Genesys Quality Management 8.1

Datasheet

About Genesys

Genesys solutions feature leading software that manages customer interactions over phone, Web, and mobile devices. The Genesys software suite handles customer conversations across multiple channels and resources—self-service, assisted-service, and proactive outreach—fulfilling customer requests and optimizing customer care goals while efficiently using resources. Genesys software directs more than 100 million customer interactions every day for 4000 companies and government agencies in 80 countries. These companies and agencies leverage their entire organization, from the contact center to the back office, while dynamically engaging their customers. Go to www.genesyslab.com for more information.

Each product has its own documentation for online viewing at the Genesys Technical Support website or on the Documentation Library DVD, which is available from Genesys upon request. For more information, contact your sales representative.

Notice

Although reasonable effort is made to ensure that the information in this document is complete and accurate at the time of release, Genesys Telecommunications Laboratories, Inc., cannot assume responsibility for any existing errors. Changes and/or corrections to the information contained in this document may be incorporated in future versions.

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Table of Contents

Chapter

1 Introduction

This chapter provides an overview of this document, identifies the primary audience, introduces document conventions, and lists related reference information.

This chapter contains the following sections:

Document Purpose

This document summarizes the technical aspects of the Genesys Quality Management operating on Cisco and Genesys platforms. Some of the functionality and information provided and described in this document may differ for other platforms.

Designed as a guide for creating offers for customers, this document also functions as one of the first references for Genesys partners.

The document provides a summary of the products contained within the Genesys Quality Management, highlighting their key technical features. This is followed by a technical overview of recording principles and exploration into how these products combined with Cisco and Genesys platforms work together to achieve your solution.

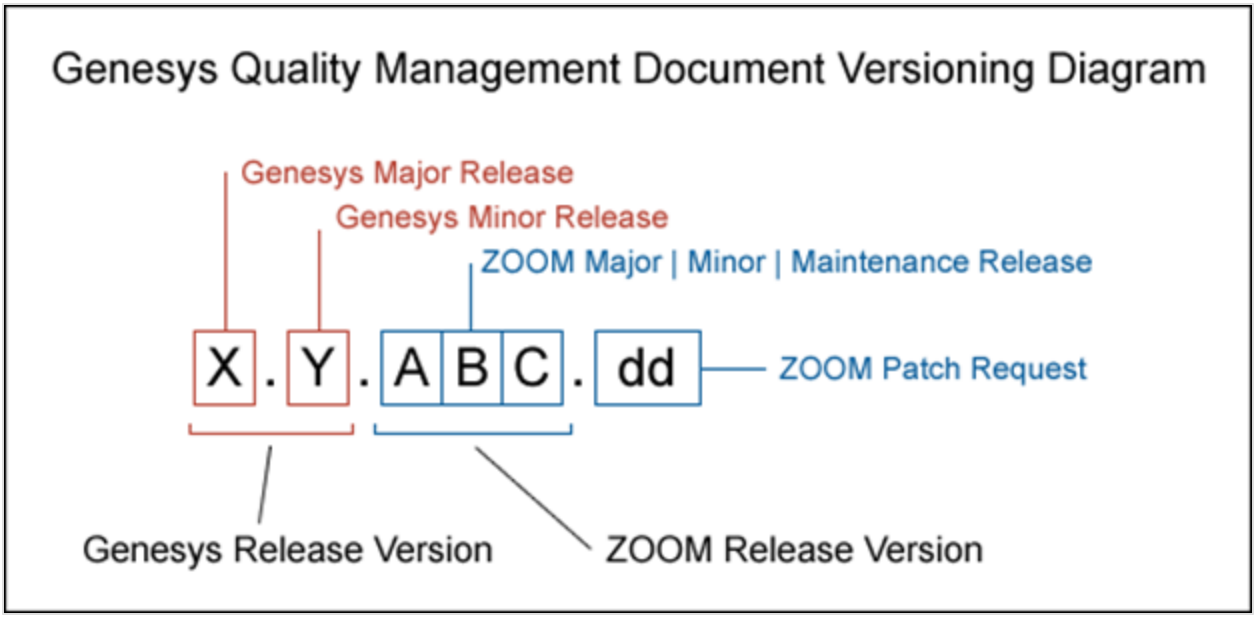
Audience

This document is intended for System Architects and Engineers.

Document Version

The Genesys Quality Management products are provided by a partnership between Genesys and ZOOM International. The Genesys Quality Management products use a versioning format that represents a combination/joining of the versions used by these two separate entities. Although the Genesys Quality Management products and documentation use this combined versioning format, in much of the software and logs you will see the ZOOM versioning alone. You need to be aware of this, for example, when communicating with Technical Support.

The version for this document is based on the structure shown in the following diagram:



Typographical Conventions

Names of functions and buttons are in bold. For example: **Upload**.

File names, file paths, command parameters and scripts launched from the command line are in `non-proportional font`.

Referred documents are in italics. For example: see the document *This is a Document* for more information.

```
Code is placed on a gray background and bordered
```

Hyperlinks are shown in blue and underlined: http://genesyslab.com/support/contact.

Expected Knowledge

Readers of this document are expected to have a basic understanding and perhaps some experience with ICT Technology.

Browser Recommendations and Technical Requirements

A minimum screen resolution of 1024 x 768 is necessary to use the GQM applications comfortably.

The following supported browsers are recommended for the Web GUI. The Windows Media Player is needed for Call Recording. The Java plugin is required for Universal Player in Quality Manager.

The browsers for PCs are shown in order of preference. The fastest performing browsers are first:

1. *Google Chrome:* Please download the latest version. Check issues using the latest browser version before reporting them.The user must install the *Windows Media Player* plugin below:

http://www.google.com/support/chrome/bin/answer.py?hl=en&answer=95697

2. *Internet Explorer 9*
3. *Internet Explorer 8* with *Google Chrome Frame* plugin. The *Google Chrome Frame* plugin can be obtained here:

http://code.google.com/chrome/chromeframe/

4. *Internet Explorer 7* with *Google Chrome Frame* plugin.This version of IE should be upgraded to IE9 as soon as possible.
5. *Firefox 3.6.16+* Admin rights required for installation. The user must install the *Windows Media Player* plugin below:

http://www.interoperabilitybridges.com/windows-media-player-firefox-plugin-download

6. *Opera 9+*
7. *Safari 5*
8. *Internet Explorer 8* without the *Google Chrome Frame* plugin.The performance is slow.

The following browsers are not recommended:

Internet Explorer 7 without the *Google Chrome Frame* plugin runs too slowly.

Internet Explorer 6 is not supported.

Use Safari or Firefox with Mac OS 10.

Important:

Web browsers require a media player plug-in (*Windows Media Player* 9+ for Windows PCs, *VLC* for Macs and Linux) for audio and video media review, and at least *Adobe Flash Player* 9.x runtime installed for viewing reports.

Internet Explorer Security Settings:

Windows XP

The following recommendations are encouraged for the Web GUI running on Windows XP:

- Check that the Call Recording URL is included in the "Trusted sites". If not, include it there. If the user doesn't have administrator privileges, contact the system administrator or set security level of the zone that contains the server to Low.
- Check that there is no proxy enabled in the web browser. If there is, try to disable it. The proxy can affect the functionality.
- Set the security level of trusted sites to Low.

Windows 7

The following recommendations are encouraged for the Web GUI running on Windows 7:

- Check that the Call Recording URL is included in "Trusted sites". If not, include it there. If the user doesn't have administrator privileges, contact the system administrator or set security level of the zone that contains the server to Low.
- Check that there is no proxy enabled in the web browser. If there is, try to disable it.
- Set the security level of trusted sites to Low.
- Disable protected mode for all zones. If protected mode is Enabled for the internet zone, it affects the functionality, even if the server is in trusted sites, this is for Internet Explorer only.

Technical Requirements for Playing Audio and Video Media

The following media players are recommended for successful video and audio playback.

The media players are listed in order of preference, for the reasons supplied below:

1. *Microsoft Windows Media Player*: Plays all audio and video media on the Windows 7 OS. Previous versions of Windows, for example,Vista and XP, need additional codecs to play video media.
   Download the K-Lite Codec Pack (BASIC or BASIC Mirror versions) from: http://www.free-codecs.com/K_Lite_Codec_Pack_download.htm.
2. *VLC*: Plays combined video and audio recordings, including dual-screen recordings of 1920x1080 or larger. It is not integrated into browsers, for example, *Internet Explorer* and *Firefox*, for audio playback. *VLC* is recommended for Macs and Linux-based systems for combined audio and video reviewing. *VLC* can be downloaded at: http://www.videolan.org/vlc/.
3. *QuickTime*: Plays audio and is integrated into *Internet Explorer*, but does not support playing mp3 audio and H.264 format video together for combined audio and video playback.

Chapter

2 Genesys GQM

GQM is a recording, quality and performance management suite for contact centers and unified communications environments.

The Genesys GQM provides you with a complete set of solutions to improve your contact center quality and performance. The suite offers interaction recording, screen capture, agent evaluation, and live monitoring.

The Genesys GQM scales from small contact center deployments up to large distributed enterprise architectures, and supports hosted and multi-tenant environments.

This chapter contains the following sections:

GQM Key Solution Advantages

GQM provides a complete set of solutions to effectively manage your contact center, including interaction recording, screen capture, agent evaluation, and live monitoring. GQM:

- Is designed for both small and large contact centers, and fully supports distributed and hosted environments.
- Features fully redundant architecture for performance and high availability.
- Fully supports Genesys SIP Server & Genesys Customer Interaction Management Platform.
- Supports Cisco Unified Communications Manager and Unified Communications 500 Series.
- Supports Avaya Aura Communications Manager.
- Is easy to install and use, and is designed from a user's perspective.
- Fully supports compliance recording to help meet PCI DSS, HIPAA, Sarbanes-Oxley, and Securities and Exchange Commission requirements.
- Utilizes privilege-based user access, including optional call encryption with a full audit log of every user action taken, which ensures a high level of security.
- Employs Robust Media Lifecycle Management (MLM) Tools which facilitate your requirements for media capturing, archiving, restoring, backup, and deletion.
- Localized into multiple languages, including Russian and Arabic. Each user can select his or her preferred language and new localizations can be added easily.

Call Recording

Genesys Call Recording is a multichannel recording solution for call centers, contact centers, and unified communications environments. Call Recording is easy to install and use, and allows you to centrally manage your entire deployment. The robust enterprise features will help you meet all of your compliance recording needs. Call Recording:

- Enables call searching using parameters such as the customer ID or order number, facilitated by out-of-the-box integration with your contact center and Customer Relationship Manager (CRM).
- Leverages Active, device-based recording to save time on network configuration and reconfigurations when the network topology changes.
- Provides Genesys Advanced Player, which allows you to play the entire customer interaction in one recording, including Interactive Voice Recordings (IVR), transfers, holds. and conferences.
- Uses optional call encryption to protect sensitive recordings.
- Keeps data secure with an audit trail for every user action.
- Enables on-demand recording functionality for your back office.
- Provides robust Media Lifecycle Management (MLM) Tools to synchronize calls from multiple locations into a central Replay Server and manage retention policies for data interaction based on any defined parameters.
- Fully supports compliance requirements for PCI-DSS, HIPAA, SEC 17a-3 and 4, and SOX.

Agent Screen Capture

Genesys Screen Capture monitors and captures agent screens, providing a company with the means to evaluate the performance of individuals or groups of contact center agents throughout the organization. Screen Capture provides a full view of customer interactions when paired with Call Recording. The following features are native to Screen Capture:

- Synchronized call and screen playback to get a full view of the agent/customer interaction.
- Definable video quality to meet your bandwidth and storage requirements.
- Full agent / customer interaction capturing, from the beginning of a call until the end of a wrap-up action – not just until the end of the voice conversation.
- Full-screen capture to help understand all actions taken by your agents, so that you can identify ways to improve customer service and make problem solving more efficient.
- Screen capture archiving enables previous interactions between your agents and the customer to be available for use in e-learning or agent coaching.

Quality and Performance Management

Genesys Quality Manager is a comprehensive contact center quality management solution for scoring and improving an agent's performance. Quality Manager facilitates the creation of multiple scoring questionnaires, scheduling and execution of evaluations, and the use of reports to spot trends. Quality Manager enables you to:

- Use rich reporting features that identify agent strengths and weaknesses in service, interactions, and communication skills.
- Create evaluation criteria to score and measure an agent's skill sets based on your exact requirements.
- Select and score calls recorded by Call Recording, using criteria such as length of call, day of the week, time of day, and any other parameter from contact center and CRM integration.
- Give agents access to their evaluations, with additional feedback on a good performance or the need for improvement.
- Use trend reports and graphs to identify agent and team progress and improvement.
- Seamlessly synchronize and authenticate users between the Call Recording, and Cisco and Genesys contact center platforms via the integrated User Management tool.
- Monitor high level call center performance indicators via the Call Center Dashboard view.

Live Monitoring

Genesys Live Monitor supplies supervisors with a real-time overview of all active calls for all of their agents.

Live Monitor allows supervisors or contact center managers to listen to live agent interactions, and to add flags and scores for later review.

Live Monitor empowers the user to:

- Select a specific call to listen to it live, without any noticeable delay, using computer speakers or a headset.
- Access the tool directly from a web browser via a Java-based application that does not require local installation.
- Benefit from access privileges that allow access to a specific group of agents, or all agents, that can be assigned by an administrator.
- Attach comments and flags to each monitored call for later evaluation and review.
- Save prerecorded calls and email them via the Call Recording user interface.

Chapter

3 Genesys Call Recording – Multichannel Interaction Recording

Genesys Call Recording is a multichannel recording solution for contact centers and unified communications environments. The application offers many features as standard, including an intuitive web-based interface, complex record organization, storage and archiving, sophisticated access control and record manipulation, comprehensive recording of 100% of every call, and the functionality to access the recordings on demand.

This chapter contains the following sections:

Reporting Tool

Call Recording – Fundamentals

The purpose of the ZOOM QM suite of products is to improve the quality management and performance of contact centers. Genesys Call Recording contributes to this goal by providing an advanced recording and processing platform. The process of call recording and processing can be divided into the following four simplified steps:

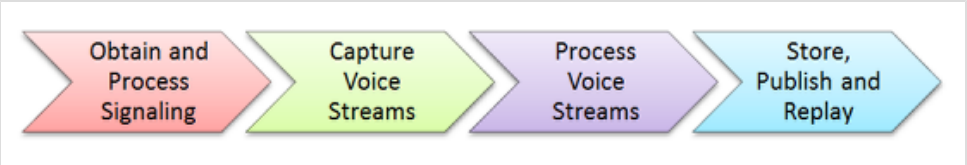


Figure 1: Four Simplified Steps

Information obtained by processing call events is used to notify the recording systems about what is happening on a call. For example, whether the call is:

- A new call
- A current call on hold
- A call being transferred

Based on this information, Call Recording can capture the voice streams that are transmitted through the network via the shortest available route. After the voice streams are captured, Call Recording decodes and compresses them to recreate the original call. Using a combination of modules within its architecture, Call Recording presents the data in a usable format, and stores and publishes that data so that users can review it on demand.

Call Recording – Methods

Genesys Call Recording can be deployed in various different configurations to provide multichannel recording solutions.

Active Recording

Most modern switch platforms support the Active Recording. Active Recording means that the PBX is able to provide a third party recording system with all the call related events and upon request or automatically can send copy of the selected conversation. The recording system listens on the programming interface, gathers all the events and either records all the provided calls (replicated media and metadata) or makes decision based on the internal business rules and provides recording requests to these calls that are interesting.

