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GENESYS™

Interaction Media Server

Technical Reference

Abstract

Interaction Media Server is a CIC subsystem that handles communications traffic in the CIC environment. Interaction Media Server plays prompts, records call, performs call analysis, handles fax communications, and transcodes calls from various SIP devices used with a CIC server. It also provides keyword spotting and Dual Tone Multi-Frequency (DTMF) recognition for use in other CIC products.

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Interaction Media Server Functional Overview

Interaction Media Server is a required subsystem of Customer Interaction Center (CIC). Its main purpose is to handle audio streams in Internet Protocol communications. These audio streams include voice over IP (VoIP) active call connections, recordings, and the playing of prompts.

Interaction Media Server Network Communications

Interaction Media Server facilitates Real-time Transport Protocol (RTP) and Secure Real-time Transport Protocol (SRTP) communications which transmit voice over Internet Protocol (VoIP). It is through RTP/SRTP communications in the CIC environment that you can speak to and listen to another person on a telephone.

Interaction Media Server does not issue or receive Session Initiation Protocol (SIP) commands, which control the establishment, management, and termination of telephone calls in the CIC environment. When Interaction Media Server must make a connection, change, or termination between two or more SIP calls, CIC supplies the necessary commands through the Notifier component.

Interaction Media Server Audio Processing

Interaction Media Server handles the following media operations:

- **Call analysis:** Interaction Media Server detects if a person, an answering machine, or a voice mail system answers the call.

  > **Note:** If you configure the CIC server to use a language other than English (US), you must create the **Call Analysis Language** server parameter on the CIC server and set it to the appropriate language code. For more information, see Specify Interaction Media Server Call Analysis Language Model.

- **Recording calls:** Interaction Media Server records call conversations for the agent, the external party, or both parties. Interaction Media Server can record the audio from both participants on the call in one channel (mono) or two channels (stereo).
- **Securing call recordings:** When recording a call, Interaction Media Server encrypts and compresses the recording so that only approved users can listen to the calls.
- **Playing recordings:** When you play a call from Interaction Recorder Client, Interaction Media Server decompresses and streams the call recording.
- **Playing prompts:** When a caller enters your CIC system, an Interactive Voice Response system can present the caller with audio prompts to select digits that represent interest in speaking to a specific person or representative. Interaction Media Server streams these prompts into the call.
- **Playing on-hold music:** When an agent puts a call on hold, Interaction Media Server plays music to the other party while they wait.
- **Transcrypting and transcoding:** Interaction Media Server dynamically converts calls that use different codecs (G.711, G.729) or protocols (RTP, SRTP) so that all parties hear the audio streams.
- **Conferencing:** Interaction Media Server facilitates all audio communication for conference calls. For conference calls with fewer than 20 participants, the system hosts the call on a single Interaction Media Server. For a conference call with more than 20 participants, the system processes the call through multiple Interaction Media Servers.
- **Keyword spotting:** Interaction Media Server analyzes speech during telephone conversations and can recognize predefined keywords when spoken. For more information about this feature, see the *Interaction Analyzer Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/analyzer_tr.pdf.
- **Speech recognition:** Interaction Media Server analyzes speech provided through Interactive Voice Recognition, such as with Interaction Attendant. For information about this feature and provided grammars, see the following:
  - *Interaction Speech Recognition Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/isr_tr.pdf
  - *Interaction Attendant Help* at https://help.genesys.com/cic/mergedProjects/wh_iat/desktop/interaction_attendant_help.htm

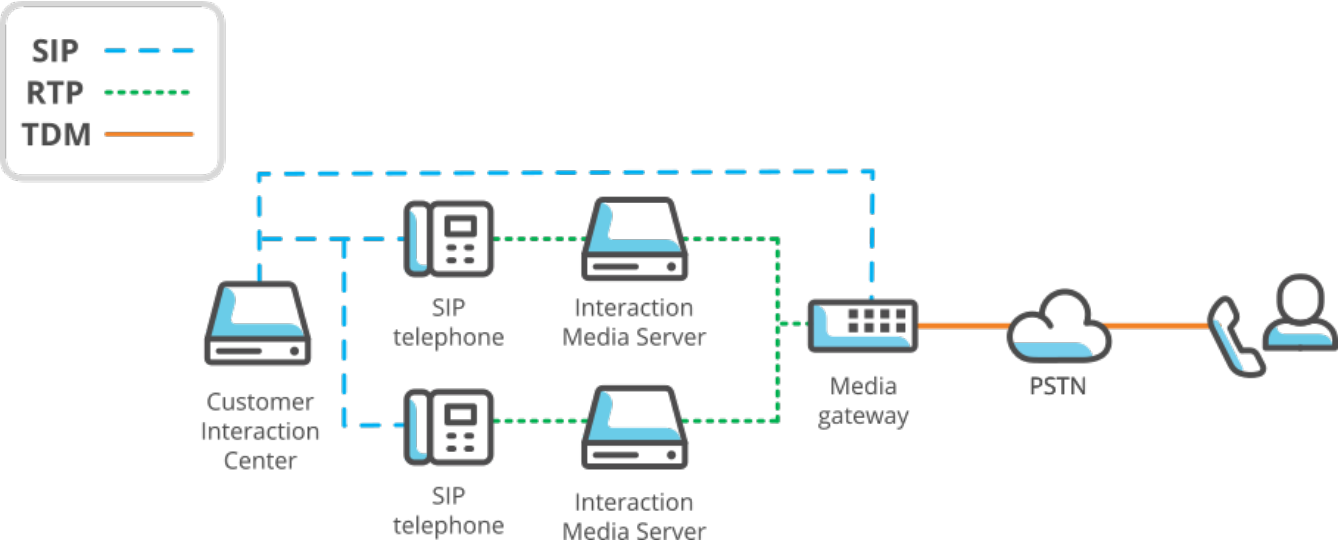
Interaction Media Server Network Topology

You can deploy Interaction Media Server in multiple ways in your CIC telephony network. No matter the size and locations of your contact centers, Interaction Media Server enables you to serve all locations with a single CIC server.

The following diagrams demonstrate how you can implement Interaction Media Server:

