy rule. By Default, the rule records all calls and keeps calls until there is not enough free disk space.

Retention

- Keep for period (x days or x hours or x minutes)
- Keep Until Backup – the call will be kept until the first backup.
- Keep until space is required - The call will be kept until there is no more space on disk, then the oldest calls will be deleted to make space for new calls.
15. Audit

Audit Page allows to see who listened a call or who emailed a call. You can filter by auditor or / and by phone number. This option is accessible through Recordings / Audit

Only the first action of a kind of a user on any call is stored, further logging of the same is redundant.

15.1. Email Notifications (Recordings / Email Notifications)

This page allows to configure the rule for sending emails when a specific call occurs.

The application will send emails when call starts or ends for a specified caller and called according to rules defined.
New Email Notification Rule

Caller Party: admin
Called Party: io
Also reverse: Yes
Send email when call starts
Emails: test@email.org

✓ OK  Cancel
16. Backup (Backup / Restore)

16.1. Backup

There is no page for doing backups in version 6. That is because it is now possible to simply copy or backup the recording storage folders with standard Windows backup tools (such as Windows Explorer), while preserving all call meta data. This is possible because each call recording file now has associated a .call file which is an XML file containing all call information.

16.2. Restore

To Restore a folder with call recordings so that its content can be seen in the database, use the Restore page.

16.3. Change Password

Each user that has permission to log in to application site can change his password and pin by clicking Session / Change Password.

He can change only password, only pin or both by leaving blank the undesired field.
17. Manually Configuring the IP Phone Service

17.1. Phone Service

(This chapter has been obsoleted by the Configure Cisco CM wizard in version 6). Please use the Forked Recording Wizard in the Capture / PBXs page.

Observation: Instructions for setting up a Cisco CallManager Express phone service can be found on Cisco's site:


The IP phone service is a component of our application that allows users with a primary extension to listen to their calls from their Cisco Phone or to demand recording of calls.

By accessing the System/Watchdog menu, you can specify the authentication parameters used with the Cisco Phone XML, and other values that affect the way that the service works:

- **Cisco User** - The user name used for authentication with the Cisco Phone XML.
- **Cisco Password** - The password used for authentication with the Cisco Phone XML. You don't need to specify the password each time that you make an update in the configuration page, but only when you need to change the existing password.
17.2. Application Phone XML User

This user is required for the application phone services to function properly. There is only one application Phone XML User, and it is different from the site users. You may choose any user you want, but we recommend creating a new special user that nobody else uses.

Create a new Cisco User or select an existing one

1. Go to the CallManager Administration Site
2. Go to User/Global Directory
3. Click "Add a New User". For more details about adding a new user, please consult the CallManager Help.

20.3. Associate all devices with the desired user

Make sure that this user has all the devices associated to him.

Go to the CallManager Administration Site

1. Go to User/Global Directory, then click "Search"
2. Select or create the user you want to use with Cisco Phone XML. For example "CallRecorder"
3. In the User Configuration page, please click "Device Association"
4. Now you have to associate all the phones through which you want to access the application and/or Call Monitoring phone services with this user. If you want to associate all devices, do the following:
5. Press "Select Devices" (leaving the search field empty)
6. Select "Check All in Search"
7. Click "Update Selected".

17.4. Setting up the authentication

- Go to System/IP Phone Service
- In the "IP Phone Service" page enter the following values:
  - In the "Cisco User" field, enter the name of the user that you associated all your phones with (see the previous step)
  - In the "Cisco Password" field enter the password of that user
- Press "Save"

To make the application service accessible on your Cisco IP phones, you have to go through the following steps:

17.5. Add a new service

Adding new service

1. Go to CallManager Administration / Device / Device Settings / Phones Services
2. Press "Add New" button
3. Set "Service Name" to Call Recorder
4. Service Category must be XML Service and Service Type Standard IP Phone Service
5. Set "Service URL" to http://CallRecorderServer(:port)/CallRecorder/phoneService
6. Click Save

For Demand recording the URL is http://CallRecorderServer(:port)/CallRecorder/phoneService/onDemandPh oneDemandThisCall
17.6. Assign the service to the phones you want

For large number of phones this is best done using Device Profiles.
Using the Call Manager Administration site:

1. Go to the CallManager Admin/Device/Phone
2. For each phone having access to CallRecorder, do the following:
3. Go to that phone's configuration page
4. Click "Subscribe/Unsubscribe Services"
5. In the available services list select CallRecorder, then click "Continue"
6. Click "Subscribe"
7. Click "Update"
8. Restart the phones so that they can read the new configuration (only if you had to change the URL to the value we specified)
   a. Go to CallManager Admin/Device/Phone

For each page "Select all", click "Reset", then "Restart".