Active Recording provides the most reliable recording including various call related metadata, supporting user based recording on demand, notification of recording and many other interesting features.

Genesys Call Recording supports active recording on all three supported platforms - Cisco Unified Communications Manager, Genesys SIP Server, and Avaya Aura Communications Manager.

Enhanced Passive Recording

Enhanced Passive Recording (also referred to as hybrid recording) combines an active method of obtaining the telephony events while passively capturing voice data via the SPAN port. In the active method, Call Recording communicates directly with the IP PBX (or soft switch) through a CTI interface and receives all the required events that trigger calls. Call Recording supports Cisco JTAPI on the Cisco Unified Communications Manager platform and the Voice Monitoring API on the Genesys platform.

Passive SPAN Based Recording

The Switched Port Analyzer (SPAN) recording method is based on listening to network traffic, and creating a monitor on the switch or elsewhere within the network infrastructure. It is a passive method of recording: Call Recording listens to the traffic, processes the signaling protocol of IP phones, and captures the RTP data.

SPAN is a special function of an IP network. SPAN passively captures signaling and voice data and duplicates the data to a specified device or port (for example, to a recorder).

The passive method of capturing call signaling is based on observing all communication between the IP phone and the IP switch, decoding this captured data, and processing the information. Based on this captured signaling, Call Recording can detect all of the important information, including:

- Call initiation
- Switch-over
- Call holding
- Call termination

This method depends highly on the network infrastructure and is not able to detect drop-outs in signaling.The Passive method is mostly useful for recording of Cisco Unified Communications Manager Express over Cisco SCCP, and over generic SIP for various SIP-based platforms.

Recording in the Genesys Environment

Call Recording works by capturing SIP signaling protocol and RTP streams, and integrating the Genesys T-Server and Configuration Server to get additional data about the calls.

Call Recording also provides direct support of Cisco Unified Communications Manager (CUCM) as a third-Party PBX on the Genesys Customer Interaction Management Platform (CIM).

Genesys also supports recording via Stream Manager to create WAV files that can then be obtained by a third-party; however, Call Recording does not support this method, because it severely limits product functionality such as live monitoring, and provides no guarantee that the call will be recorded.

Genesys CIM with SIP Server

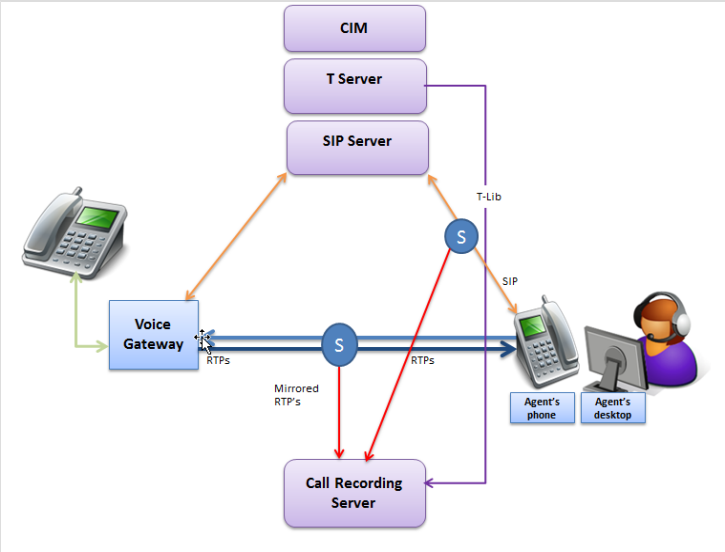


Figure 2: Genesys CIM with SIP Server

The EPR method on Genesys SIP Server tracks the SIP signaling protocol. The Call Recording server monitors the SIP signaling and extracts information about calls currently in progress. This includes their terminal addresses of the parties involved in the call, and as a result the recording server captures the RTP streams. Through the T-Library, Call Recording integrates with the T-Server to retrieve data about agents, their interactions, and any attached data.

This method is highly dependent on the network infrastructure.

Genesys CIM with CUCM

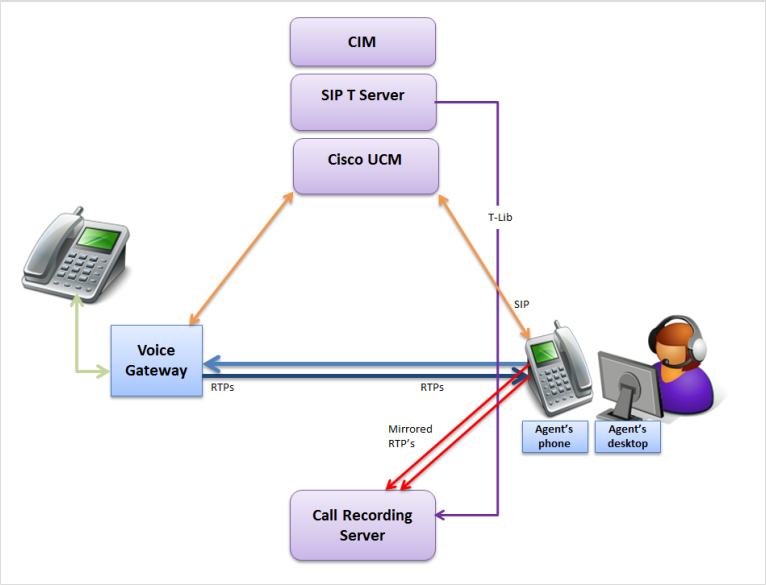


Figure 3: Genesys CIM with Cisco UCM

Another approach is to record Genesys CIM calls with CUCM is an active recording configuration. In this case the Genesys (CIM) is deployed with CUCM as an underlying PBX. In this scenario, the Cisco T-Server also performs integration. In addition to connecting to CUCM, Call Recording directly communicates with the Cisco T-Server to get the call related data not available from the Cisco platform.

Call Metadata

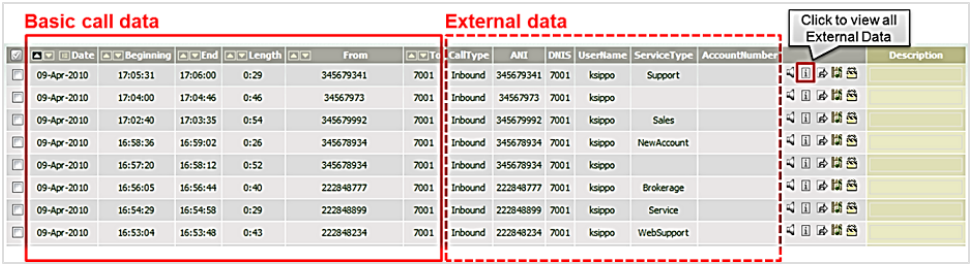


Figure 4: Call Metadata

The internal Call Recording database stores call metadata as two different entities:

- Basic call data
- External data

Basic call data exists for all recordings, regardless of the underlying PBX, contact center platform, or third-party integration. The structure of the data is always the same, and represents extension numbers, date and time stamp, and internal flags only.

External data contains platform-specific information stored as key/value pairs. Virtually any amount of external data can be stored with every call; however, a large amount of data may have negative impact on the rate of searching and sorting call metadata within the database, or within any other tools which utilize this data.

Protocols and Interfaces

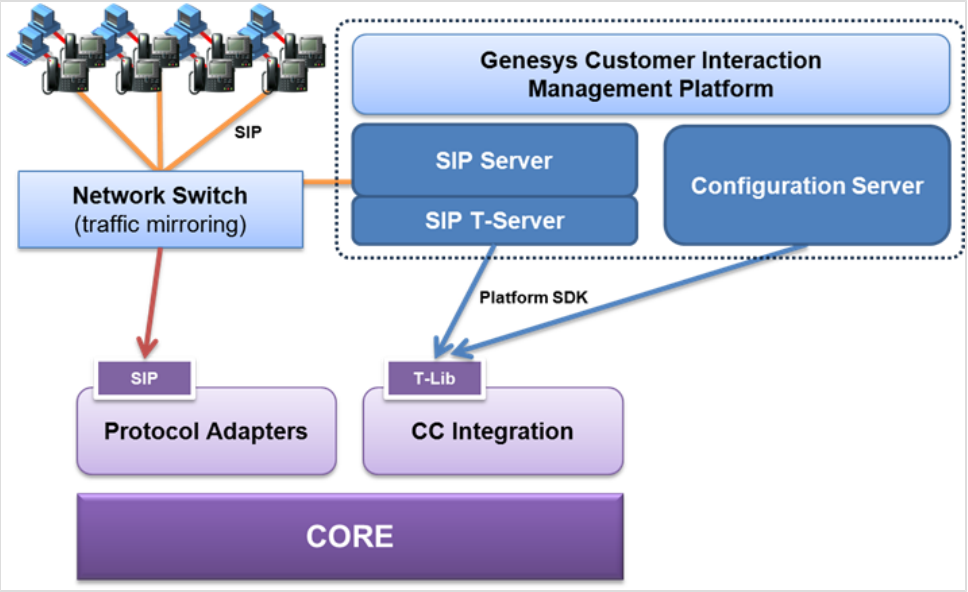


Figure 5: Genesys Integration Module example - Call Recording

As already discussed, calls are recorded based on SIP signaling, which is obtained from the network switch by mirroring SPAN ports. The signaling information arrives at the protocol adapter, which interprets the protocol and passes the events to the Recording Core. From the point of view of the SIP Server, Call Recording is entirely passive.

Call Recording subsequently interfaces with the T-Server and Configuration Server, which is accomplished by a component called the Genesys Integration Module (GIM). There are two different components on the Call Recording side that interface with the Genesys CIM platform.

The platform SDK is used as the interface for connecting to T-Server and Configuration Server, specifically the Voice Platform SDK and Configuration Platform SDK.

Call Recording – Processing and Managing Data

Processing Captured Data

Raw voice data needs to be converted from the form it is transported in, to an audio format that is suitable for storing and playing. Call Recording extracts the captured streams, detects the codec and format used, and transcodes the raw data into the selected audio format. Because each call contains two or more independent audio files, the final step is to synchronize them and reconstruct the original caller-recipient order. This process generates the final stereo files that contain the two synchronized parts of the original call (one for each side of call). Before storing this information, Call Recording converts the audio file into the selected storage format, either MP3 or WAV.

Recorded Call Management

Recorded calls can be accessed through the Call Recording web interface, which provides a multitude of functions to archive, sort, search, and back up recorded calls. Call Recording can support hundreds of calls simultaneously. Each user will obtain their own copy of the call (according to user permissions set up by the admin).

Call Recording Main Features

Genesys Call Recording was developed specifically to record in contact center and unified communications environments, and uses the unique features and advantages of an IP environment. These features include the following:

- Modularity
- Scalability
- Distribution
- Redundancy

Modularity

Call Recording is a modular solution, and is highly adaptable to requirements without needing frequent hardware changes and software reinstallations.

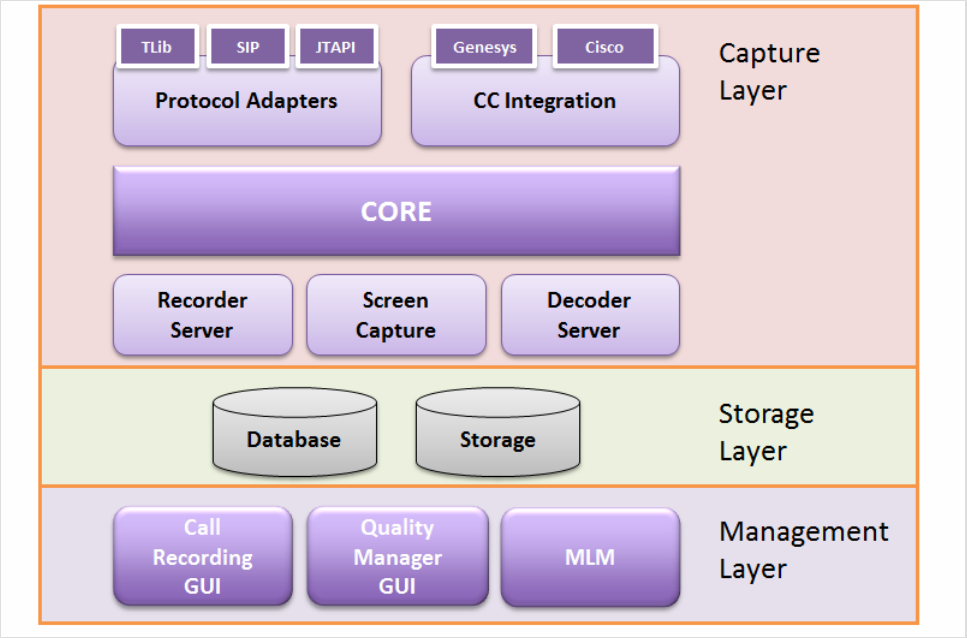


Figure 6: Component view

The complete recording system consists of many stand-alone modules with strictly defined roles in the recording process. These features include capturing signaling, offering recordings to users for monitoring, playback, and storage. Each module can work independently.

Genesys Call Recording can be deployed as a single-server solution (all modules installed on a single server). In addition, modules can be combined to create a clustered solution (any combination of modules on any number of servers with optional redundancy) to record many hundreds of simultaneous calls. Clustered solutions are used to enhance performance, or they are deployed within a geographically wide network where recorded calls are required to be simultaneously accessed at numerous physical locations.

Scalability

Call Recording is a pure software solution that operates and is supported on a standard Intel/AMD server, and requires no special hardware. With the designed architecture and hardware in place, Call Recording can record several hundred simultaneous calls. Through the addition of multiple servers to the existing architecture, Call Recording can be scaled to support your business growth and future requirements.

Distributed and Centralized Solution

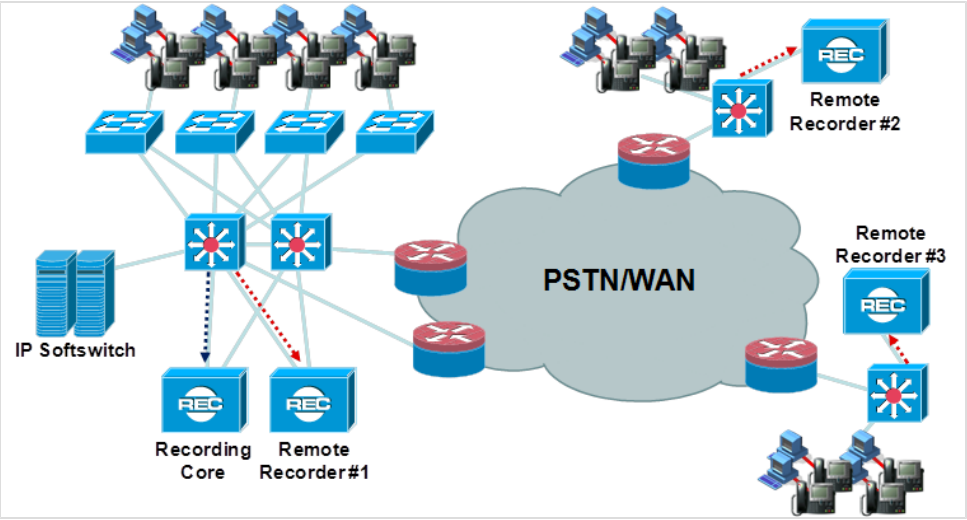


Figure 7: Distributed Recording with Centralized Processing

Genesys Call Recording can be deployed to record calls throughout multiple locations while fully utilizing the ease of a centrally managed system. The Centralized control server, Genesys Call Recording Core communicates with:

- User interfaces (users are defined in a single location)
- Databases, archiving, backup, reporting, application and recording logic

The Genesys Call Recording Remote Recorders capture the recorded call data, and sends that data to the central server for additional processing.