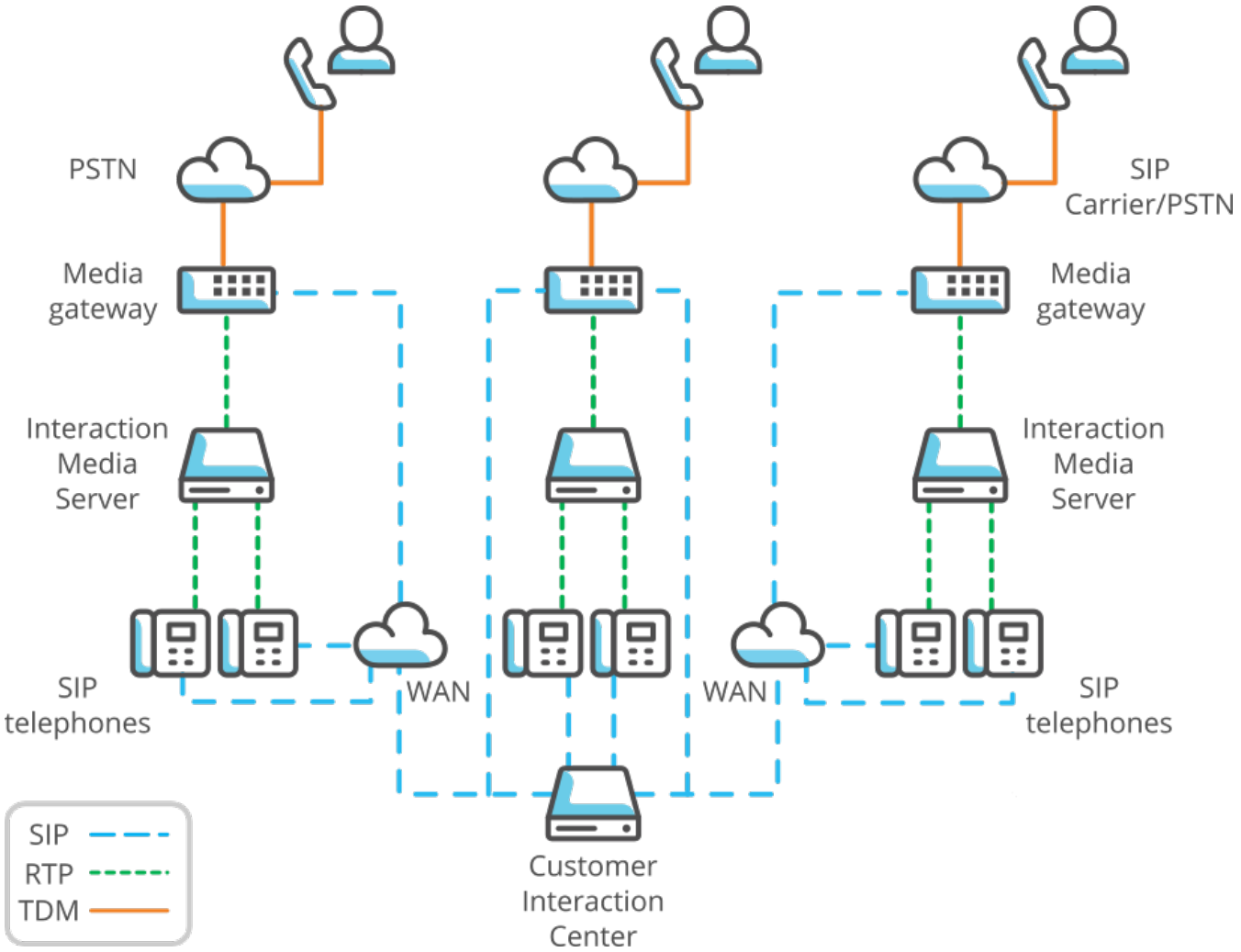
Small contact center Interaction Media Server implementation

This implementation is for small contact centers where the agents or users are in the same location as the CIC server.



Large contact center Interaction Media Server implementation

This implementation is for large contact centers where agents or users are in geographically distant locations.


PSTN
SIP
Carrier/PSTN
Media
gateway
Media
gateway
Interaction
Media
Server
Interaction
Media
Server
SIP
telephones
WAN
WAN
SIP
telephones
Customer
Interaction
Center
SIP
RTP
TDM

Interaction Media Server Advantages

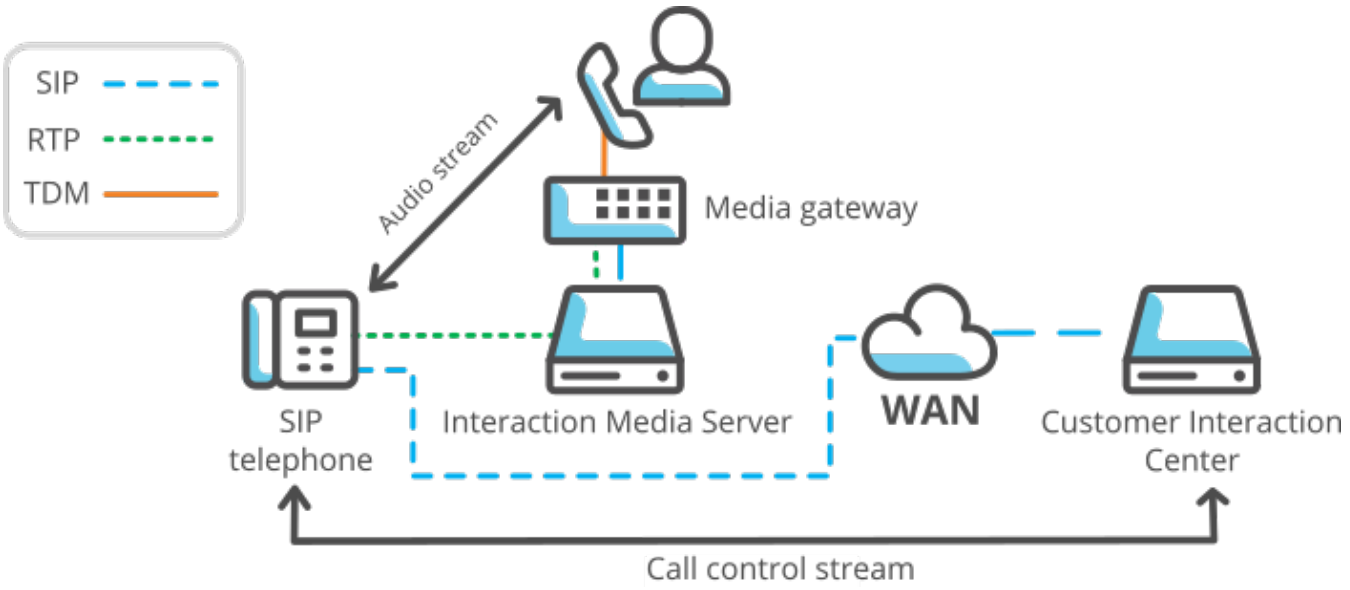
Interaction Media Server provides distinct advantages in your CIC telephony network. Ranging from resource availability to redundancy, these advantages ensure that your network can adapt to the demands placed upon it.

Interaction Media Server frees resources

Calls and the associated audio streams are the most consuming aspects of the telephony network. Interaction Media Server processes the audio portion of calls, which enables CIC to focus on only the logistics of calls. To increase the capacity of your contact center, add Interaction Media Servers.

Interaction Media Server reduces network consumption

Using Interaction Media Server in multiple locations reduces the number of transmissions that pass through your Wide Area Network (WAN). Interaction Media Server processes all media for a location and does not need to retransmit media to CIC. The system sends only small, occasional Session Initiation Protocol (SIP) packets from CIC through the WAN to the SIP telephone and the gateway.



Interaction Media Server provides scalability

Interaction Media Server is a scalable system, which enables you to have many Interaction Media Servers for a single CIC server.

To allocate and use multiple Interaction Media Servers properly, you can configure logical *locations* in which Interaction Media Servers reside. For example, you can have one small contact center that requires only one Interaction Media Server and a large contact center that requires four Interaction Media Servers. This configurability enables you to maximize resources and licensed sessions where you need them.

For large conference calls of more than 20 participants, CIC distributes callers across multiple Interaction Media Servers, even in different locations.

Genesys recommends that you use an *N+1* configuration for Interaction Media Servers where *N* represents the number of Interaction Media Servers required to service a system or location. The additional Interaction Media Server enables your contact center to continue functioning at its capacity without resource limitations when you must maintain or troubleshoot an Interaction Media Server.

Interaction Media Server provides redundancy

When Interaction Media Server handles the audio stream between two parties, it does so independently. It does not rely on the constant presence of a CIC server. Therefore, if the CIC server becomes unavailable for any other reason, the active calls processing through Interaction Media Server continue without interruption.

Also, if an Interaction Media Server becomes unavailable, other Interaction Media Servers share the load of any new calls.

Interaction Media Server Virtualization

Interaction Media Server processes communications in real-time as opposed to other systems that can perform data operations with minor, acceptable delays in processing. It is important to have a good understanding of the limitations and expectations that come from virtualizing Interaction Media Server.

Genesys supports Interaction Media Server on a virtual machine when your system meets the following criteria:

- Minimum hardware and software recommendations for the host
- Minimum virtual hardware and software recommendations for the guest
- Maximum specified call volume for the guest isn't exceeded (as specified in the *CIC Virtualization Technical Reference*)
- Required configuration for Interaction Media Server and CIC

For considerations, requirements, and other information regarding virtualization of Interaction Media Server, see the *CIC Virtualization Technical Reference*.