17.7. Application Service Control (Watchdog)

By accessing the **System/Watchdog** menu, you can set the automatically reboot moment of the application service.
18. Configuring Speed Dial

Steps to follow to configure a speed dial button for using a phone service

1. Define a phone service (Call Manager: Device> Device Settings> Phone Services), as described in Chapter 19, for this URL:

   http://CallRecorderServer(:port)/CallRecorder/phoneService/onDemandPhoneDemandThisCall

2. Create a new phone button template for your phones (Call Manager: Device> Device Settings> Phone Button Template) and select "Service URL" for button which will be used as a speed dial for your phone service.

3. Go to Device> Phone and select new defined template on phones
4. Subscribe the phone to the phone service
5. The last step is to assign the new subscribed phone service to the phone button (configured on step 2).

After phone reset, the speed dial is ready for use.
19. CallRecorder Firewall Ports

Ports opened on the CallRecorder server

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Port</th>
<th>Service</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP</td>
<td>843</td>
<td>Flash policy server</td>
<td>No</td>
</tr>
<tr>
<td>UDP</td>
<td>1026</td>
<td>Database</td>
<td>No</td>
</tr>
<tr>
<td>TCP/UDP</td>
<td>5060</td>
<td>SIP default port</td>
<td>Yes</td>
</tr>
<tr>
<td>TCP</td>
<td>5432</td>
<td>Database</td>
<td>No</td>
</tr>
<tr>
<td>TCP</td>
<td>8080</td>
<td>Jetty web server</td>
<td>Yes</td>
</tr>
<tr>
<td>TCP</td>
<td>8081</td>
<td>Monitoring calls</td>
<td>No</td>
</tr>
<tr>
<td>TCP</td>
<td>8079</td>
<td>Software update</td>
<td>No</td>
</tr>
<tr>
<td>TCP</td>
<td>9853</td>
<td>Replication</td>
<td>No</td>
</tr>
</tbody>
</table>

CallManager Ports Required by Forked Recording

This ports must be opened on the CM server, or Forked will not work

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Port</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP</td>
<td>2748</td>
<td>CTI</td>
</tr>
<tr>
<td>TCP</td>
<td>2749</td>
<td>JTAPI</td>
</tr>
<tr>
<td>TCP</td>
<td>2789</td>
<td>SIP default port</td>
</tr>
<tr>
<td>TCP</td>
<td>8443</td>
<td>AXL</td>
</tr>
<tr>
<td>TCP</td>
<td>443</td>
<td>HTTPS</td>
</tr>
<tr>
<td>UDP/TCP</td>
<td>5060</td>
<td>SIP</td>
</tr>
</tbody>
</table>

20. Localization

Requirements

For creating a custom localization of CallRecorder you need at least version 7.1.10 of application installed using a full setup.

Creating/editing CallReplay localization

CallReplay CallRecorder has two major components who need to be translated separately. One component is recorder service and other is site administration.

First thing which must be done is to create a copy of entire Translations folder into CallReplay data folder. Translations folder can be found in installation path, usually c:\Program Files\CallReplay\System\Translations. Data folder is the folder where the database is kept, default value is C:\CallReplay.

Once we have new Translations folder we can start to create/edit translations. All customizations must be done in this new Translations folder otherwise will be lost after first running of CallReplay Software Update or after a full setup.

The tools used for translation are "translate_site.cmd" and "translate_server.cmd".

Create a new translation for CallRecorder site

Go to the new Translations folder created using indications from previous paragraph.

Duble-click on "translate_site.cmd" file. If this is the first time when the translation tool is used you must select a language for translation tool interface:

![Language Selection](image)

After language selection the main window of translation tools is shown:
Press the add language button:

Select desired language from the list:
The result is a new Language node:

![Add a new language dialog box]

Now select the new language and translate every key from the master file to the new language. Next picture show how to do translate "All rights are reserved" to Korean.

![Translate keys dialog box]
The untranslated keys are shown with blue color. So it is easy to know which keys are translated and which not.

For saving the new language press "CTRL+S" which is a shortcut for File>Save option and a new file having name "site_xx.properties" will be created where xx is the language code.