A Call Recording server or cluster is deployed in each remote location with call storage centralized on a single Replay Server. From the user perspective, the behavior is the same: there is one user interface that provides access to all recorded calls. One of the advantages of this approach is the ability to schedule call replication to the Replay Server at selected times, during off-peak hours for example. This means that recorded calls traveling between the locations will not influence any other crucial real-time traffic.

High Availability

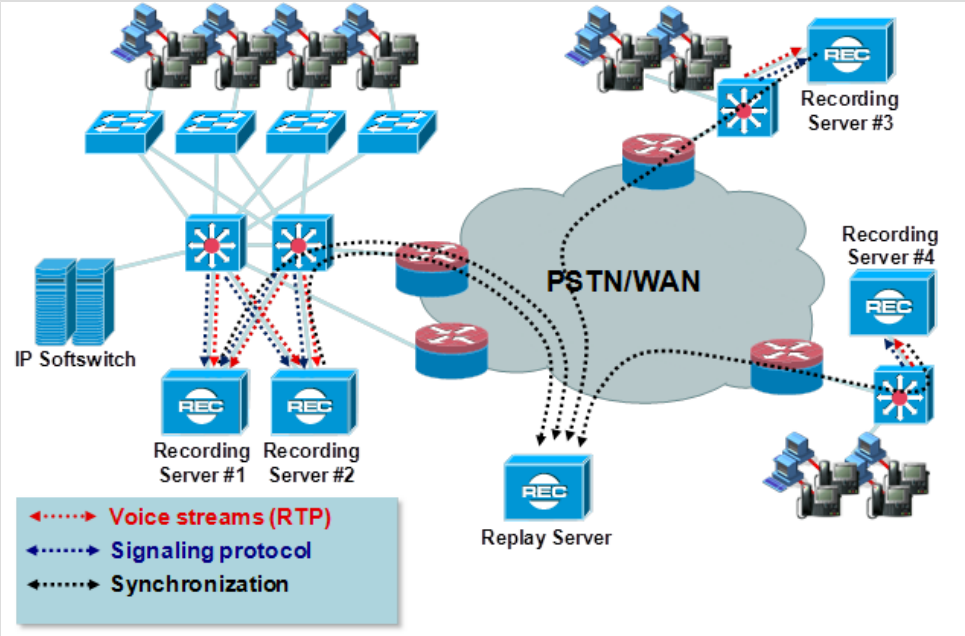


Figure 8: High Available Deployment with Replay Server

In critical environments, it is possible to deploy Call Recording as a redundant solution to ensure 100% reliability. Redundancy is maintained by two (or more) independent recording servers with identical functionality. If one server fails, the second server will continue to record. When the first server becomes available again, all data is synchronized and both servers continue to record without any gap or loss of call data.

Redundant architecture achieves almost 100% prevention against recording system failure. This ensures high reliability and insurance against lost data.

Cisco Survivable Remote Site Telephony (SRST)

It is also possible to continue recording calls in remote sites in the event of a WAN failure. The Cisco Survivable Remote Site Telephony (SRST) feature involves decoding the Cisco Skinny protocol and does not rely on data across the WAN. This means that call recording can continue to function and maintain the same level of resistance as the telephony system itself. When the WAN becomes fully operational, calls are then synchronized to the central storage.

Replay Server

The Replay Server serves as a centralized access point for all available call recordings, archiving and backup, and supports user control.

Each user's Call Recording GUI is connected to the Replay Server and all recorded calls are mirrored on the same server. A specific advantage of the Replay Server is that all of the servers are synchronized with the Replay Server (database records on all servers are intelligently synchronized).

All previously described configurations can be combined and customized:

Call Recording is scalable according to the client's requirements and network expansion. The scenarios described earlier are examples of typical usage, not an exhaustive list of all deployment possibilities.

Compatibility – Recording methods and protocols

Call Recording supports the following recording methods and protocols for select vendors:

Cisco

- Cisco UCM 6.0 - 8.6
- Cisco UCM 5.1 (passive/enhanced passive only)
- Cisco UCMX 4.1, 4.3, 7.0 - 8.6 (passive only)
- Cisco SRST 4.1, 4.3, 7.0 - 8.6 (passive only)

Genesys

- Genesys SIP Server 8.1
- Genesys SIP Server 7.5 – 8.0 (passive/enhanced passive only)

Avaya

- Avaya Aura Communications Manager 5.2 – 6.2
- Requires relevant Avaya Aura Application Enablement Services 5.2 – 6.2

Passive recording (generic SIP)

Please note the limited support of SIP based passive recording. The following platforms were recently tested and deployed, but not all the versions and deployments are fully supported. Additional verification may be required.

- Asterisk
- BroadSoft BroadWorks
- IP Trade

Compatibility – Contact Center Platforms

Call Recording recording is fully integrated with the following contact center platforms:

Ciscosolutions

Genesyssolutions

- Genesys CIM 7.5, 7.6, 8.0, 8.1

User Interface

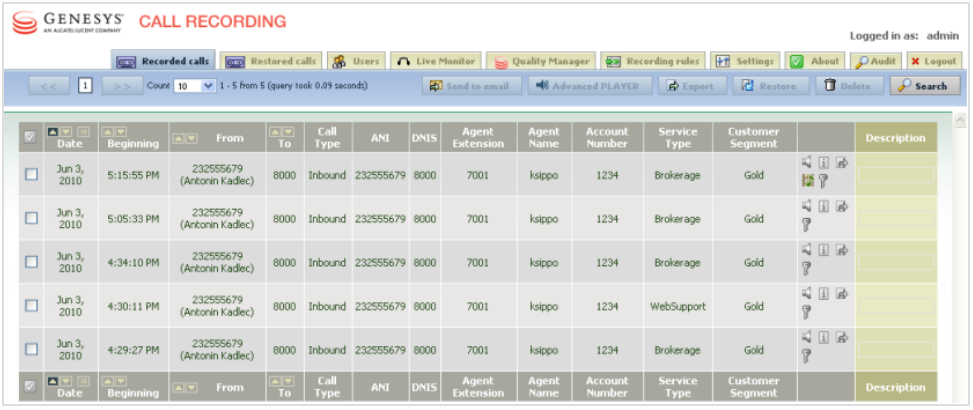


Figure 9: Call Recording User Interface – Viewing Calls

All call-related tasks may be restricted according to the user‘s access rights. Each user’s actions are additionally stored in the Audit Log.

Calls in the list are tagged with graphical icons indicating the status of a particular recording and additional information stored with the call.

Indicators include:

- Archived calls
- Archived calls with deleted media
- Calls synchronized to Replay Server
- Restored calls
- Calls being restored
- Calls with recorded agent desktop (Screen Capture)

Additionally, text tags can be added to recordings directly from the IP phone during the call or from the Live Monitor console.

Call Manipulation

Call manipulation refers to the actions of searching, playing, exporting and other call-related tasks (according to user permissions). Filtering or searching for recorded calls can be defined by the following criteria readily available within the Call Recording database:

- Calling phone number
- Called phone number
- Date and time of call initiation
- Date and time of call termination
- Length of the call
- Notes added to the call
- Call type (forward, conference, re-connected calls, parked calls, barge)
- Count of couples indicating conference or re-connected calls
- Any other call related data that are attached during recording – for example Genesys Attached Data, CRM information, etc…

Call Playback

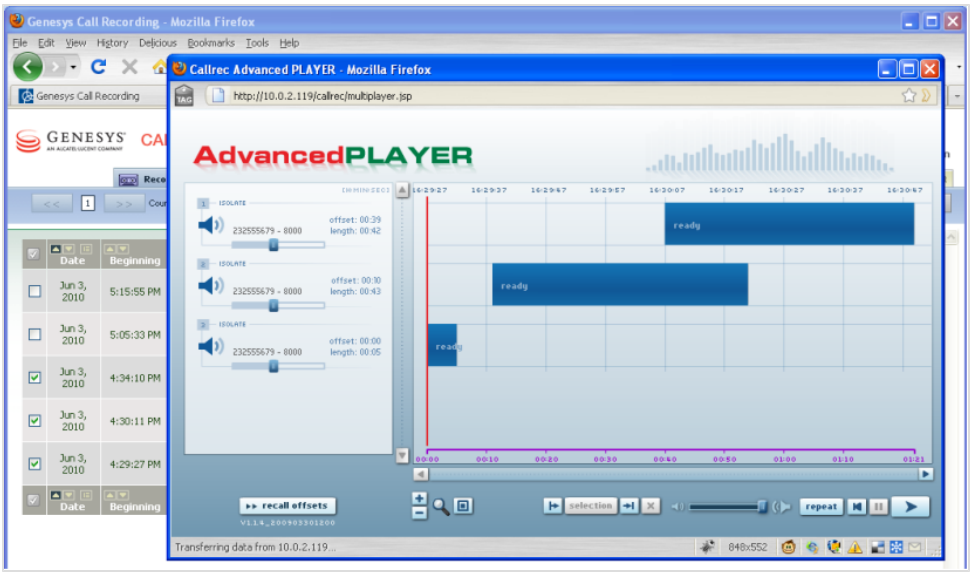


Figure 10: User Interface – Reviewing Calls in Advanced Player

A default multimedia player enables the recorded calls to be played on specific platforms. Typical configuration for the Microsoft Windows platform is Microsoft Internet Explorer and Windows Media Player.

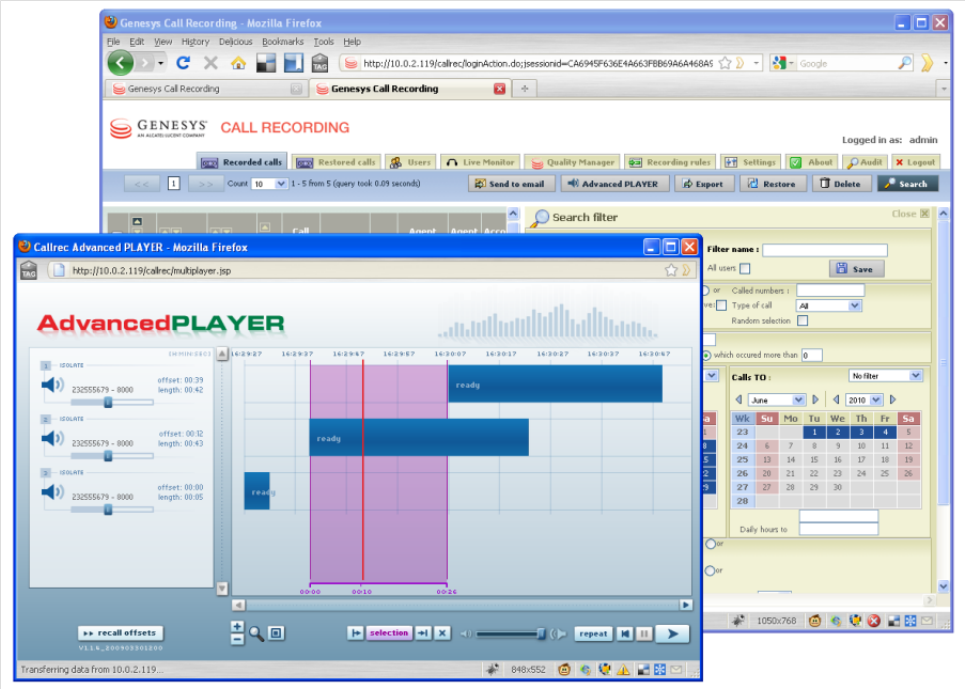


Figure 11: User Interface – Call manipulation and playback with Advanced Player

The built-in media player is well suited to replaying single recordings, but when whole interactions (such as transfer or conference calls) need to be analyzed, the Advanced Player is a more effective solution.

Combining call manipulation and call playback allows you to select the types of call and the parts of the call you wish to hear, for example,transfers (to ensure that agents are using the appropriate transfer method).Advanced Player allows you to replay related calls such as conference calls. Searching for these calls for example by call type or couples count within the user interface will display all calls within the selected parameters:

Advanced player displays the selected calls on a timeline to provide a clear picture of how the calls occurred.

Sending Calls

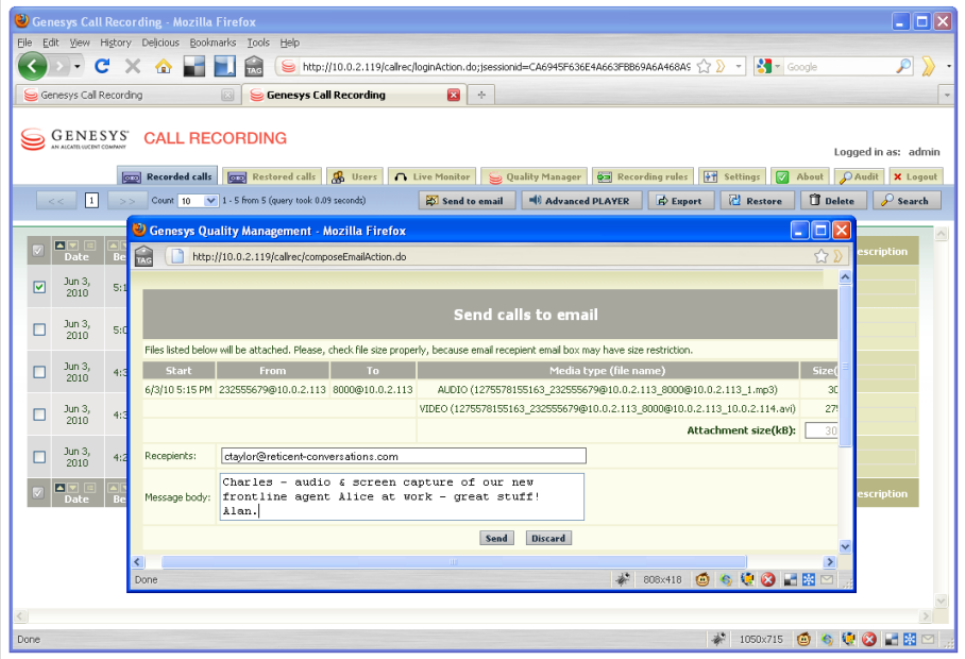


Figure 12: Call Recording User Interface – Sending Recorded Calls by Email

Where (SMTP) email relay is available, recorded calls can be sent via email directly from the user interface, to access recordings outside the product suite's native environment.

Call Metadata

The internal Call Recording database stores call metadata as two different entities:

- Basic call data
- External data

Basic call data exists for all recordings, regardless of the exchange, contact center platform or 3rd party integration. The structure of data is always the same and represents only extension numbers, date and time, and internal flags.

External Data contains platform specific information stored as key/value pairs. Virtually any amount of external data can be stored with every call; however a large amount of data may impact database performance.