Interaction Media Server Features

Interaction Media Server Network Features

The following list provides the current features of Interaction Media Server:

- **Support for IPv6:** Interaction Media Server supports Internet Protocol version 6 addresses in network communications.
- **Codecs and protocols:** Interaction Media Server supports the following codecs and protocols:
  - G.711 A-law - 64 kb/s
  - G.711 µ-law - 64 kb/s
  - G.726 - 16, 24, 32, or 40 kb/s
  - G.729 –8 kb/s (with or without Annex B)

    > **Important!**
    > Use the same G.729 codec variant (with or without Annex B) for all communications and endpoints. Failure to use the same G.729 codec variant causes unnecessary transcoding by Interaction Media Server.

  - G.722 - 48, 56, or 64 kb/s (16-kHz audio with pass-through, 8-kHz audio with media operations)

    > **Note:**
    > When Interaction Media Server performs operations on calls using G.722 communications, it resamples the 16-kHz audio to 8 kHz. It then does the operation on the audio stream and interpolates it back to 16 kHz so that it can resend it through the RTP stream to the destination endpoint. This process does not return the audio quality of the RTP stream to that of the original level. Operations that result in this resampling of the audio include transcoding; playing prompts or music; injecting call waiting or dial pad tones; conferencing; supervisor monitoring; or determining whether you enabled the **Disable Media Server Passthru** feature on the SIP line.

  - Global System for Mobile Communications (GSM) (06.10) - Interaction Media Server uses GSM as only an audio codec.
  - Opus codec that enables mono or dual-channel recordings with high audio quality.

    > **Note:**
    > Interaction Media Server does not currently support usage of the Opus codec for endpoints; only call recordings.

  - Real-time Transport Protocol (RTP)
  - Secure Real-time Transport Protocol (SRTP)
- **Scalability and Redundancy:** Using multiple Interaction Media Servers and CIC servers enables redundancy in your telephony network when any specific system becomes unavailable. Interaction Media Server can support multiple CIC servers and one CIC server can support multiple Interaction Media Servers.
- **File transfers:** All file transfers, including recordings, use an HTTP server instead of FTP or file sharing.
- **Accessible configuration interface:** You configure Interaction Media Server through a secure web-based interface.

Interaction Media Server Audio Features

- **Recording:** Interaction Media Server can record calls so that a supervisor can listen to them in the future; analyze and score them for appropriateness; and give advice to agents.

  > **Tip:**
  > Interaction Analyzer provides real-time keyword spotting and can eliminate the need for you to analyze recorded calls manually.

- **Encryption:** Interaction Media Server encrypts recordings so that unauthorized users cannot access them.
- **Play prompts and on-hold music:** Interaction Media Server inserts prompts and music into audio streams.
- **Play recordings:** Interaction Media Server plays call recordings when you use Interaction Recorder Client.
- **Play voice mail:** Interaction Media Server plays voice mail recordings.

Interaction Media Server Telephony Features

- **Supervisory monitoring of calls:** Supervisors can listen in to calls between an agent and another party.
- **DTMF recognition:** Interaction Media Server recognizes Dual-Tone Multi-Frequency (DTMF) tones, both in-band and with the RFC 2833 specification. To configure DTMF recognition, modify the configuration for a SIP line in Interaction Administrator and set the **DTMF Type** control in the **Audio** panel as necessary.
- **Transcoding and Transcrypting:** Interaction Media Server converts calls using different transmission codecs and protocols, such as G.711 and RTP/SRTP, so that both parties can communicate.
- **Call analysis:** Interaction Media Server can analyze the beginning audio of a call and identify a live speaker, answering machine/voice mail, or Special Information Tones (SIT) from the network.

  > **Note:** If you configure the Customer Interaction Center server to use a language other than English (US), you must create the **Call Analysis Language** server parameter on the Customer Interaction Center server and set it to the appropriate language code. For more information, see Specify Interaction Media Server Call Analysis Language Model.

- **Text-to-Speech (TTS):** Interaction Media Server supports Speech API (SAPI), Media Resource Control Protocol (MRCP) version 2.0, and its own native Interaction Text To Speech product for the playing of audio streams from TTS engines. For more information, see the *CIC Text to Speech Engines Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/tts_engines_tr.pdf.
- **Support of Automatic Speech Recognition (ASR:**- Interaction Media Server supports the sending of audio with echo cancellation to separate third-party ASR servers, such as from Nuance and Loquendo. Any supported third-party ASR product must reside on a separate system, not that of Interaction Media Server.
- **Interactive Speech Recognition:** Interaction Media Server hosts an ASR engine that Genesys developed. Interaction Speech Recognition enables CIC to identify basic spoken words, such as ones a caller provides to Interaction Attendant, instead of requiring Dual-Tone Multi-Frequency (DTMF) digits through a telephone keypad. For more information about Interaction Speech Recognition, see the following:
  - *Interaction Speech Recognition Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/isr_tr.pdf
  - *ASR Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/asr_tr.pdf
- **Support of whisper tones:** Interaction Media Server can play whisper tones to an agent in auto-answer mode. Whisper tones indicate that the agent will soon receive an interaction. You configure whisper tone functionality and options in Interaction Administrator.

Other Interaction Media Server Features

The following list provides other features in this version of Interaction Media Server:

- **RESTful API:** Interaction Media Server provides a Representational State Transfer (REST) Application Programming Interface (API) that is accessible through HyperText Transfer Protocol (HTTP). The Interaction Media Server REST API provides functionality similar to the functionality in the Interaction Media Server web-based user interface. For more information about the Interaction Media Server REST API, see Interaction Media Server REST API.
- **Selection Rules:** Allows you to create and tailor configurations that CIC uses to select an Interaction Media Server to process audio communications for an interaction. You can assign a configuration to one or more locations, which contain devices that start interactions in the CIC network.
- **Secure Input:** To comply with Payment Card Industry (PCI) Data Security Standard, Interaction Media Server secures sensitive numeric information, such as account numbers, from communications. When you enable Secure Input feature, Interaction Media Server prevents the playing or recording of Dual-Tone Multi-Frequency (DTMF) digits that endpoints transmit during calls. With the additional Secure IVR Playback feature, callers in an Interactive Voice Response session can hear the DTMF digits that they press on a telephone keypad. The DTMF digits with Secure IVR Playback are not present in call recordings, are not present or are encrypted in log and tracing files, and are encrypted in RTP transmissions between Interaction Media Server and the endpoint of the caller.
- **Keyword spotting/speech analytics:** Supports Interaction Analyzer, which analyzes telephone conversations in real time and can notify supervisors when calls contain predefined keywords. For more information, see the *Interaction Analyzer Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/analyzer_tr.pdf.
- Interaction Media Server allows CIC to retrieve call recordings and diagnostic recordings through HTTPS network communications.
- **Conferencing:** Interaction Media Server can host conference calls. For conference calls of more than 20 participants, CIC uses multiple Interaction Media Servers in its Distributed Conferencing feature to process all audio communications.
- **New licensing schema:** When Interaction Media Server processes audio streams, it does so through *media engines*. The total number of media engines is based on available CPU resources. Any other applications on Interaction Media Server also use CPU resources, including those resources that Interaction Media Server is not currently using to process audio. Licensing is based on your host ID. In some previous releases, Interaction Media Server licensing instead used the MAC address of your network interface card.
- **Backward compatibility:** This version of Interaction Media Server is backward compatible with CIC 4.0 and CIC 3.0 SU12 and later. However, to ensure that best performance and feature availability in your CIC environment, Genesys recommends that you use the same version among all components.
- **Hard disk drive data redundancy:** Interaction Media Server uses RAID hard disk drive configurations in the medium and large packaged server offerings:
  - **Small Interaction Media Server:** One hard disk drive (no RAID)
  - **Medium Interaction Media Server:** Two hard disk drives (RAID1)
  - **Large Interaction Media Server:** Four hard disk drives (RAID10)
- **Recording indicator sounds:** For recorded calls, you can use Interaction Administrator to configure Interaction Media Server to inject *beeps* into calls. The repeated injected sound indicates to parties on the call that you are recording the call. Using Interaction Administrator, you can configure the volume of the injected sound within the range of -33dB and 0dB.
- **Interaction Speech Recognition:** Interaction Media Server contains a native ASR engine to recognize speech. For more information about Interaction Speech Recognition, see the following:
  - *Interaction Speech Recognition Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/isr_tr.pdf
  - *ASR Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/asr_tr.pdf
- **64-bit architecture:** Interaction Media Server is available as a 64-bit architecture product, which enables it to use an even larger number of resources, such as CPU cores, RAM, and file sizes.
- **Two-channel recordings:** Using the Opus codec internally, Interaction Media Server can create single-channel (mono) or two-channel (stereo) call recordings with high audio quality.