**Create a new localization for CallRecorder service**

Go to new Translations folder and double-click on "translate_server.cmd". The same tool as for translating site will be shown excepting that the keys are for CallRecorder service.

Create a new localization for CallRecorder service following the same steps as for CallRecorder site. The name of the new translation will be "server_xx.properties" where xx is the language code.

**Activate a new localization**

A new localization becomes active after including in file "locale.properties" the line: xx=Language and restarting of CallRecorder service.

E.g.: ko=

**Editing an existing localization for CallRecorder site and service**

Run the translation tool ("translate_site.cmd" for site and "translate_server.cmd" for service ), select the language and edit the keys accordingly. Save the changes (CTRL+S or File > Save ).
Setup on Linux

At the moment, the only supported platforms are:

- Debian 7.0 Wheeze x64
- Ubuntu 12.04 LTS Precise Pangolin x64

Online Installation

1. Download and install the repository public key
   
   ```bash
   wget -q http://www.call-replay.com/apt/RAISoftware.asc -O- | sudo apt-key add -
   ```

2. Add the appropriate repository line in your `/etc/apt/sources.list` file
   
   ```latex
   deb http://www.call-replay.com/apt wheezy non-free
   deb http://www.call-replay.com/apt precise non-free
   ```

3. Update and install CallReplay
   
   ```bash
   sudo apt-get update && sudo apt-get install callreplay
   ```

Offline Installation

1. Download the Debian/Ubuntu Linux x64 version from the CallReplay site

2. Install dependencies
   
   ```bash
   sudo apt-get install openjdk-7-jre postgresql postgresql-contrib libpcap0.8
   p7zip-full speex sox ffmpeg dmidecode
   ```

   Optional packets for desktop environments:
   
   ```bash
   sudo apt-get install flashplugin-installer pgadmin3
   ```

3. Install CallReplay
   
   ```bash
   sudo dpkg -i callreplay-*.deb
   ```
CallReplay Cloud Server

Introduction

The Cloud Server is a feature of CallReplay which allows you to record calls and upload them on a properly configured CallReplay Cloud Server.

The Cloud Server can be used as a Replication HQ for other CallReplay servers or mobile recorders.

You can make use of this feature in two ways:

1. Uploading to the public CallReplay Cloud Server located at http://cloud.call-replay.com;
2. Configure your own CallReplay Cloud Server - this way you have all features of CallReplay Call Recorder.

Supported mobile phones: Android 2.3.3 or higher; other operating systems may be supported in the future.

Configuring your own CallReplay Cloud Server

First of all, you should acquire a license for this. The license should contain how many tenants you need (i.e. cloud accounts) and how many phones and mobiles you want to record and upload calls.

Upload this license in your CallReplay installation using System -> Licensing.

Add Tenants

then go to System -> Tenants page. You can add your tenants here.

First enter the company name and fill the TLD field with your domain name / website if any.

You can assign a number of Replication Branches, if you want to make this tenant a Replication HQ. In this case,
you should allocate a number of channels to those branches and assign them individually from HQ/Branch Licensing page. That is, if you want branches A, B and C to upload calls to this tenant, write 3 in 'Branch' edit box. Then, if you want A to have 5 channels, B and C have 10, write 25 in 'Channels' edit box, then later go to HQ/Branch Licensing and assign each of them the corresponding channel number. Here you will introduce the total number of channels allocated to the group of branches associated with this tenant.

In 'Mobile Phones' you will write the total number of mobile phones that can upload calls to this tenant (cloud account).

'Storage Quota' - how much of storage space will be allocated to this tenant from the total storage pool. Older records will be deleted when the quota is reached. Enter 0 if you want to use global cleaning.

'Active' - use this checkbox to activate / deactivate the tenant.

'Validity' - if you want to automatically deactivate the tenant after a period of time.

After pressing 'OK' button, a new tenant will be generated and you can see it in the main list. There you can find the generated Tenant ID used for tenant identification.

Add Tenant Admin

You may create multiple user accounts for each tenant, at least one of them should have administrative rights. You can quickly create such an administrative account using 'Add Admin' button from 'Tenants' page.

A password will be randomly generated for the tenant administrator and it will be sent to the specified e-mail address.

Public Tenant Creation

This feature is available only on public CallReplay Cloud Server located at [http://cloud.call-replay.com](http://cloud.call-replay.com). Anybody can create a trial tenant for itself. This trial tenant will expire after 1 month and its storage quota is limited to 200MB.