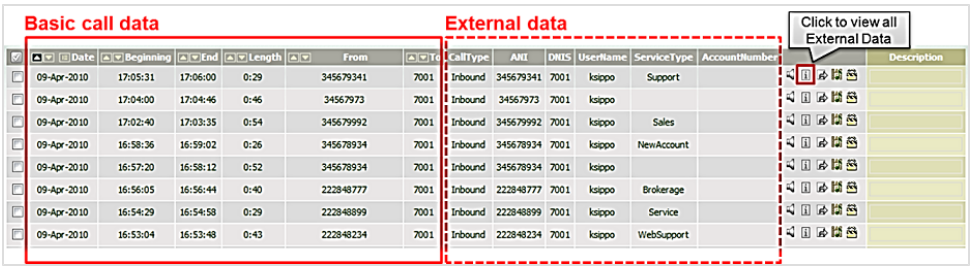
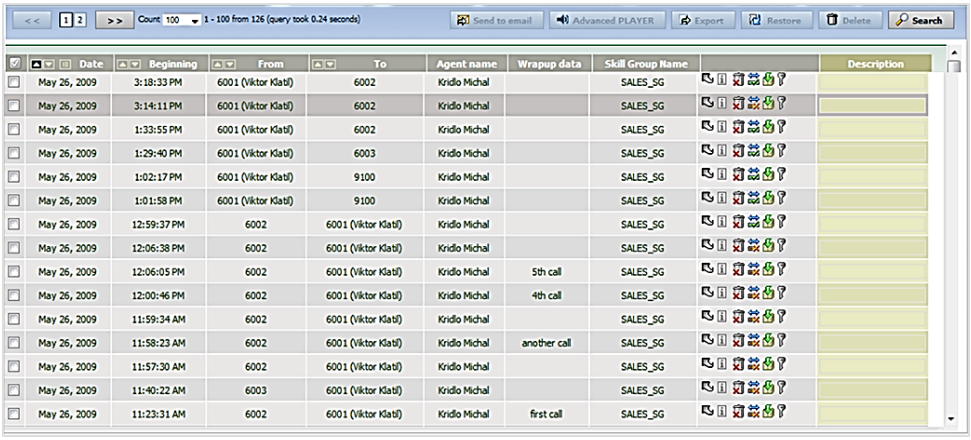


Figure 13: Call Metadata

Viewing Integrated data

Data provided by Cisco Unified Communications Manager or the Genesys Integration Module can be viewed together with Call Recording data in the Call View. Using this integrated data means a call can be identified further using information from the CUCM or the Genesys Integration Module, to augment existing data with more actionable information.



Date	Beginning	From	To	Agent name	Wrapup data	Skill Group Name	Description
May 26, 2009	3:18:33 PM	6001 (Viktor Klatil)	6002	Kridlo Michal		SALES_SG	
May 26, 2009	3:14:11 PM	6001 (Viktor Klatil)	6002	Kridlo Michal		SALES_SG	
May 26, 2009	1:33:55 PM	6001 (Viktor Klatil)	6002	Kridlo Michal		SALES_SG	
May 26, 2009	1:29:40 PM	6001 (Viktor Klatil)	6003	Kridlo Michal		SALES_SG	
May 26, 2009	1:02:17 PM	6001 (Viktor Klatil)	9100	Kridlo Michal		SALES_SG	
May 26, 2009	1:01:58 PM	6001 (Viktor Klatil)	9100	Kridlo Michal		SALES_SG	
May 26, 2009	12:59:37 PM	6002	6001 (Viktor Klatil)	Kridlo Michal		SALES_SG	
May 26, 2009	12:06:38 PM	6002	6001 (Viktor Klatil)	Kridlo Michal		SALES_SG	
May 26, 2009	12:06:05 PM	6002	6001 (Viktor Klatil)	Kridlo Michal	5th call	SALES_SG	
May 26, 2009	12:00:46 PM	6002	6001 (Viktor Klatil)	Kridlo Michal	4th call	SALES_SG	
May 26, 2009	11:59:34 AM	6002	6001 (Viktor Klatil)	Kridlo Michal		SALES_SG	
May 26, 2009	11:58:23 AM	6002	6001 (Viktor Klatil)	Kridlo Michal	another call	SALES_SG	
May 26, 2009	11:57:30 AM	6002	6001 (Viktor Klatil)	Kridlo Michal		SALES_SG	
May 26, 2009	11:40:22 AM	6003	6001 (Viktor Klatil)	Kridlo Michal		SALES_SG	
May 26, 2009	11:23:31 AM	6002	6001 (Viktor Klatil)	Kridlo Michal	first call	SALES_SG	

Figure 14: Call Recording User Interface – Viewing Call Wrap-Up Data Associated with Calls

Date	Beginning	Length	From	To	User Name	Place	ANI	DNIS	Description
Apr 29, 2008	3:04:09 PM	0:40	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 29, 2008	2:59:11 PM	0:08	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 29, 2008	2:48:57 PM	0:14	3002 (3002)	3400	3103	Place3003	3002	3400	escalate
Apr 29, 2008	2:41:31 PM	0:11	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 29, 2008	2:34:11 PM	0:12	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 29, 2008	2:23:53 PM	0:16	3002 (3002)	3400	3103	Place3003	3002	3400	needs review!
Apr 29, 2008	2:00:51 AM	0:52	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 29, 2008	1:21:42 AM	0:27	3002 (3002)	3400	3103	Place3003	3002	3400	pass to QA
Apr 29, 2008	1:03:30 AM	0:15	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 29, 2008	12:49:14 AM	0:14	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 28, 2008	11:19:48 PM	0:29	3002 (3002)	3400	3103	Place3003	3002	3400	needs review
Apr 28, 2008	11:11:21 PM	0:13	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 28, 2008	11:09:49 PM	0:14	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 28, 2008	11:06:58 PM	0:09	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 28, 2008	10:32:05 PM	0:15	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 28, 2008	10:19:26 PM	0:11	5022 (user022-ShowCase2)	3400	3103	Place3003	5022	3400	important call
Apr 28, 2008	10:09:50 PM	0:22	3002 (3002)	3400	3103	Place3003	3002	3400	
Apr 28, 2008	8:28:04 PM	0:05	5022 (user022-ShowCase2)	3400	3103	Place3003	5022	3400	
Apr 28, 2008	8:26:38 PM	0:15	5022 (user022-ShowCase2)	3400	3103	Place3003	5022	3400	order
Apr 28, 2008	7:50:50 PM	0:04	5022 (user022-ShowCase2)	3400	3103	Place3003	5022	3400	
Apr 28, 2008	6:43:20 PM	0:22	5022 (user022-ShowCase2)	3400	3103	Place3003	5022	3400	
Apr 28, 2008	6:38:54 PM	0:26	5022 (user022-ShowCase2)	3400	3103	Place3003	5022	3400	complaint

Figure 15: Call Recording User Interface – Viewing Integrated Data Associated with Calls

Call Search

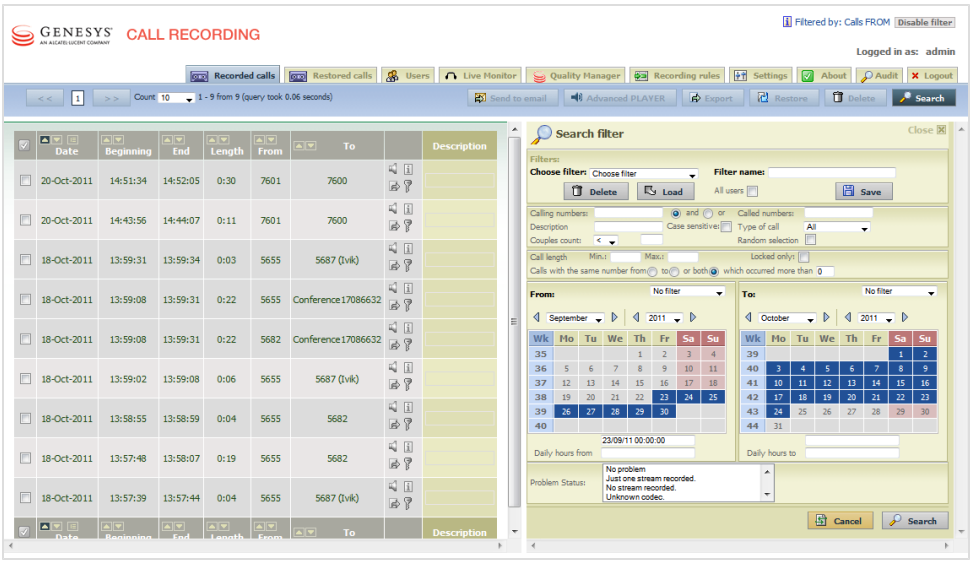


Figure 16: Call Recording User Interface – Searching for Calls by Specifying External Data values

Using the available database fields, calls can be retrieved where a specific customer has called more than X times during a defined period, for example. The search can be extended with specified information from the additional metadata.

The following figure displays a call search using user name and calling numbers parameters, leveraging data from the integration module.

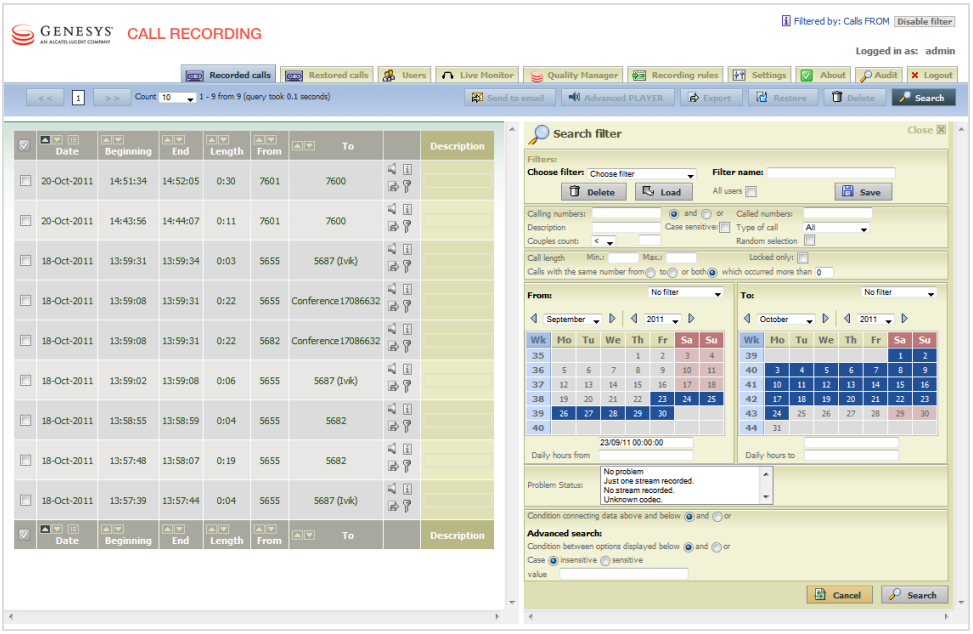


Figure 17: Call Recording User Interface – Searching for Calls

Recording Rule Management

Recording Rules determine which calls are recorded. Basic recording rules are based on the phone numbers or on the IP address of the phone. Additionally, rules can be created using any other available metadata. For example, to support free seating in call centers, Call Recording also offers the option to set up recording rules based on Agent ID as obtained from the Integration Module and stored in Call Recording external data.

There are 3 recording rules:

Record – Every call to or from the selected phone number will be recorded.

- Record only incoming calls
- Record only outbound calls
- Record a combination of incoming and outbound calls

Do not Record – No call to or from a selected phone number will be recorded.

- Do not record only incoming calls
- Do not record only outbound calls
- Do not record a combination of incoming and outbound calls

Prerecording – This feature activates recording-on-demand, meaning that every call will be recorded, but only calls that are selected will be stored.

- Calls may be selected for storage during the call
- Calls may be selected for storage within a specified time after the call has ended

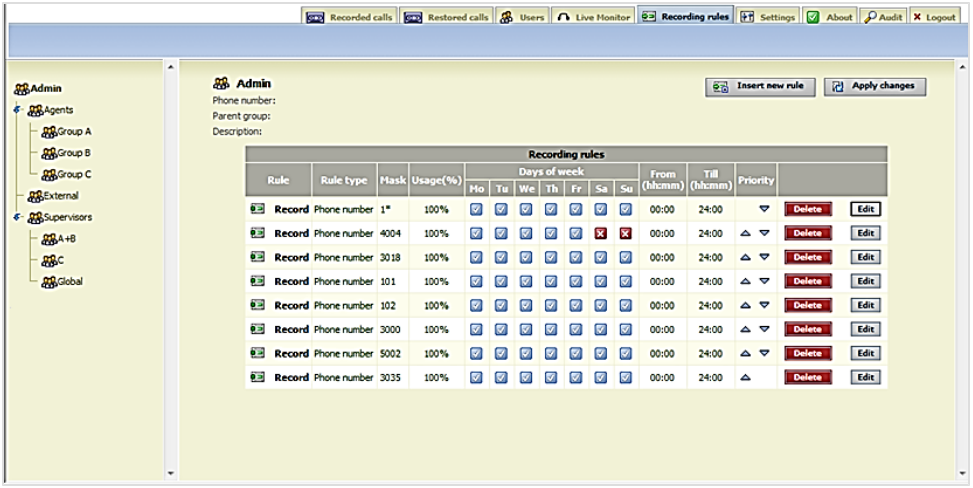


Figure 18: Call Recording User Interface – Management of Recording Rules

Recording rules can be set for individual numbers or for ranges of numbers using wild cards.

User Management

User Management is organized according to a hierarchical delegation of rights or ACL (Access Control List). The ACL enables an administrator to assign or restrict permissions to individual users or to user groups.