  Note:
  Using Opus to record calls can use more CPU resources and requires more storage space for call recordings. The following list provides some Opus characteristics that impact CPU usage and recording storage space:
  - Dynamically adjustable bitrate
  - Audio bandwidth
  - Frame size for audio streams
  - Two-channel recordings

  To ensure that you sized your Interaction Media Server correctly for your call activity levels, see the Interaction Media Server sizing calculator at https://help.genesys.com/support-and-downloads.html.
  You must have a valid customer account and supply credentials to access the Interaction Media Server sizing calculator.
  To accommodate the movement of recordings to Interaction Recorder Remote Content Service or Interaction Recorder, ensure that your network bandwidth supports the increase in call recording sizes with Opus.

Interaction Media Server Installation

Install Interaction Media Server Appliance

Genesys offers appliances with the necessary software and hardware for specific products. To install the Interaction Media Server appliance, see "Set up the Interaction Media Server appliance" in the *Interaction Media Server Appliance Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_ps/desktop/interaction_media_server_appliance_installation_and_configuration_guide.htm.

Interaction Media Server Requirements

Note: If you are installing a packaged server from Genesys, also known as an Interaction Media Server appliance, do the procedures in the *Interaction Media Server Appliance Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_ps/desktop/interaction_media_server_appliance_installation_and_configuration_guide.htm.

Interaction Media Server hardware and network minimum requirements

Warning!
Ensure that your Interaction Media Servers meet the minimum hardware requirements. Otherwise, you can experience service outages and Genesys Customer Care won't provide technical support until you meet the minimum hardware requirements.

CPU (minimum)	Intel quad-core, hyper-threaded CPU
RAM	4 GB
Local storage space	2 - 500 GB SATA hard drives
Cache	256 MB Battery Backed Write Cache (BBWC)
Power supply units (PSUs)	2 - 365 W redundant power supply units
Network interface	1 GB Ethernet with driver software that supports Receive Side Scaling (RSS) **Important!** Receive Side Scaling (RSS) is a technology that distributes the processing of received network packets across multiple physical CPU cores. For RSS to function, the operating system, the network interface card (NIC) hardware, and the NIC driver must support this feature. RSS is, however, independent of any application, such as Interaction Media Server. You can use the **Device Manager** application in Windows to ensure proper RSS configuration of the NIC. Set the number of queues that the RSS feature of the NIC supports to a number that is equal to the number of physical CPU cores in the host computer. The RSS settings for NICs vary between the different brands and models of NICs. Consult the documentation for the NIC to configure the RSS queue to the appropriate value.
Systems	A functional CIC server in the network
Domain (optional)	If you do not connect Interaction Media Server to a domain, limit the computer name of Interaction Media Server to a maximum of 15 characters. Failure to follow this restriction can result in connectivity problems.

For assistance with determining hardware requirements for various workloads, see the following:

- Small Media Server 360 Gen10 Technical Specifications
- Medium Media Server 360 Gen10 Technical Specifications
- Large Media Server 360 Gen10 Technical Specifications

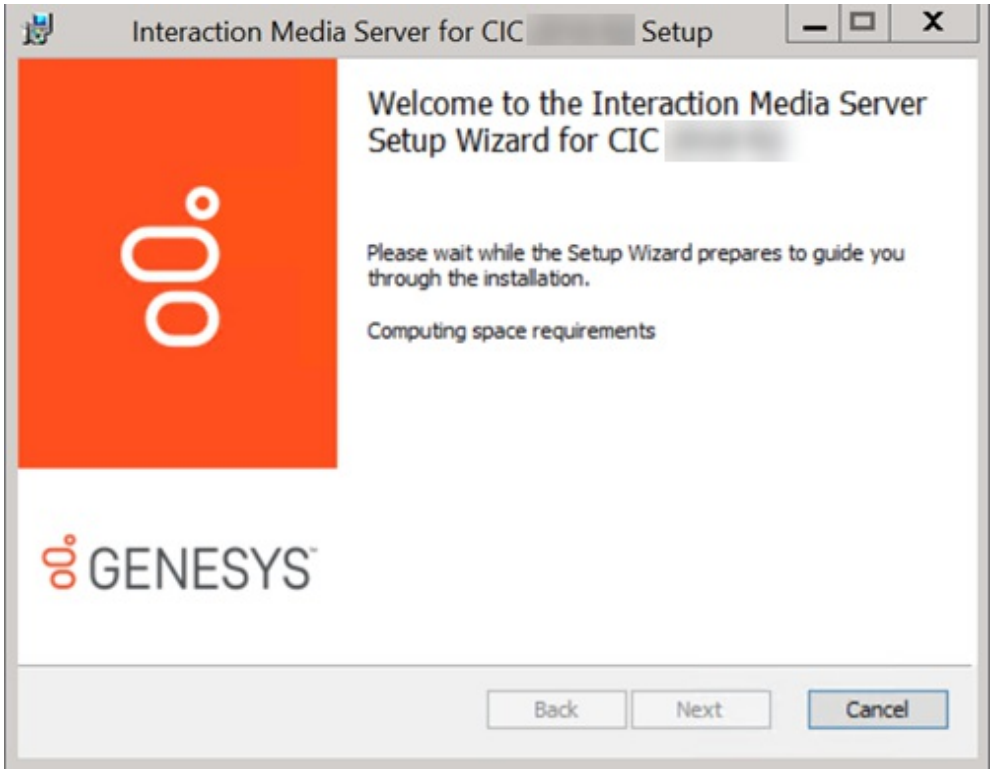
Interaction Media Server software requirements

Operating system	• Windows Server 2016 (64-bit) or Windows Server 2012 R2 (64-bit) • Datacenter edition • Enterprise edition • Standard edition
Software	Microsoft .NET Framework 4.7 or later and Microsoft .NET Framework 3.5.1 or later **Tip:** To enable Microsoft .NET Framework 3.5.1 or later, use **Server Manager** -> **Features**. **Note:** Only the iUpdate software updating product uses the Microsoft .NET Framework. Interaction Media Server does not use Microsoft .NET Framework.
Web browser	Internet Explorer, Microsoft Edge, Mozilla Firefox, or Google Chrome **Important!** To access the Interaction Media Server web interface, your browser must support version 1.1 or 1.2 of the Transport Layer Security (TLS) protocol. The Interaction Media Server web interface does not support the TLS v1.0 or SSL protocols.