To convert a trial tenant to a permanent tenant, please contact sales or support.

Tenant Login

Upon creation of the its account, the administrator will receive an e-mail containing the login credentials. In order to access the Cloud Server, the administrator (and users created subsequently) must enter the Tenant ID along with the login name and password.

After login, you have access to all recorded and uploaded calls. You can playback them (if not encrypted), e-mail them and so on.
Android Recorder

Introduction

CallReplay Recorder for Android allows you to record calls you make on your Android phones. Since the space available to store these recordings can be very limited, you can upload them on CallReplay Cloud Server.

For this, you need to have an account on a CallReplay Cloud Server. If you intend to use the public CallReplay Cloud Server located at [http://cloud.call-replay.com](http://cloud.call-replay.com) please follow the next step.

If you want to use a custom installation of CallReplay Cloud Server, please skip to the 'Configuring phone to upload calls' section.

The minimum supported version is Android 2.3.3.

For the best experience with Cloud Server, you need a Flash enabled desktop/laptop/tablet browser. The cloud application is not optimized for mobile phone screens.

Note: in this manual, the terms 'tenant', 'tenant account', 'cloud account', 'organization' all refers to the cloud space created in CallReplay for your organization. 'Organization ID' is the generated ID of this cloud space. The terms 'administrator', 'administrative user' and 'administrative account' refers to the person who has the login credentials needed to manage your tenant account (received in the e-mail specified at tenant creation). The administrator could create more administrative users for the same tenant, and also more non-administrative users.

Creating a public Cloud Server tenant account

You need to enter at least a valid e-mail, your name and your company name. The trial account created this way is valid for 1 month and have 200 MB of disk space at your disposal.

You can use the same account for multiple phones, however, the trial account is valid for maximum 5 phones.

If you want to extend the validity of the account or change the available disk space or phone numbers, please contact sales or support (see http://call-replay.com).

You will receive an e-mail to the address provided, containing login credentials for administrative account (administrator) of this tenant.

Note: if you've wondered what is the 'Request Cloud Account' item from 'Upload Server' section of settings page, it has been added for people who do not read the manual. If we've shown the link in the Android Call Recorder, most people will tend to click it and expect to work on their mobile phone. Since it doesn't, and we do not want them to type the whole address, we send them an e-mail which they can read on another computer and click the link.

Creating a tenant account on a custom installation of CallReplay Cloud Server

Please see this manual page.
Configuring phone to upload calls

Upon registering a new tenant (cloud account), you will receive an e-mail containing credentials required to access the cloud server.

Please go to ‘Settings’ section and click on ‘Upload Server’. You will see a page like this:

‘Upload Server’ - cloud.call-replay.com for public CallReplay Cloud Server, your server name / IP for custom installation of CallReplay.

‘Organization ID’ - this is your tenant account ID; it is named ‘Organization ID’ to avoid confusion with administrator ID. A since you can upload calls from multiple phones on the same account.

‘Password’ - this is the upload password, not your administrator password. To can change this password, login to your tenant administrator account, and go to ‘Headquarters / Branch Replication’. Here you can find the ‘connection password’ on ‘Headquarters tab’.

‘Use Wi-Fi’ - to automatically upload calls whenever a Wi-Fi connection is available.

‘Use mobile connections’ - useful when a Wi-Fi connection is not available. The upload on the mobile connection can be slower and might be subject to additional fees from your mobile carrier.

‘On roaming’ - check this if you want to upload calls when you travel to other countries and want to upload calls.
Warning: this can be costly.

'Test Upload' - click this to see if all is configured correctly.

'Delete after Upload' - check this if you want to automatically delete uploaded records from your phone - this way you make space to record other calls.

'Encryption certificate' - see this page.
Call Encryption

Introduction

We value your privacy, so we introduced a PGP public key encryption of recorded calls. If you do not have a PGP public/private key pair, you can generate them using a 3rd party software which you can find freely on Internet.

Setting up call encryption

Login as administrator on CallReplay Cloud Server and go to 'Storage' / 'Recording Encryption'.

Click the 'Upload' button and select your PGP public key file. If successful, you will see some of the details of the public key certificate. For the purpose of call encryption, the certificate does not need to be signed.

Upon the next connection of your mobile phones to your tenant, the certificate will be sent to all of them and all subsequent calls will be encrypted using this certificate.