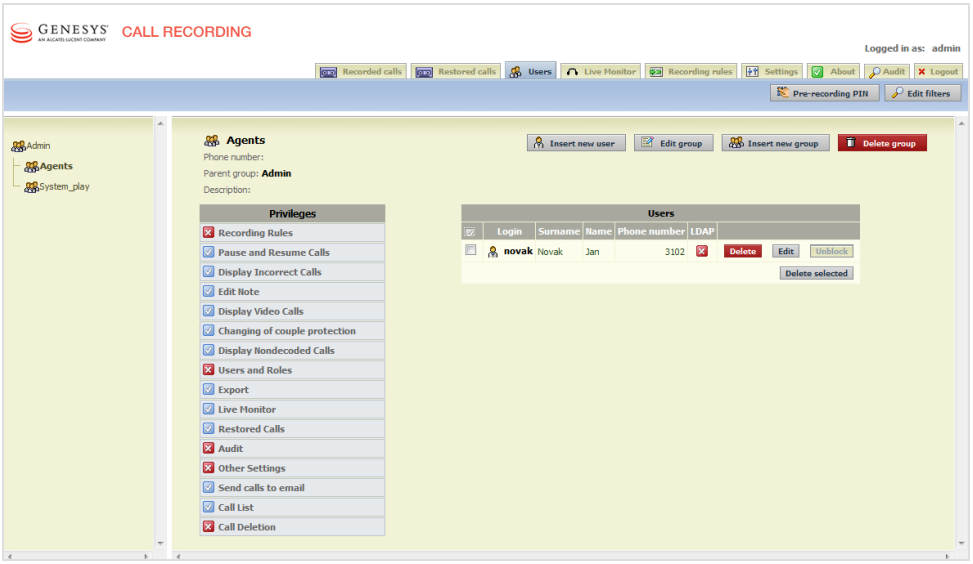


Figure 19: User Interface – User Management

Assignable privileges can be categorized into three groups, and include the following:

User Level

- **Call list**: enables a user to see the list of recorded calls
- **Pause and Resume Calls**: enables a user to pause and resume recording while the call is in progress
- **Edit Note**: a user can add and edit associated call notes
- **Export**: a user can download call recordings to a local computer
- **Send Calls to Email**: a user can insert a call recording into an email as an attachment

Advanced Level

- **Display Video Calls**: a user can view captured computer screen recordings
- **Changing of couple protection**: user can remove protection to secure recorded calls evaluated within Quality Manager
- **Display non-decoded calls**: a user can view unprocessed calls
- **Call deletion**: a user can delete call recordings

- **Display incorrect calls**: a user can view calls that were not successfully recorded
- **Live Monitor**: a user has access to Live Monitor
- **Restored Calls**: a user can restore archived recordings
- **Audit**: access to recording logs

Admin Level

- **Users and Roles**: a user can add new users and set their privileges
- **Recording rules**: a user is enabled to define and edit recording rules
- **Other Settings**: access to system configuration, systems logs

Creating User Access Rules

The External data, for example the data from the contact center integration modules can be used to create filters and applied to user access rules, as shown below:

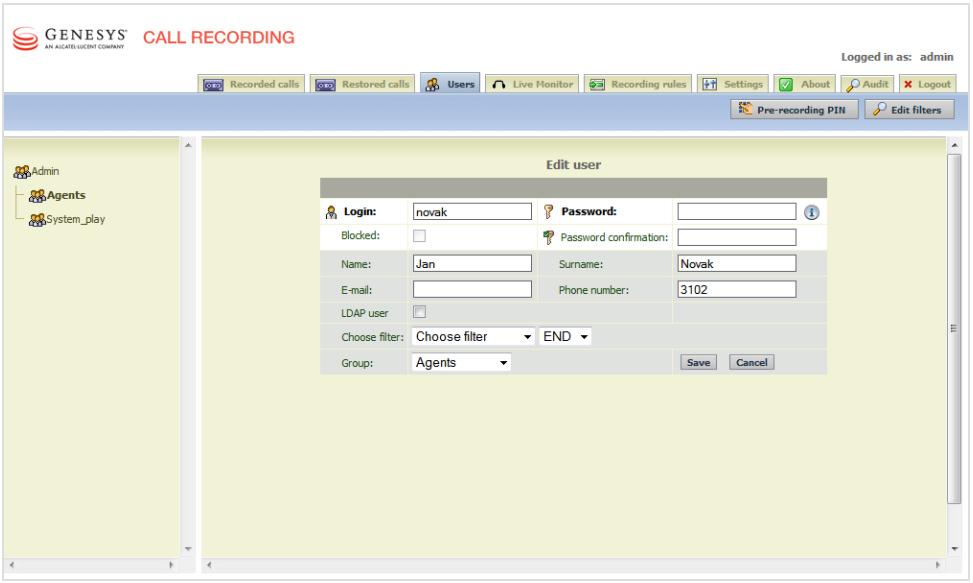


Figure 20: Call Recording User Interface – Creating User Access Rules

If a search is used repeatedly, Genesys Call Recording enhances efficiency as the search can be saved as a filter to be selected from the list and re-used. Search filters can be made available to other users of Call Recording. The creation of access based on integrated data is a powerful feature: permanent filters can be assigned to a group through the users tab as role-specific filters. For example, a supervisor could have a filter which only displays calls handled by his team of agents. The supervisor then sees only those agents' calls in the Call Recording user interface.

Prerecording – On-Demand Recording

Prerecording is available at any time during a call and can be selected for a period of time after the call's termination. Recording starts when a call is initiated, enabling prerecording to store a completed call; the system caches the voice data and waits for a request to save the call within a defined time period. If no request is provided the captured data is discarded. You can also send the recording to any email address of your choice directly from the Cisco IP Phone or from Live Monitor console.

Figure 21: Call Recording User Interface on an IP Phone

A user can control prerecording functionality in a number of ways:

- Using an IP phone interface – Cisco (IP Phone XML Service)
- Using the Live Monitor console
- From a 3rd party application (via custom integration to the Call Recording API)

The Cisco IP phone User Interface provides the ability to tag the call during the conversation directly from the XML Services enabled IP phone. This pre-defined tag information can then be used to locate and retrieve the call via the advanced search.

On Demand Recording – Integration with the Genesys Interaction Workspace

Media Lifecycle Management – Call Recording Tools

Backup, archiving, synchronization, and other tools are part of the Call Recording installation. With these Media Lifecycle Management (MLM) tools, you can easily define the lifecycle management for recorded media.

Please note that the MLM tools do not co-operate directly with the hardware for controlling storage media (DVD, tapes, etc). The tools only create packages which may be placed anywhere on a mounted direct access file system. Additional storing and handling (if necessary) is the responsibility of the customer's existing backup solution. MLM tools also provide integration with IBM Tivoli Storage Manager and EMC Centera storage solutions..

Features include:

- Custom Selection Condition – MLM data can be selected based on its attributes (phone numbers, description, integration data, etc.)
- Alternate source and destination paths, for example an archive with multiple file systems
- High and low watermark support
- Configurable success and failure notification emails
- Multiple scheduled tasks for archive and backup operations

Tools

These tools comprise the Call Recording media lifecycle management and are essential to facilitate the process of managing your data:

Relocation – Moves recorded calls from the primary storage and saves them to secondary storage. This can be anything connected to the server, for example a secondary hard drive, disk array, or NFS directory.

- Alternative Source Paths with Watermark support – archive operation triggered by low disk space on source file systems
- Alternative Target Paths with Watermark support – archive to multiple destinations, filling up to High Watermark
- Run as Daemon – can be useful when Watermarks are used

Backup – Creates a copy of the recorded calls without affecting the database. Backing up data can be configured as a daily routine process to protect your data.

- Alternative Source Paths with Watermark support – archive operation triggered by low disk space on source file systems
- Alternative Target Paths with Watermark support – archive to multiple destinations, filling up to High Watermark
- Configurable Success or Failure Notification Emails
- Multiple Scheduled Backup Tasks
- Backup only selected type of media (audio/video)
- Exclude non-decoded streams (PCAP)

Archive – Creates an archive package (.zip) comprising of audio and video files and a database dump. Archived calls are marked in the database with an archive flag. There is also the option of moving the files from live storage to secondary storage.

- Alternative Source Paths with Watermark support – archive operation triggered by low disk space on source file systems
- Alternative Target Paths with Watermark support – archive to multiple destinations, filling up to High Watermark
- Configurable Success or Failure Notification Emails
- Multiple Scheduled Archive Tasks

- Archive only selected type of media (audio or video)
- Exclude non-decoded streams (PCAP)
- Run as Daemon – can be useful when Watermarks are used

Restore – Used to bring data which has been archived or backed up, back online. The call will appear in the restored calls tab and marked with a time interval for which it will be available, after which it will be deleted.

- Restore to the live database with external data included - works in the same way as Synchro
- Alternative Target Paths with Watermark support – restores to multiple destinations, filling up to High Watermark
- Restore from previous versions (4.8, 4.9) – If the SID is missing in the `calls.xml` file in the archive, then call couples are matched using called, calling number and timestamp metadata.

It's also possible to cancel a requested restoration task. For example, if a user selects an archived call to be restored and later decides that the call is no longer required, the task of restoring the call can be canceled.

Delete – The delete tool can be set up to run automatically. Configure settings as appropriate for deleting recordings and their associated database records.

- Run as Daemon – can be useful when Watermarks are used
- Alternative Source Paths with Watermark support – delete operation triggered by low disk space on source files systems

Synchro – Define when data should be synchronized throughout the deployment.

- Multiple thread support – two threads are configurable from WebUI, while more can be configured via the command line.
- Synchronize audio and video independently, while the best available media is selected for use
- Synchronize only mixed files
- Synchronization of incomplete external data
- Separate Target Paths for audio and video with Watermark support – when video paths are not assigned (including Default) then audio paths are used for storing video files

- Alternative Target Paths with Watermark support – synchronizes to multiple destinations until the 'High Watermark' is reached.

Call Encryption

Genesys Call Recording provides call encryption on stored calls for enhanced security. A recorded call is encrypted before it is saved to disk. Decryption takes place only within the web-based interface and is available only for authorized users.

To fully comply with PCI DSS and other financial industry requirements, Genesys GQM provides Key Manager with the ability to manage certificates, keys and provide re-encryption. See PCI DSS Compliant Security to learn more about product security features.

Language Localization

Genesys Call Recording is fully localized into the following languages:

- Arabic
- Bulgarian
- Czech
- Danish
- Dutch
- English
- English (US)
- French
- Finish
- German
- Latvian
- Norwegian
- Polish
- Portuguese (Brazil)
- Romanian
- Russian
- Slovak
- Slovenian
- Spanish
- Swedish
- Turkish

Configuration Tools

Genesys Call Recording offers a comprehensive visual configuration interface as part of the web GUI where it is possible to configure almost every aspect of Call Recording.

Configuration Overview

The Call Recording user interface is divided into the functional aspects of Call Recording. Confirmed changes are immediately applied by the Call Recording Configuration Service.

Navigate to **Settings > Configuration**.

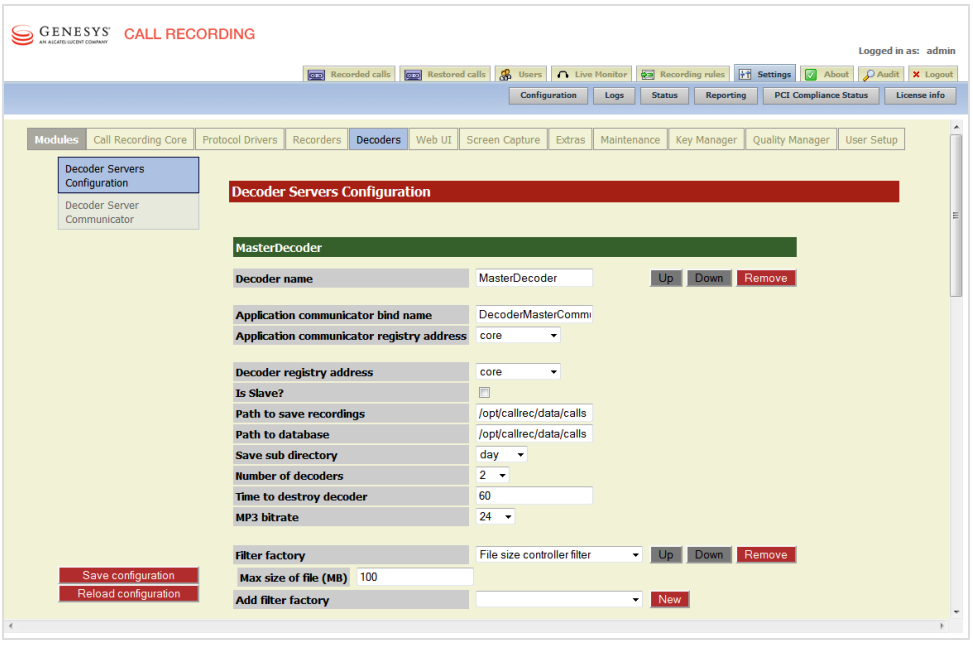


Figure 22: Example of the Configuration Interface

Administrators

Configuration amendments can be made to the following services by administrators:

Call Recording Core: The main modules of Call Recording and its configuration. All server, database, driver and reader settings as well as SMTP parameters and main RMI settings are defined here.

Protocol Adapters: Protocol adapter settings and binding.

Protocol Drivers: Protocol driver settings and binding.

Recorders: Recorder bindings and API.

Decoders: All decoder related settings such as audio formats and preferences, storage paths, filters (file sizes, encryption) and master recorder selection.

Web UI: Includes the following features:

- Web-based interface: GUI related settings for displaying calls and customizing the list of calls.
- Search: tool for defining basic and attached data searches, supports direct entry of searched values in addition to automatically generated value lists.
- Column setup: for defining additional columns in the call listing view; supports all attached data entries.

Screen Capture: Screen Capture configuration, paths for storing data and filter selection.

Integration: Additional configuration for the Genesys Integration Module (GIM)

Extras:

- Complete settings for extra modules.
- Prerecording settings with external data configuration.

Maintenance: Comprises Backup, Archive, Restore and other media lifecycle management tools.

Key Manager: Management of encryption related settings such as certificates, keys and encryption algorithms.

Users

Users are able by default to configure their preferred language and which columns are visible in their calls list.

Audit and Status

All auditing and status information is available through the Call Recording web user interface.

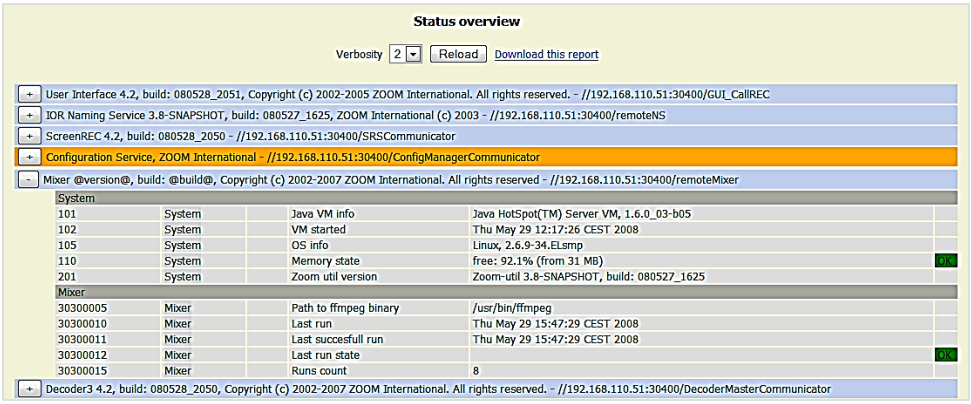


Figure 23: Call Recording – Example of a Status Report

Audit summarizes all actions taken by users. By default actions are displayed in chronological order. Information includes:

- Action – identification of action taken
- Result – result of an action. OK for successful and FAILED for an unsuccessful action
- User – username of the entity that executed the action
- Date – date and time of action
- Message – description of action

Status summarizes all Simple Network Management Protocol (SNMP) information using descriptions, actual and historical values. Statuses are divided into groups according to the service which generated. The status overview shows the actual status of every Call Recording component.

Reporting Tool

Genesys Call Recording contains a highly customizable tool for generating reports. Reports can provide information including:

- Statistics about recorded calls
- Synchronization of calls between servers
- Potential problem analysis such as calls that have not been decoded or calls with no streams.

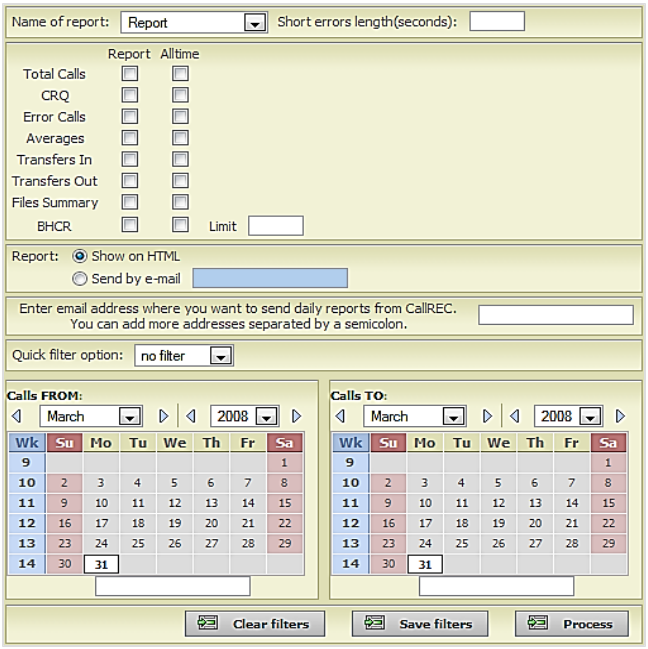


Figure 24: Call Recording Reporting – Setting Parameters

There is an option to select whether the report is to be generated on the screen or sent to a specified e-mail address. The following types of reports are available:

- Report – Total report
- Bad calls – Calls recorded incorrectly
- Calls not decoded – Calls that have not yet been decoded (calls that are waiting to be decoded and saved)
- Transfers – Calls which were synchronized during selected periods (for example, synchronization between the system core server and replay servers)

In all types of reports, it is possible to define many options and customize the final report for the best usability. There are options for selecting start/stop times and reporting dates; total calls, error calls, transfers, averages, the inclusion of attached data, and much more.