Install Interaction Media Server on a Certified Computer

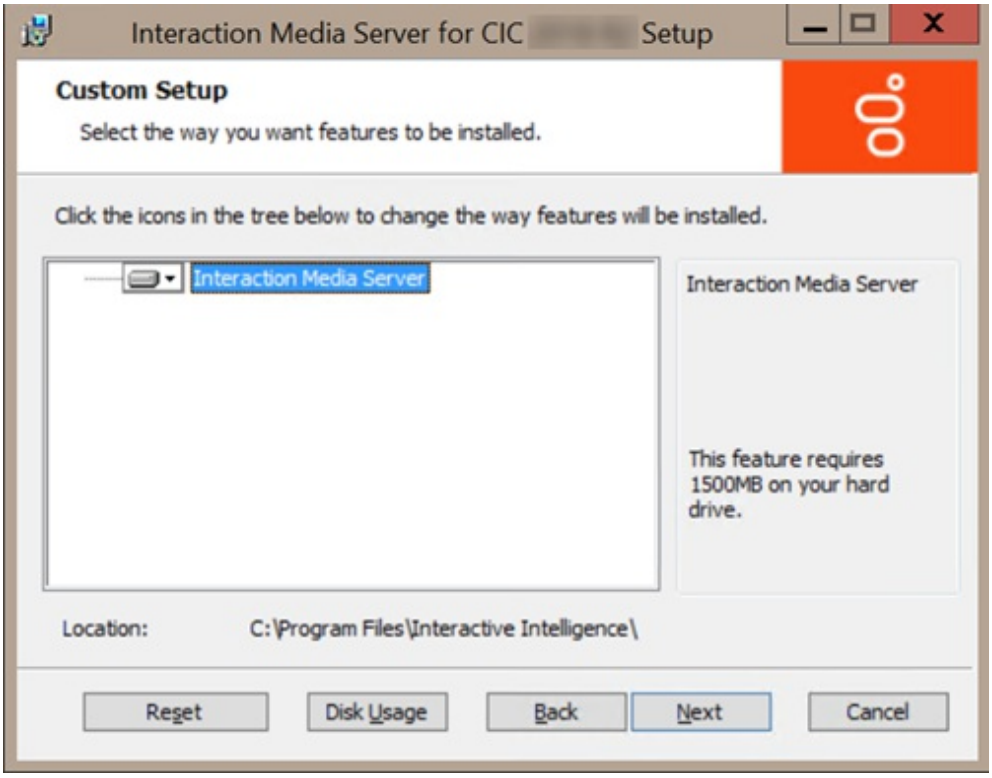
To install Interaction Media Server on a certified computer

1. If you have not done so already:
   a. Download the CIC `.iso` file from the product information site at the following URL address: https://my.inin.com/products/Pages/Downloads.aspx
   b. Copy the `.iso` file to a non-CIC file server with a high bandwidth connection to the computers on which you plan to install a CIC product.
   c. Mount the `.iso` file and share the contents to make them accessible to the computers on which you plan to install a CIC product.
2. Navigate to the `\Installs\Off-ServerComponents` directory on the file server.
3. Copy the `MediaServer_20nn_Rn.msi` file to the computer on which you want to install Interaction Media Server.
   n is a variable that represents digits that identify the specific release of CIC.
4. Run the `MediaServer_20nn_Rn.msi` file. The **Welcome to the Interaction Media Server Setup Wizard for CIC 20*nn* R*n*** page appears.



> **Note:**
> If you receive an error message regarding the maximum number of network filters, change a default registry setting to allow the installation program to install the PureConnect QoS driver. For more information, see http://support.microsoft.com/kb/2530477.

5. Click **Next**. The **Custom Setup** page appears.



The **Custom Setup** page allows you to do the following optional tasks:

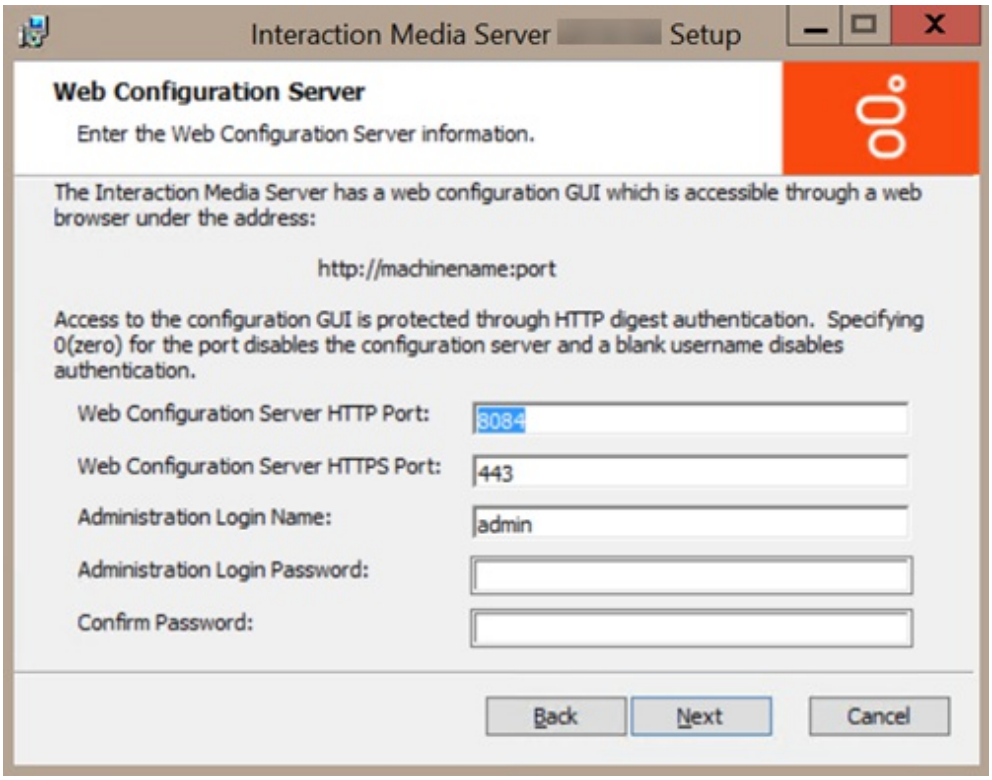
- Change installation directory - To change the directory where you installed the Interaction Media Server software, click **Browse** and then select the necessary directory.

> **Note:**
> The disk usage specified in the **Disk Space Requirements** dialog box includes the amount of disk space that Interaction Media Server requires for both the installation and the software.

- Check disk usage - Select **Disk Usage** to determine whether the hard disk drive has enough free space available to install the Interaction Media Server software.

> **Note:**
> If you already have PureConnect software installed on the system, the interface does not display a **Browse** button because you must install all PureConnect software in the same directory location.
> By default, the PureConnect QoS driver installs silently and adds the certificate to the Trusted Publishers list. If your site has reasons to modify this default behavior, see KB article Q131006915300479 and follow the instructions provided to modify the QoS properties and run the install using Group Policy or other methods.