You can change the certificate any time you want, and only subsequent calls will be encrypted with the new certificate, the older ones will remain as they were (unencrypted or encrypted with older certificates).

Notes:

1. Uploading only the public key gives you a great deal of privacy: in case of mobile phone theft, the calls could not be listened. The drawback is that neither you can listen to your calls on the mobile phone.
2. In case you've wondered if someone could listen to your calls uploaded to CallReplay Cloud Server, this way you can be sure nobody could. The drawback is the same: neither you can listen to your calls online.

The only way to listen to your encrypted calls is to download them to a computer, decrypt them with your PGP capable software of your choice. The software will ask you for the private key, will decrypt your files and you can listen to them using your favorite WAV/3GPP player.

Quick setup for call encryption

You can also generate a PGP private/public key pair using 'Generate' button from the same page. After entering a name and a password, you will be prompted to save the private key to your computer.

The generated public key will be sent to your mobile phones and calls will be encrypted using it. However, the private key will not be kept on our server for security reasons, so you should take proper care of the saved key. If you lose it, your calls cannot be decrypted.

Mobile phone encryption configuration

For the encryption to work, after you generated or uploaded a public key on CallReplay Cloud Server, you need to connect your mobile to the server. Make sure you have Internet connection then either go to 'Status' page and click 'Upload Now'.

Then go to the 'Settings' page, 'Upload Server' section and you should see the new info on 'Encryption Certificate' item.

Note: in case you have used multiple certificates over time, for each encrypted call you will see the certificate details on the call details page; this way you can identify the private key required to decrypt the recorded call.
Release Notes

Version 6.5

- NEW: Multi-tenant hosting of multiple customers on a single server.
- NEW: Android mobile phone recording with encryption.
- NEW: Master/Slave Replication renamed to HQ/Branch Replication; now allows regional HQ servers.
- NEW: Call Recordings Encryption using Public Key Cryptography (GPG).
- NEW: HTTPS / TLSv3 connection encryption.
- NEW: Software updates using CDN or HQ server.
- NEW: Filters to displays calls with or without Quality Forms
- NEW: added Quality Report with question details
- NEW: Quick Search in Users and Phone Directory
- FIX: Forked Recording now support multiple codecs
- FIX: updated all third-party components to latest versions
Interfacing with CallReplay

Direct Database Access

CallReplay uses an embedded Postgres 9.0 database. To connect to it you can use PgAdmin III (Start / Programs / CallReplay / Support / PgAdmin III). It is also accesible from Java, C# and all programming languages which can access Postgres.

Port: Set during setup process, default 5432

User name: callreplay

Password: set during setup process, default CallReplay_2005

Automatic Login URL

http://SERVER:PORT/CallRecorder/?user=USER&password=PASSWORD&tenant=TENANT

where SERVER is the call recorder ip/address, PORT is the configured server port (see CallReplay Site Configuration), TENANT is the registered name of the tenant (if not provided, the "default" tenant will be considered), USER is the login name and PASSWORD is the password in clear text.

If you do not want to provide clear password, you may discard &password=, in that case CallReplay will ask you for password and use provided TENANT and USER.

Call Details

http://SERVER:PORT/CallRecorder/?callDetails=CALL_UUID&user=USER&password=PASSWORD&tenant=TENANT

where call_uuid is the uuid of the call, found in Advanced tab of Call Details.

Example:
Sometimes you may want to show only the Call Details dialog, in this case use the following url (note 'nomenu'):

http://< server : port >/CallRecorder/?callDetails=< call uuid >&user=< user_name >&password=< clear_password >&tenant=< tenant_name >&nomenu

Observation: this is best used inside of an IFRAME

Example:
Call Playback

http://SERVER:PORT/CallRecorder/?player=CALL_UUID&user=USER&password=PASSWORD&tenant=TENANT

Observation: this is best used inside of an IFRAME

File Storage URL

http://HOST:PORT/CallRecorder/Storage/STORAGE_VOLUME_ID/TENANT_PATH/CALL_PATH

where STORAGE_VOLUME_ID is the volume index number in the table storage_volumes, TENANT_PATH is the tenant’s relative path to files (you may find it on Tenants page), and CALL_PATH is the path to the required file relative to tenant's path, which can be found in the Calls table.

Example: http://localhost:8080/CallRecorder/Storage/1/2012/06/20/2012-06-20_22-07-47_81267_8666685394-1.rtp