Chapter

4 Genesys Screen Capture– Agent Screen Capture

The following chapter describes Agent screen Capture using Screen Capture.

This chapter contains the following sections:

Introduction to Screen Capture

Genesys Screen Capture monitors and captures agent screens, providing a company with the means to evaluate the performance of individual contact center agents or groups throughout the organization. Screen Capture provides a full view of customer interactions when paired with Call Recording.

Key Features

Play back the synchronized call and screen to get a full view of the agent / customer interaction: A visual record of completed tasks performed on a computer screen is an important aid to measure and raise the quality of services provided by contact centers. Combined with call recording, a visually recorded computer screen serves as a basis for evaluating the knowledge, ability and professionalism of a contact center agent.

Full integration with Genesys Call Recording: Genesys Screen Capture is fully integrated with Genesys Call Recording. The same user interface can set the rules for call recording and which agent's screen is to be recorded. Seamless integration provides easy search and replay functionality.

Easy access to recorded screens and calls within the same user interface: The recorded calls with captured screens are represented by a small "film" icon. Clicking on the icon plays both the audio call and video screen recording simultaneously. Exported call recordings are also represented and played in this way.

Genesys Screen Capture integrates with Cisco and Genesys Integration Modules: This enables the complete contact session to be monitored and recorded, from the beginning of the initial call to the conclusion of the "wrap-up" operations. Genesys Screen Capture can also automatically match an agent's workstation login to the appropriate voice call recording.

Virtual Desktop support: Genesys Screen Capture supports virtual desktop platforms, including Windows Terminal Services and Citrix XenDesktop.

Thin Client: Screen Capture Client can either be installed as a windows service or can be invoked from an agent's desktop application using a Java or .NET interface. In such cases nothing needs to be installed on the agent's desktop. Instead the capture client is downloaded onto the agent's desktop to run as a browser module in the background, and is then removed automatically when the agent logs out of the desktop.

Lifecycle Management: The Lifecycle management of Genesys Screen Capture is separate from that of Genesys Call Recording, although managed by the same tools. The computer screens that are recorded by Genesys Screen Capture consume considerably more disk space, so the amount of disk space

required can be reduced by configuring the screen resolution settings, the quality of the video recorded, and the length of time that the video data is to be stored.

Full integration with ZOOM Screen Capture:
Integrating Genesys Screen Capture with Genesys Quality Manager creates another source of information which can be used to evaluate a call center agent's performance. An agent's computer screen can be tracked, measuring their speed, orientation of applications and abilities in line with CRM procedures, thereby enhancing overall business performance.

Pause and Resume support: To fully comply with PCI DSS, other payment cards and financial industry requirements Screen Capture enables API or user-initiated 'pause' screen capture functionality at any time, so that no sensitive data appearing on the agent's screens are recorded and stored. The recording session can then be resumed afterwards and recording continues as before. See PCI DSS Compliant Security for more details about PCI DSS security.

Screen Capture clustering support: It is possible to have more Screen Capture servers and therefore associate recorded desktops to multiple servers. This allows for scalability and support for multi-site clusters, where PC screens are recorded by the closest Screen Capture server.

Technical Specification

Genesys has developed a powerful and efficient Screen Capture client which captures the PC screenshots and transmits the content to the Screen Capture Server. Genesys's screen capture technology transmits only picture changes, not the complete screenshots and therefore saves bandwidth. The transmission occurs as a regular http upload of an intermediate format, optionally secured by SSL protocol. The stored intermediate format is processed by Media Encoder, converted into regular MPEG 4 video and interleaved with an audio track to deliver the full experience of recorded calls and desktops. The encoding may happen either as a batch process for every recorded screen or on demand only if any user requires recording playback.

Call Recording integration: Genesys Screen Capture is fully integrated with Call Recording so Call Recording is still required to enable screen capture. Call Recording invokes calls and screens to be recorded, and manages recording rules, user administration and archiving procedures.

Methods of recording include:

- By call – accepting and terminating the call
- By wrap-up – from the beginning of accepting the call, until the wrapup is finished
- Definable period – defined duration of the recording regardless of wrapup and other values

Integration Modules: Screen recording can be triggered the same way as voice recording, through the use of external data. Additionally, Screen Capture can record the complete session of an agent's work, from the beginning of the call until the completion of the task (wrapup). Screen Capture Client can recognize a logged-in user and automatically match the existing voice call to an agent's desktop, based on their user id from the client session and attached data from the Integration Module.

Desktop PC platform support: Genesys Screen Capture supports Windows XP SP2/SP3, Windows Vista, and Windows 7 (x86/x64). P4 family processor is required.

Recording format: Computer screen recordings are saved in MPEG 4 format with H.264 or MPEG-4 Part 2 codec for video, and MP3 codec for audio.

Quality: The quality of video depends on the screen capture configuration of the Screen Capture Client and compression settings on the server side. The following parameters can be set in order to optimize video quality and required bandwidth for communication:

Frames per second: Frame rate for “scanning” the agent screens and detecting the changes.

Maximum uploading bandwidth: Maximum allowed bandwidth for uploading the intermediate format by Screen Capture Client. If the threshold is crossed, client automatically lowers the quality of the captured content to save bandwidth.

Maximum recorded screens: User can choose whether to record only the primary agent screen or all the screens available in case there are multiple monitors connected to an agent desktop PC.

Maximum screen width and height: Maximum allowed resolution, Screen Capture client downscales if crossed.

Scale factor: The original image is downscaled by given ratio.

Minimum tiles difference: Minimum difference threshold between current sample and previous sample. The screen is divided into many small “tiles” and every tile is then processed.

Regions count/region size: Size of the “tiles” or regions in which the screen is divided.

Captured screen quality: Compression quality of every difference in region is to be transferred.

Encoding on Demand: All the captured content which is stored in an intermediate format can be processed either in batch mode or on demand – this means right at the moment when someone needs to replay such a recorded interaction. Screen Capture Media Encoder then processes recorded video and interleaves it with corresponding audio (recorded call) on request.

Required LAN bandwidth: Screen Capture Client uses its own special protocol called BG300. This protocol is based on the principle of transferring only the changes, not the whole screens. The server sends small rectangles of the users view to the client. After the original full screen has been transmitted, only transfers rectangles that change. This encoding consumes very low bandwidth where a small portion of the screen changes from one frame to the next.

Minimum bandwidth is 128 kbps, although in most cases there is no higher

bandwidth consumption than 512 kbps. Typical bandwidth consumption in contact centers is around 150-250 kbps.
Screen Capture is intended to be deployed on a 100MB LAN or higher.

Desktop virtualization support: The following virtualization platforms are supported:

- Windows Terminal Services
- Citrix XenDesktop – Pooled Desktop mode
- Citrix XenDesktop – Dedicated Desktop mode
- Citrix XenDesktop – Installed Application mode

Chapter

5 Genesys Live Monitor – Live Monitoring of agent desktops

This chapter describes the live monitoring of agent desktops.

This chapter contains the following sections:

Introduction to Live Monitor

Genesys Live Monitor provides supervisors with a real-time overview of all their agents' active calls.

Live Monitor enables supervisors or contact center managers to listen-in to live agent interactions and to add flags and scorings for later review.

Key Features

Live Monitor displays all the currently running calls, while applying restrictions set by user privileges. A Supervisor can view call details, add predefined tags and store them as external data, and of course listen to any of the calls listed.

A Supervisor can choose which call data will be visible in the list of calls, in a similar manner to the list of recorded calls in the Call Recording GUI. Calls appear as they start and disappear shortly after they are finished. The list of the calls may be sorted by any available column.

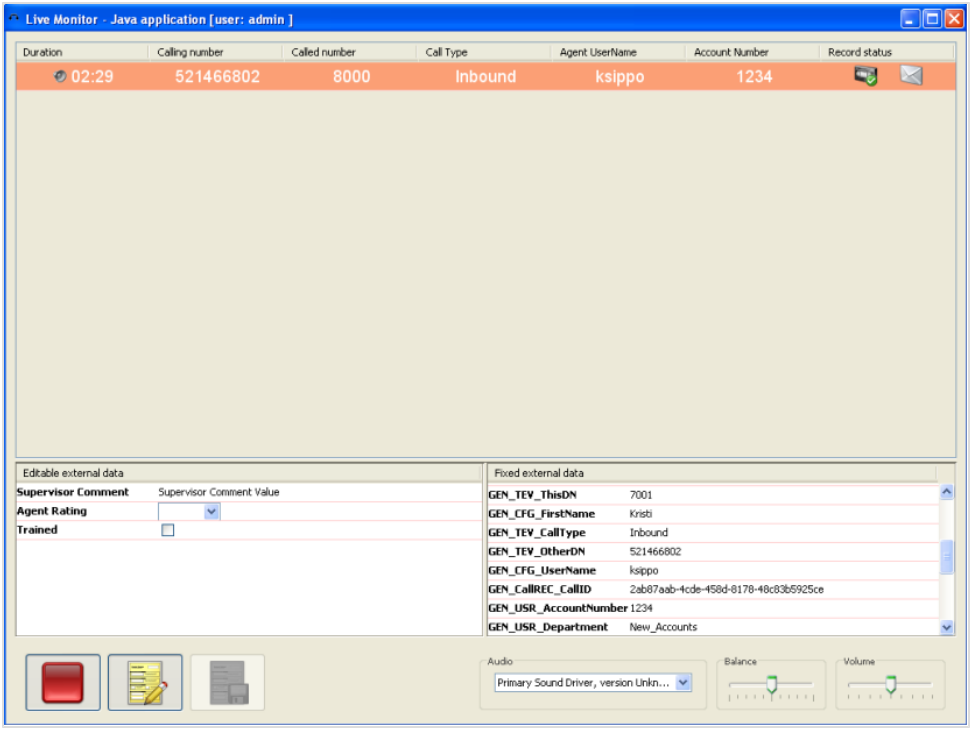


Figure 25: Live Monitor – User Interface

It's not necessary to record an active call because call recording and call monitoring are independent functions of the system. Live Monitor enables tagging a call, and adding comments using drop-down menus or text boxes whilst listening to the conversation. This user-added information can then be located and retrieved in the advanced search.

Live Monitor displays call status (if a call is being recorded, prerecorded, or if the call is not being recorded at all) and from the GUI a Supervisor can request to

save a prerecorded call, or to send any recorded call by email. Call status may be hidden if Live Monitor runs on the Replay Server and recording control is not available.

Live Monitor can traverse NAT and firewalls. A monitored PC must have one specific TCP port open and a small range of User Datagram Protocol (UDP) ports available. This suits scenarios where the Call Recording server is hosted in a DMZ or secured area of the network and clients are limited to access only certain IP addresses and ports.

Chapter

6 Genesys Quality Manager

This chapter describes the Quality Management Suite

This chapter contains the following sections:

Introduction to Quality Manager

Quality Manager is a comprehensive web-based contact center quality management application for evaluating and improving agent performance. Quality Manager supplies rich reporting features that identify agent strengths and weaknesses in customer service, interactions, and communication skills.

Key Features

The main functions of Quality Manager are as follows:

Questionnaire Manager: enables a user to create numerous agent evaluation questionnaires which are completely customizable for any contact center. Each questionnaire can include individual access restrictions and interaction selection criteria. A questionnaire can use three different scoring systems (points, percentage or grades) to address various needs for different customers. Frequently used questionnaires can be imported and exported for usability across large contact centers.

Evaluation Planner: Quality Manager provides a tool for planning evaluations based on agent organization and offering in-depth criteria to specify random or specific interactions for evaluation.

Evaluation Process: The quality manager, supervisors, and agents can easily perform planned evaluations using available audio, video, email or chat media. The system can also enforce participation of quality managers in the evaluation process.

Outputs: Graphical reports empower you to find a weak point in the performance of a specific agent or the whole call center, and offer an instant view of an agent's improvement across a range of time increments. Reports can also provide comparisons between agents and agent groups for evaluating campaigns or training. Graphs can be exported in MS Excel format enabling other business intelligence tools to be used to provide an expanded view of call center activities. Dashboards provide a clear visual indicator of quality management activities.

Others: Other features include:

- Flexible role-based user management (including synchronization and authentication with GenesysCustomer Interaction Management Platform)
- Application-wide search
- Use of external data in call criteria
- Evaluation history
- Audit logging, with full call center integration

Questionnaire Manager

The Quality Manager Questionnaire Manager interface enables an authorized user to quickly create quality management questionnaires. Every questionnaire can be customized to use an appropriate scoring system (points, percentage or grades), with specific access permissions and interaction (for example, an audio call) selection criteria. These selection criteria include timestamp, media length and external data parameters.

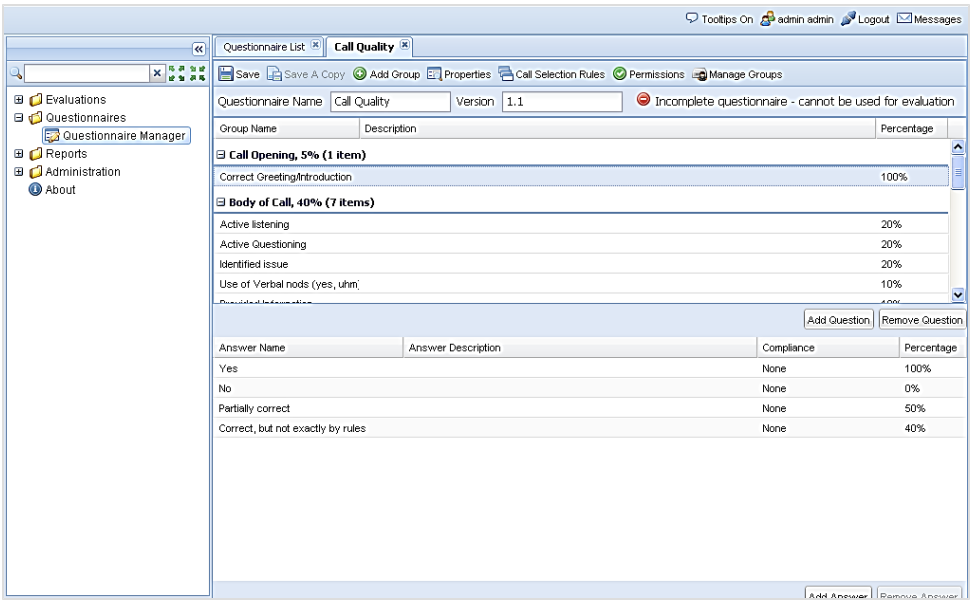


Figure 26: Creating the Evaluation Questionnaire

Questions are grouped together in the questionnaire according to relevancy and can be assigned weights at the question, answer and question group level. The overall score is influenced by the weightings assigned.

Individual answers can also be marked with a definitive ‘success’ or ‘fail’ indication for the related question group or entire questionnaire.