6. Click **Next**. The **Web Configuration Server** page appears.



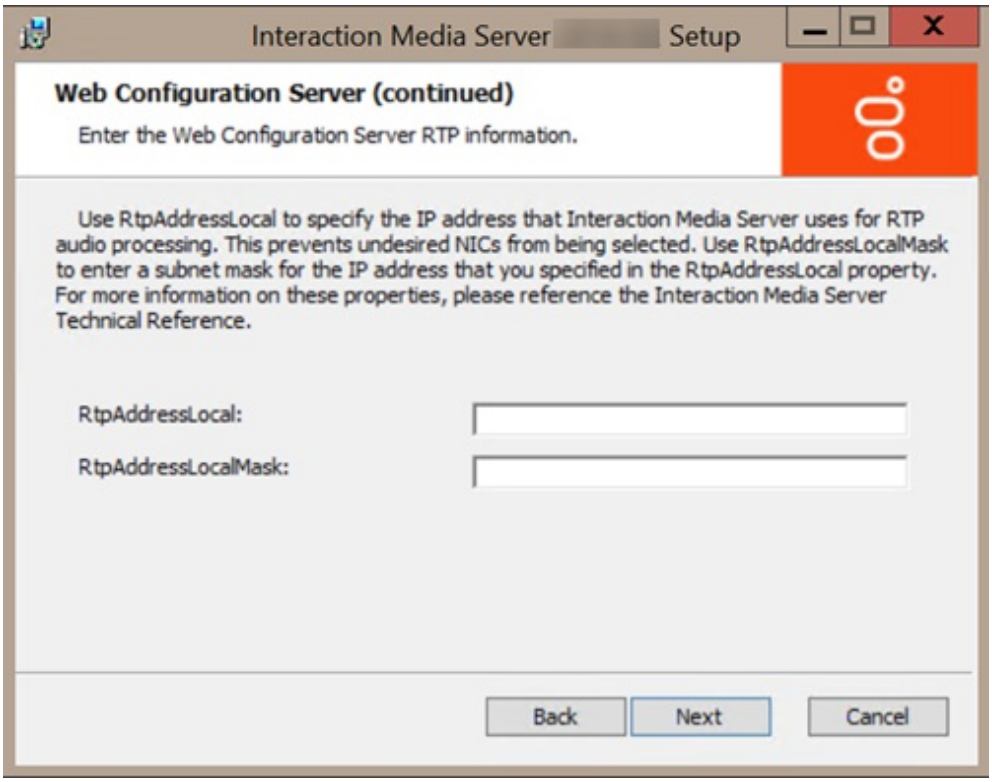
7. Specify the following information, as necessary:

- **Web Configuration Server HTTP Port** - Port number for Interaction Media Server to use for HTTP web interface sessions.
- **Web Configuration Server HTTPS Port** - Secure port number for Interaction Media Server to use for HTTPS web interface sessions.
- **Administration Login Name** - Administrative user name that you want a user to supply when accessing the Interaction Media Server web interface. This name does not need to correspond to a domain account or CIC account.

  Caution!
  If you do not enter any text in this text box, the Interaction Media Server web interface does not require authentication for access.

- **Administration Login Password** - Password that you want a user to supply when accessing the Interaction Media Server web interface.
- **Confirm Password** - Retype the password that you provided in the previous box.

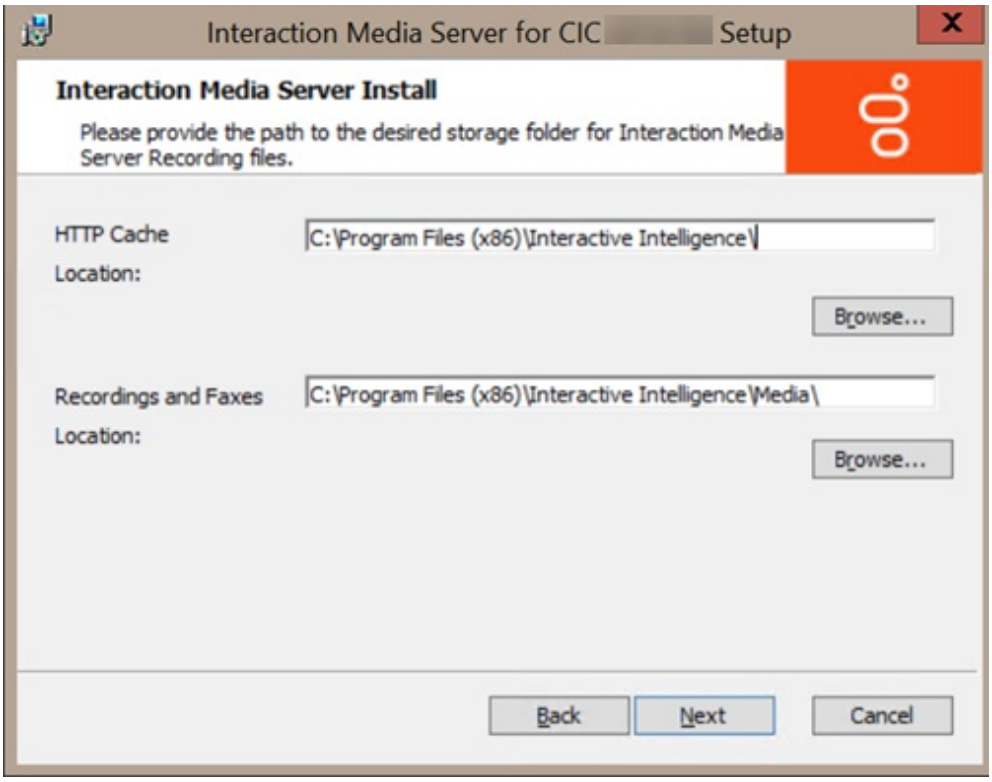
8. Click **Next**. The **Web Configuration Server (continued) page appears.**



9. Specify the following information:

   - **RtpAddressLocal:** IP address that Interaction Media Server uses for RTP audio processing.
   - **RtpAddressLocalMask:** Subnet mask for the IP address that you specified in the **RttpAddressLocal** box.

10. Click **Next**. The **Interaction Media Server Install** page appears.

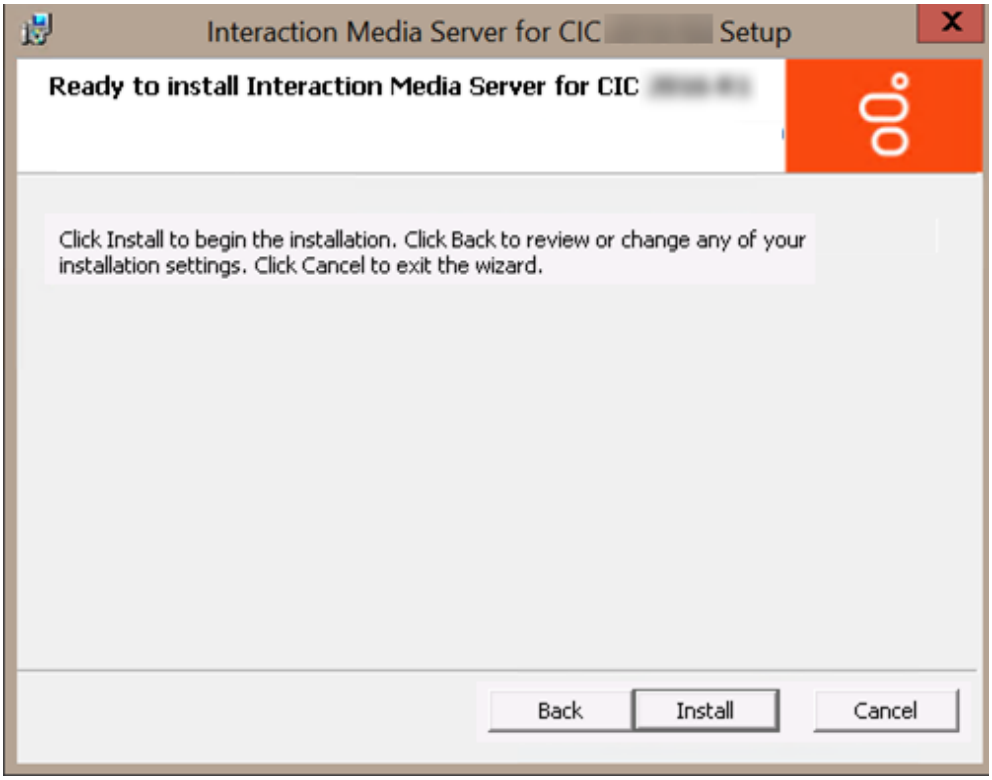


11. Specify the following information:

   - **HTTP Cache Location**: Path to store files transferred over HTTP (the default file transfer mechanism).
   - **Recordings and Faxes Location**: Path to store files associated with recordings and faxes.