Questions within the groups can be dragged and dropped making it easy to organize your evaluation questions.

Once created, a questionnaire can be assigned to a particular evaluation.

Questionnaire Manager can import and export questionnaires in XML format. This enables contact centers to obtain industry-specific questionnaire samples,

import them into Quality Manager and then modify them as necessary. This feature speeds up the adoption process of the tool.

Evaluation Planner

The Evaluation Planner is a tool to enable contact center managers to plan and prepare interactions between agent supervisors and agents. Quality managers and supervisors can view the evaluation schedule at any time. The main features of the Planner are detailed below.

Uses the existing structure of agents/groups and supervisors: The system automatically allocates interactions to an evaluation based on structure. Quality Manager can automatically use the structure from the contact center application.

Periodic evaluations can use more frequent agent interactions: Evaluations that occur periodically (for example once per month) can be based on interactions sampled at more frequent intervals (for example weekly), resulting in more qualitative scoring.

Interaction selection parameters: The following parameters are typically used for interaction selection:

- Length of interaction
- Time of day
- Day of week
- Any variable (external data) from the contact center application
- Inbound / outbound / internal-only / all calls

Process planning: Evaluation priority and reminders, set-up reminder alerting evaluators that a deadline is near.

Read Only Access: Users with assigned permissions can open non-editable grading forms and listen and/or view interactions whilst reviewing how they were graded.

Re-opening Finished Evaluations: Allows users to return a finished evaluation back to “in progress” status and modify the scoring as needed.

Agent Self Evaluation: All users assigned with this permission are able to plan and conduct self-evaluations, specifically with their own captured interactions.

- Default permissions are assigned to roles and can be managed.
- Agents can choose whether to include their self evaluation results into Quality Manager evaluation statistics.

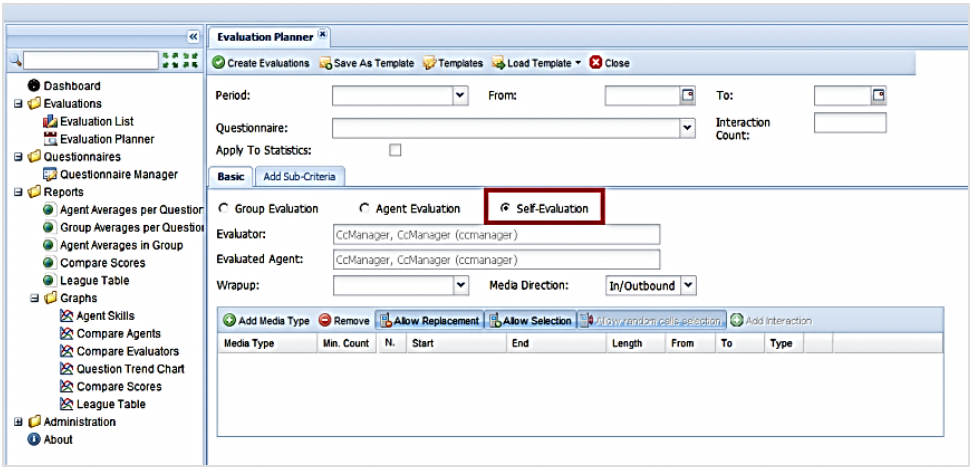


Figure 27: Self-Evaluation Selection

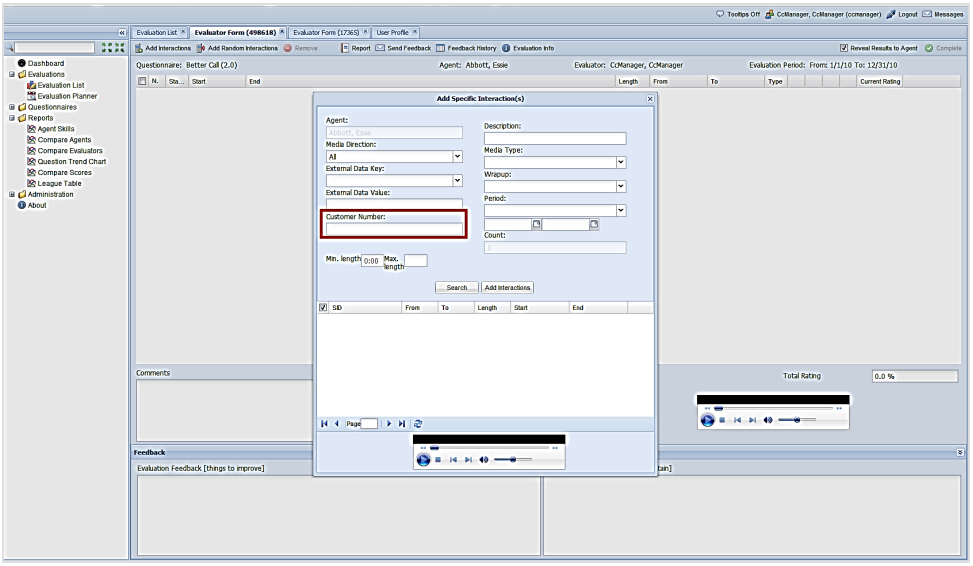


Figure 28: Specific Interaction Selection Review

Evaluation List

The Evaluation List provides users with a holistic view of all planned evaluations and their status. The Evaluation List is permission-based, and allows a complete overview of all evaluations and their status', from the CC Manager down to an agent's own evaluation view. This also provides discretion keeping agent results from peer view. View a single evaluation or several by generating the Evaluation Detail Report, which provides evaluation results at a granular level. Additionally, users are able to export all or specifically chosen evaluation results to MS Excel.

- **Evaluation Detail Report**: This is a complete evaluation report per agent. Each report is accessible from the Evaluation List and is a valuable tool for indicating agent performance.
- **Re-Evaluate**: This function is to ensure consistent evaluation scoring by evaluators. A completed evaluation is sent to all evaluators for re-evaluation, and then the results are compared. This can be used for evaluator calibration purposes and/or to request deeper analysis in targeted areas.
- **Reveal Scores to Agents**: This option is located in the evaluation list and when checked all completed evaluation scores will be viewable by agents. In some cases supervisors and evaluators may want to discuss evaluation results with the agent before the agent has the opportunity to view the results.

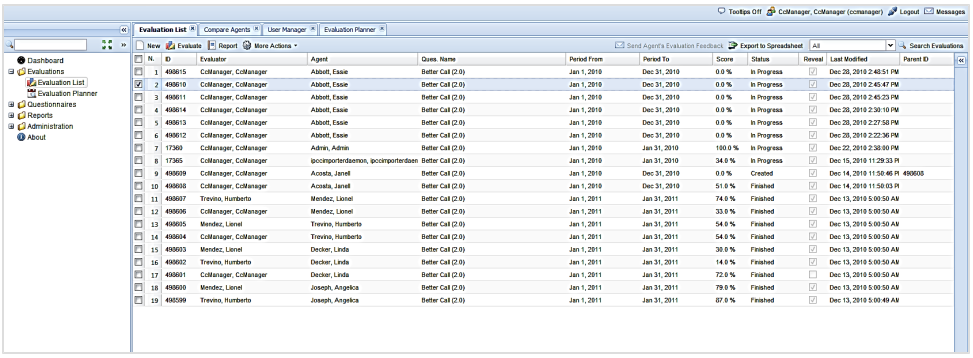


Figure 29: Evaluation List

Figure 30: Evaluation List 2

Agent Evaluation

Genesys Quality Manager enables a reduction in the number of interactions required for evaluations, as well as the number of dedicated evaluators. Interactions satisfying the evaluation selection parameters are retrieved randomly by the system, or an evaluator can search for specific interactions by specifying search criteria. Random selection ensures that evaluators are being presented with an accurate and fair representation of agent performance.

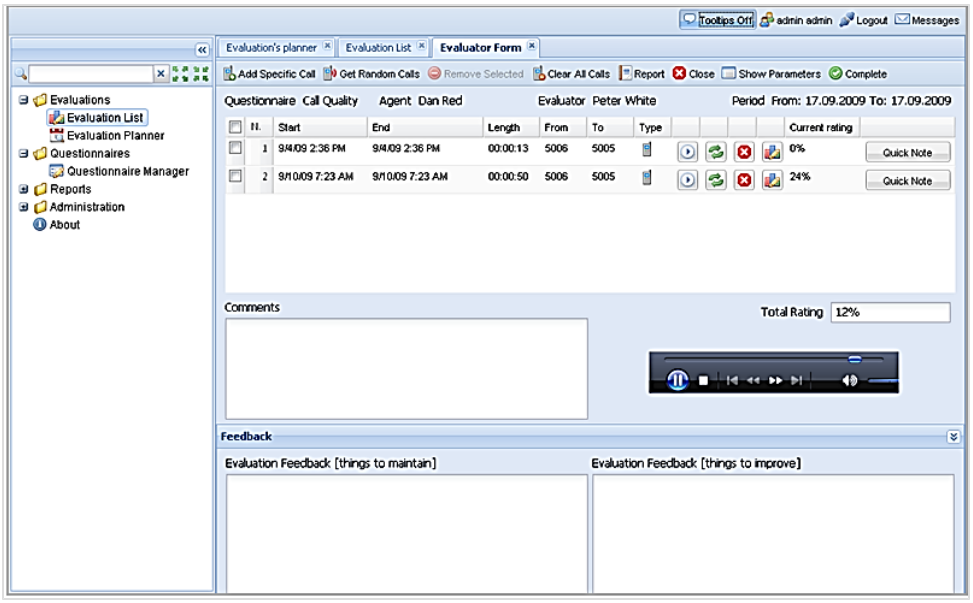


Figure 31: Evaluation Media Selection

Evaluators review interaction media (using the web-based media player for audio and video interactions), and can simultaneously select appropriate answers to the questionnaire & add feedback notes. Genesys customers confirm that the streamlined evaluation process has saved them considerable time and effort.

Evaluations can also be sent to the agent for review and further assessment, which provides transparent communication throughout the quality process.

Quality Manager Graphs, Reports, and Dashboards

Below is a list of the most common reports and graphs that can be generated with performance data collected from evaluations.

Graphs

All displayed data in the graphs section is exportable to MS Excel. This provides additional capability in reporting and customizing data for overall business cases. Additionally in the graphs Results Distribution, Interaction Volume, and Evaluation Volume, users can export charts to PNG, JPEG, SVG,and PDF.

Agent Skills: These charts are used to compare agent (or agent group) skills over a period of time. Skills are groups of questions, and specific questions in those groups. For example, Greeting, Gathering information, Closing the call. The graph reveals trends in an agent's (or group's) skill profile, for example if there is a general improvement, and if not, where efforts should be focused in order to better the individual or team.

Comparison of agent/group skills: This chart compares overall or specific scores of selected agents and groups for a particular questionnaire, question group and question level, enabling a 'top performers' style analysis to be obtained.

Compare Scores: Compares scores from a base evaluation to all other chosen evaluations, providing comparative views related to evaluations of either high, average or low scoring .

League Table: Generates a spreadsheet detailing performance of groups or agents by their average scores in a performance based table. A threshold is used to communicate agents above, on or below target metrics.

Results Distribution: This chart displays scoring results for agents, evaluations, and interactions. Displaying results in a stacked bar chart users can identify good, average, and bad scoring banding. Users can hover over section in the bar chart to discover total volume contained with-in and with a click drill down to the evaluation detail reports segmented for that specific banding.

Interaction Volume: Chart to show all or individual interactions made. Users can select interactions by evaluators, groups, and questionnaires.Interaction

volume can also be analyzed by call length and call length ratio, thereby giving GQM stakeholders an invaluable indicator for measuring GQM performance.

Evaluation Volume: This chart displays all evaluations by volume in their given state of **Planned**, **In Progress**, and **Finished**. Users can filter the report for evaluators, groups, and questionnaires

Reports

The reporting feature of Quality Manager provides reports of average scores for all agents and groups, or average scores for agents in one specific group.

Evaluation Detail Report: This is a complete evaluation report per agent. Each evaluation report is accessible from the Evaluation List and is a valuable tool for agent communication. Use this report for coaching and one to one meetings between supervisors and agents.

Dashboards

Quality Managercurrently provides six dashboard widgets delivering up to date data based on Quality Manager evaluation results. Widgets are based on groups, agents, and trends. Each of the widgets is configurable, providing specific detail the end user requires. Configure date ranges for each of the dashboard widgets to keep user view current. The dashboard is customizable for each user.

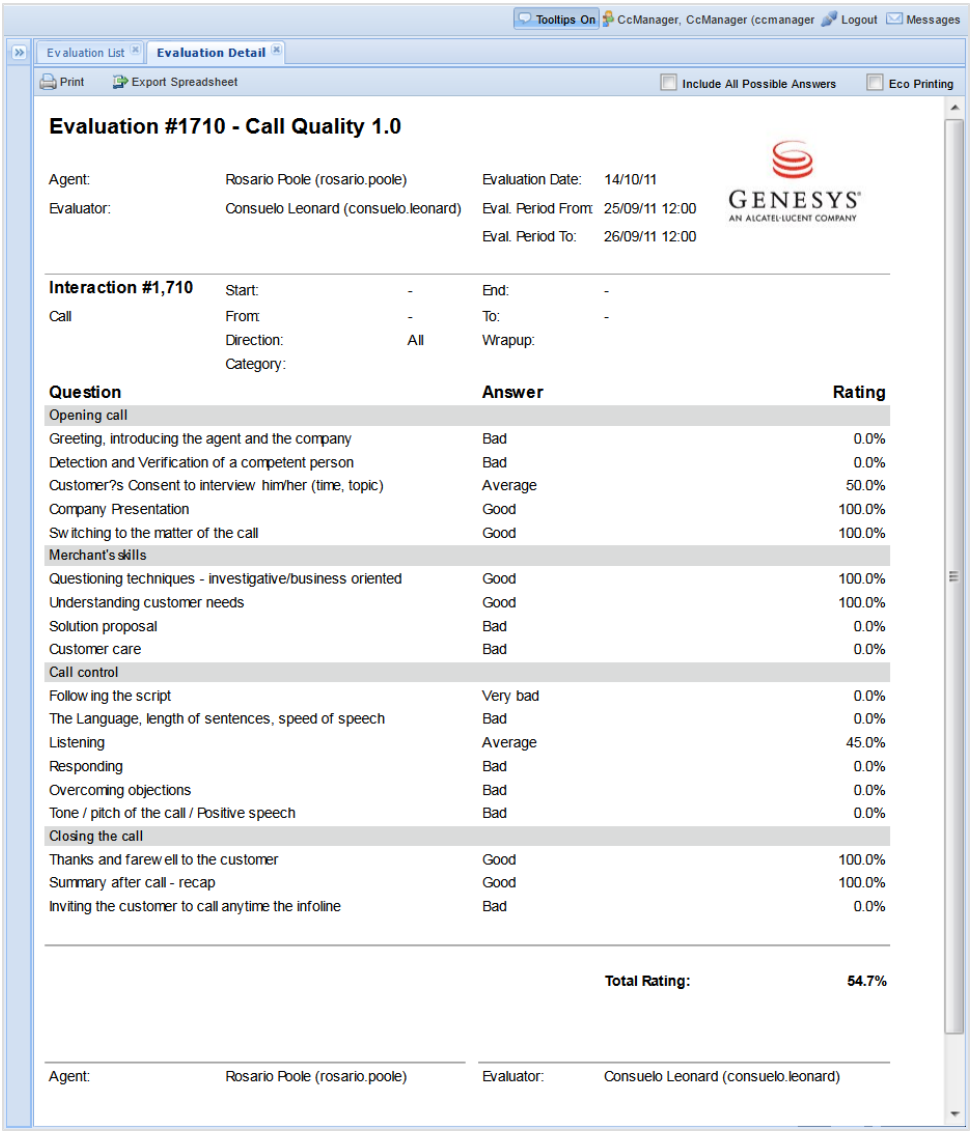


Figure 32: Quality Manager – Evaluation Media Selection

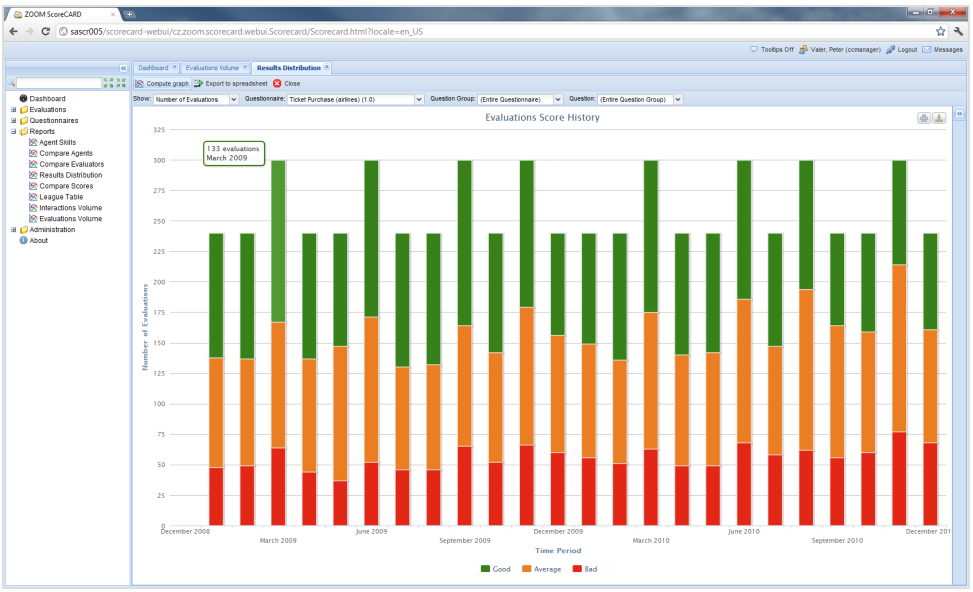


Figure 33: Results Distribution Chart

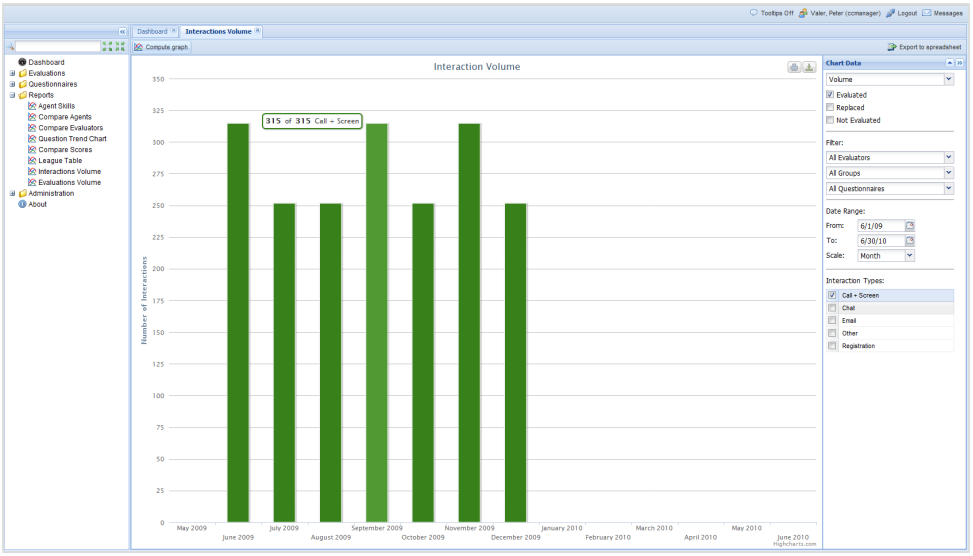


Figure 34: Interactions Volume Chart

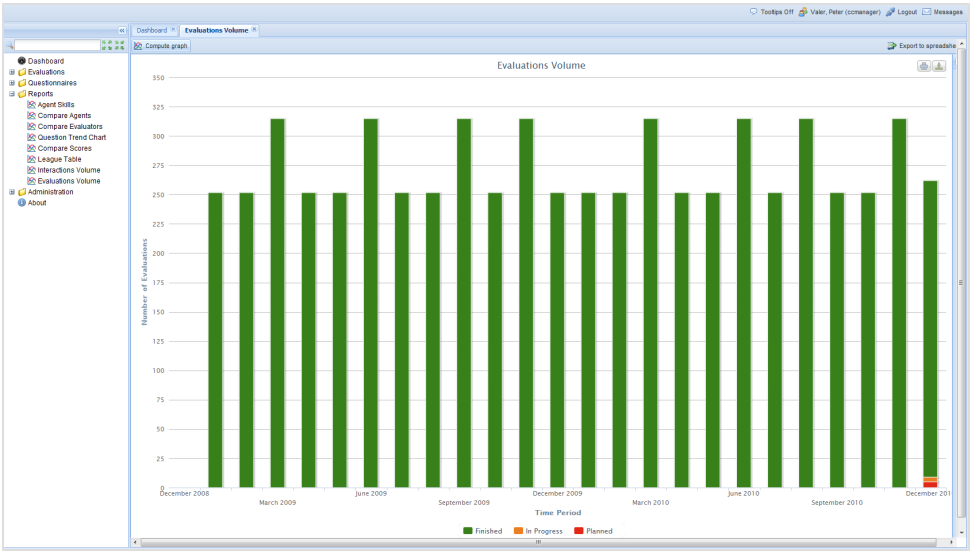


Figure 35: Evaluation Volume Chart

Localization

Genesys Quality Manager is fully localized into the following languages:

- Arabic
- Bulgarian
- Czech
- English
- English (US)
- French
- German
- Polish
- Romanian
- Russian
- Slovak
- Slovenian
- Spanish
- Turkish

Technical Specification

The Quality Manager application is installed as an integral module of Call Recording, and uses the Call Recording database for data storage. Both PostgreSQL and Oracle databases are supported (see Database Support for details).

Please refer to the Supported Browsers and Technical Requirements topic for browser compatibility and third party tools required.

Chapter

7 Technologies Used

This chapter lists the technologies used for each component of the Genesys GQM

This chapter contains the following sections:

Genesys Call Recording

Supported Protocols

- SIP (Session Initiation Protocol)
- Cisco JTAPI Interface adapter
- Genesys EPR adapter
- Genesys Active Recording

Supported Audio Formats

- MP3 (adjustable bit rate)
- WAV

Supported Video Formats

MP4 (H.264 or MPEG-4 2 codec for video and MP3 for audio)

Supported Codecs

- G.711 A-law / μ-law
- G.729 (with Annexes A, B, AB)
- G.722 wideband codec

Supported Conversation Types

- IP phone – IP phone, IP phone – Voice GW
- IP phone – CTI port, Voice GW – CTI port

Supported Scenarios

Scenario	JTAPI	Genesys CIM
Agent to Agent		YES
Basic call	YES	YES
Call Hold	YES	YES
Blind Transfer	YES	YES
Consultative transfer	YES	YES
Ad hoc conference (blind)	YES	YES
Ad hoc conference (consultative)	YES	YES
Call Park	YES	
Call Pickup	YES	
Barge	YES	

Important:

The names, behavior and implementation of the scenarios vary from different PBXs.

Local IPT Call Support

- Redirection, Conferences, Transfers
- Parked and picked-up calls, barged calls
- Shared lines, extension mobility
- Calls directed to CTI ports / applications (for example, IVR)

Integration Options

- Built-in support for Cisco Unified Contact Center Express and Unified Contact Center Enterprise
- Java and web based API for 3rd party application integration

Management and Monitoring

- Built-in media lifecycle management tools to record, archive, backup, restore and media erase (handle calls and video separately)
- Reporting and statistical tools
- Monitoring tools – full SNMP support

Platforms and OS Support

- RedHat Enterprise Linux 6.2
- VMware ESX/ESXi 4.1 and above
- User interface (Call Recording Web GUI) accessible by supported web browsers (see the User Interface section for details)
- User interface localization into many languages (see the Localization section)
- Windows Media Player or Quick Time Player for playback

Database Support

- PostgreSQL 9.1 (embedded)
- Oracle 11G

Genesys Screen Capture

- A recorded computer screen's video quality can be adjusted by two separate parameters − the number of frames captured per second or by the selected video screen resolution.
- Supported video output is in an MPEG 4 format using H.264 or MPEG-4 2 codec for video and MP3 for audio.
- Captured content may be processed and interleaved with recorded audio files either in batch mode or on demand.

Genesys Live Monitor

- Live Monitor runs as a part of the Call Recording user interface. It is a JAVA applet that allows visibility to all the active calls and allows the calls to be monitored in real time.
- Additional information can be added to the recorded calls. For example, supervisor comments and rating feedback.

Genesys Quality Manager

- Genesys Quality Manager is a web-based application tightly integrated with Genesys Call Recording. All questionnaires, evaluations, scores, user profiles and other settings are stored in the Call Recording database on the server.
- The user interface is built using the Google Web Toolkit (GWT), so all interface elements (other than the media player) require standard HTML and JavaScript support in the web browser.
- Quality Manager can be used simultaneously by many administrators, supervisors and agents.

Database

Genesys GQM provides two database options:

- Embedded PostgreSQL database
- Oracle database connectivity

PostgreSQL is an open source database which is provided free of charge and is shipped as a part of the Genesys GQM. PostgreSQL is very powerful and is perfectly suited for small to mid-sized and even large deployments.

Oracle is a leading database engine designed for very large data centers. Genesys GQM provides a client connectivity option for an existing deployment of the Oracle 11G database engine. The database engine itself is not shipped with the Genesys GQM. Customers need to have a current Oracle database installation, while ZOOM provides all necessary pre-requisites such as a GQM database creation script and documentation of all important parameters.

Genesys GQM also supports the combination of both database engines working in tandem. For example, distributed recorders may run PostgreSQL while the main Replay Server runs on Oracle. This is a great opportunity to leverage the powerful features of the Oracle database engine existing in the data center, while saving costs on branch recorders where the open source PostgreSQL database is perfectly suited.

Database Support

- PostgreSQL 8.4 (embedded)
- Oracle 11G

Chapter

8 PCI DSS Compliant Security

This chapter has a short description of PCI DSS and how Call Recording meets those requirements.

This chapter contains the following sections:

Introduction

PCI DSS stands for 'Payment Card Industry Data Security Standard', and is a set of requirements developed by the PCI Security Standards Council. The organization was established by American Express, Discover Financial Services, JCB International, MasterCard Worldwide and Visa Inc. International, and the standards that they created are mandatory for companies in the credit card payment processing industry to adhere to. The Genesys Call Recording PCI DSS Compliance Support is a set of features which allows customers using Genesys Call Recording to meet these PCI DSS requirements.

PCI Compliance Status

The screenshot below shows an installation before full PCI Compliance has been implemented. The Status shows which components require attention and indicate what must be done to rectify the situation. When each requirement is met then the blue check will replace the red X, with the goal being to ensure that all requirements listed have a blue check next to them.

Enhanced password management in Call Recording

All user accounts must be sufficiently secure, which means that passwords must be strong and users must change them regularly. The system must also be resistant to repeated login attempts using random passwords. This is ensured by the measures outlined below.

Minimum required password complexity: minimum password length, and the ability to define a minimum number of upper or lower case characters, numbers, and non-alphanumeric characters contained in the password.

Password expiration: users must change their password after a specified number of days, and the new password must be different from a defined number of recently used passwords.

User access lockout: after a predefined number of unsuccessful login attempts, the account is locked for a specified number of minutes.

Pause/Resume support

The system must not record and store cardholder data, such as Card verification codes. This requires the user to have the ability to pause and resume voice and screen recording when a customer is providing sensitive data.

The pause and resume functionality has been developed to work within both Active and SPAN-based call recording configurations, as well as in Screen Capture. Pause and resume is initiated by third party software which is interfaced to the Call Recording API. The API provides a list of call recordings that are currently being recorded. The application can then request that the call and screen recording is paused or resumed on all recorders that are recording that call and screen capture, based on a unique identifier (extension number or metadata).

Call encryption support with an integrated Key Manager

Genesys GQM contains a fully featured built-in key manager which supports:

- Several Public-Key Cryptography Standards for key store (PKCS12, JKS, JCEKS)
- Several industry standard encryption algorithms (AES, DES, Blowfish)
- Encryption of both calls and captured screens
- Support for more keys with random usage (If one of the keys becomes compromised, only the corresponding part of the recordings must be re-encrypted)
- Re-encryption process in case any of the keys become compromised

  Every database entry contains both the Universally Unique Identifier (UUID) of the key that was used for encryption, and the MD5 (or SHA-1) hash of the encrypted file. This means that encrypted media can be easily verified or re-encrypted if any of the keys expire or are compromised.

Enhanced logging of user related actions in Audit log

The audit log enables all actions executed by each user to be tracked, including call replay, recording rules management or any other related actions. PCI DSS requires that all details of users attempting to log in are also saved, therefore all successful and unsuccessful login attempts as well as expired sessions are logged together with IP address identification of the user's workstation.

PCI Compliance Status page

To help users ensure that system is configured to fully comply with PCI DSS requirements Call Recording provides an informative page where they can see if all the required features have been enabled and all the required policies have been met. The information applies to Genesys GQM product itself only, so user must make sure that other system and process requirements are met as well.

Chapter

9 Implementation of the Solution

The provider is responsible for the complete installation of the IP telephony infrastructure as outlined in documentation of IP telephony architecture provided by Genesys. In the case of any changes outside these requirements, Genesys Labs, Inc. requires notification about the changes, and these changes will need to be confirmed by Genesys with the technical proposal of recording architecture revised. Changes that influence the architecture are as follows:

- Over-fulfillment of the maximum phone limit on the switches
- Recorded phones that have been moved between switches with different limits
- Interconnection changes
- Any changes for the telephony / contact center cluster, voice gateways, transcoders...
- Adding any device that is generating network traffic and influences the VLAN within the frame of SPAN ports

The infrastructure supplier or the customer will prepare the hardware for recorders according to the specification supplied in the technical proposal of recording architecture.

After the architecture has been installed, the infrastructure supplier will need to configure the SPAN ports that are required for sniffing on the VLAN and will need to connect them to the recording servers (according to the technical proposal of recording architecture).

After the infrastructure has been implemented, the infrastructure supplier will draw up an actual technical description of the interconnection, and (if required) will complete the documentation of IP telephony architecture. At this point, the supplier will request the completed technical proposal of recording architecture from Genesys Labs, Inc.. A complete set of documents will then be delivered by the supplier to the customer for approval. In addition, the supplier or customer is also responsible for delivering the hardware in case of any changes in the number of recorders and/or recorders to be configured.

Chapter

10 Request Technical Support

Technical Support from VARs

If you have purchased support from a value-added reseller (VAR), contact the VAR for technical support.

Technical Support from Genesys

If you have purchased support directly from Genesys, please contact http://genesyslab.com/support/contact Genesys Technical Support.