If you need assistance in specifying the path, click **Browse** to view the local file system for the specific directory.

12. Click **Next**. The **Ready to install Interaction Media Server for CIC** page appears.



13. To change any specifications, click **Back** until the appropriate page appears. Otherwise, click **Install** to start installation of Interaction Media Server. The **Installing Interaction Media Server** page appears. When the installation process completes, the final installation page appears.
14. Click **Finish**. An **Interaction Media Server for CIC 20*nn* R*n* Setup** page appears.
15. Click **Yes** to restart the server.

> **Important!**
> Interaction Media Server cannot function properly without a restart of the server after installation.

Add CIC Server to Interaction Media Server

Complete these steps to configure Interaction Media Server to communicate with one or more CIC servers.

> **Note:**
> Before you can do this procedure, you must have a functional CIC server in your network.

To add a CIC server to Interaction Media Server

1. On a personal computer in your network or on the Interaction Media Server itself, open a web browser and navigate to the URL address of the Interaction Media Server computer. This address must include the fully qualified domain name or IP address, and the port number that Interaction Media Server is using as demonstrated in the following example:

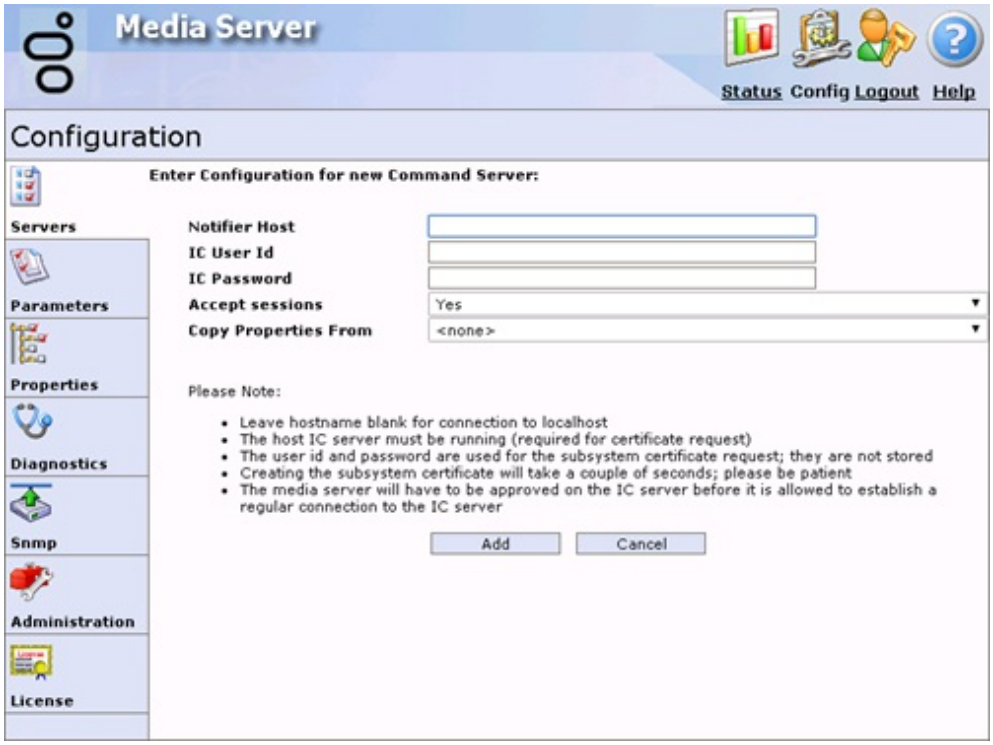
   `http://mediaserver1.mydomain.com:8084`

   > **Note:**
   > Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.

   If you assigned credentials, Interaction Media Server prompts you for the administrative user ID and password.
2. Type the administrative user ID and password in the appropriate boxes and then click **OK**. The **Status-About** page appears.

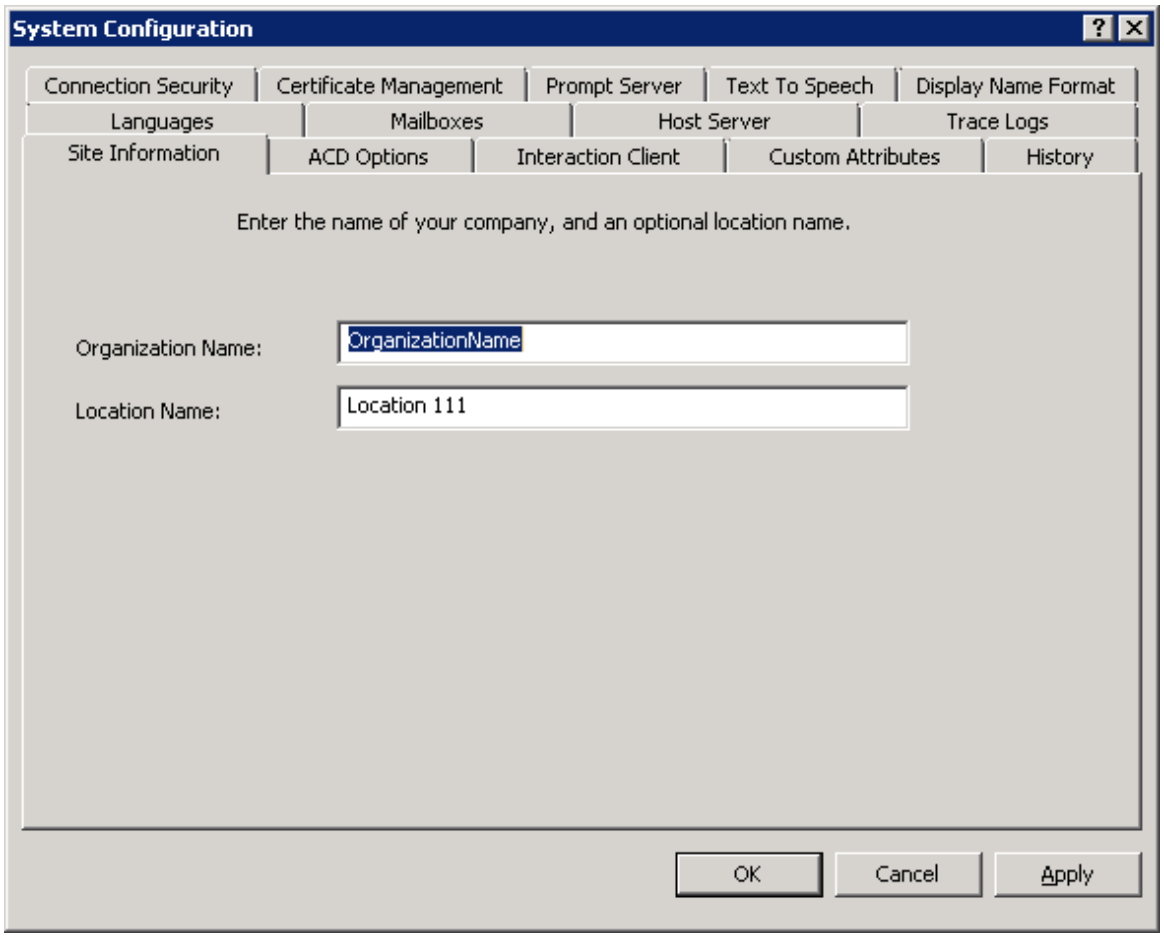
> **Note:**
> If you forget the user name or password of the Interaction Media Server web interface, you can clear the values in the following registry keys on Interaction Media Server:
>
> ```
> HKEY_LOCAL_MACHINE\SOFTWARE\Interactive Intelligence\MediaServer\WebConfigLoginName
> HKEY_LOCAL_MACHINE\SOFTWARE\Interactive Intelligence\MediaServer\WebConfigLoginPassword
> ```
>
> You can then log on to the web configuration interface without credentials and can reset them once you are in the web configuration interface. Do not specify a plain-text user name and password in these registry values.

3. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.
4. Click **Add Server**. The **Enter Configuration for new Command Server** page appears.

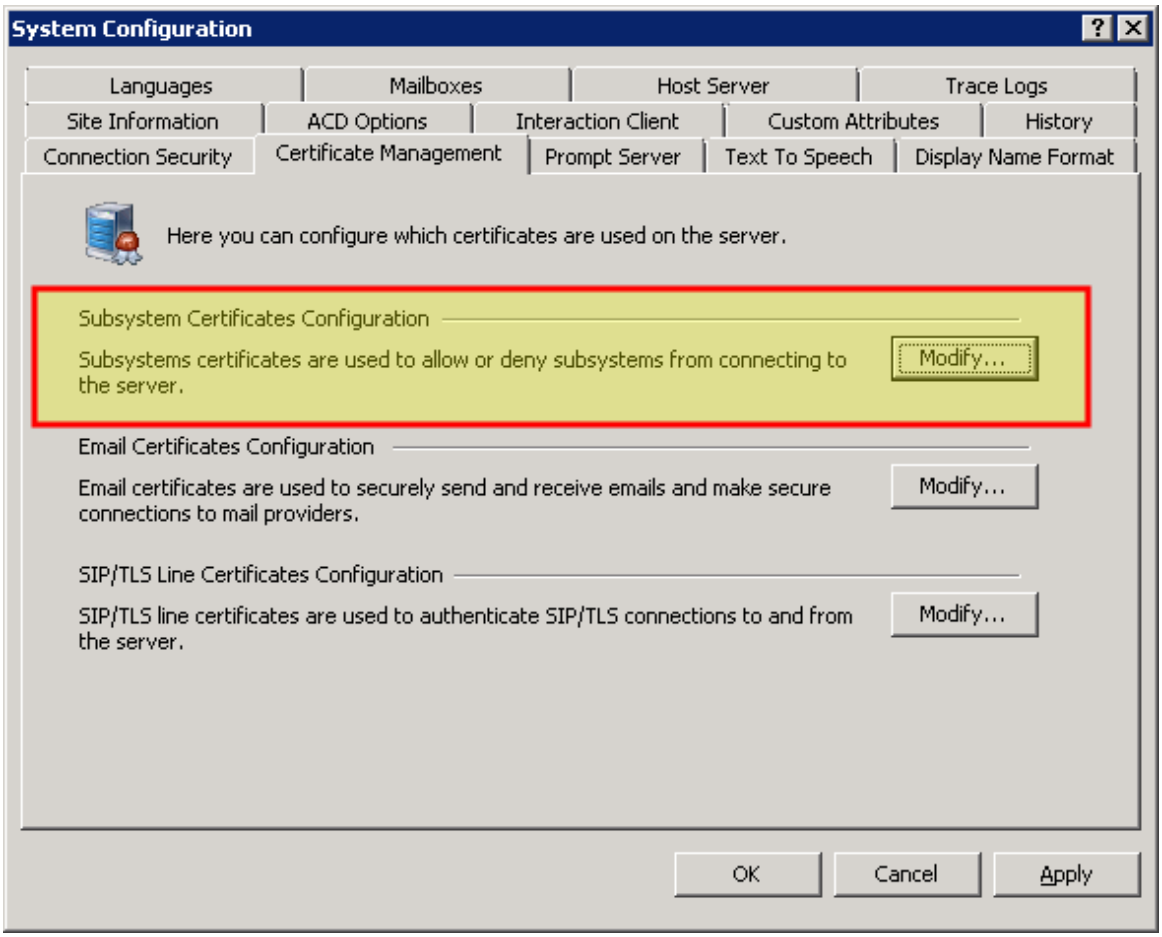


5. In the following boxes, specify the indicated information:
   - **Notifier Host -** Fully qualified domain name of the CIC to which you want to connect this Interaction Media Server.
   - **IC User Id -** CIC administrative user ID that allows Interaction Media Server to log on to the server.
   - **IC Password -** Password for the administrative user ID that you specified in the previous text box.
   - **Accept sessions -** Indicates whether to have this Interaction Media Server accept host sessions from the specified CIC server.
   - **Copy Properties From -** Indicates whether to copy the defined values from a previously defined CIC server. If this CIC definition is your first, leave this field blank.
6. Click **Add**. The system creates an Interaction Media Server connection to the specified CIC server.

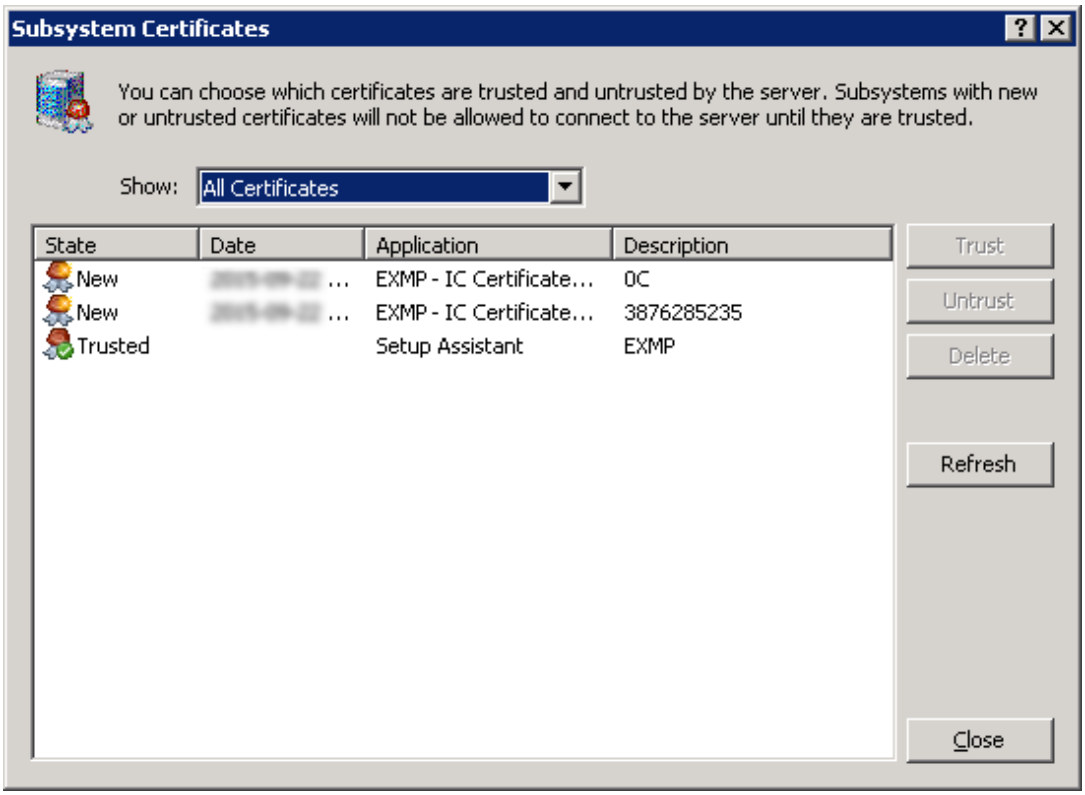
   Once you configure Interaction Media Server to communicate with a CIC server, use Interaction Administrator to accept the security certificate that Interaction Media Server sends to the CIC server. This action allows the systems to communicate securely over an SSL connection.
7. On the CIC server, open Interaction Administrator.
8. On the left side of the Interaction Administrator window, click the **System Configuration** container. The right pane displays the **Configuration** item.
9. Double-click the **Configuration** item. The **System Configuration** dialog box appears.



10. Click the **Certificate Management** tab.

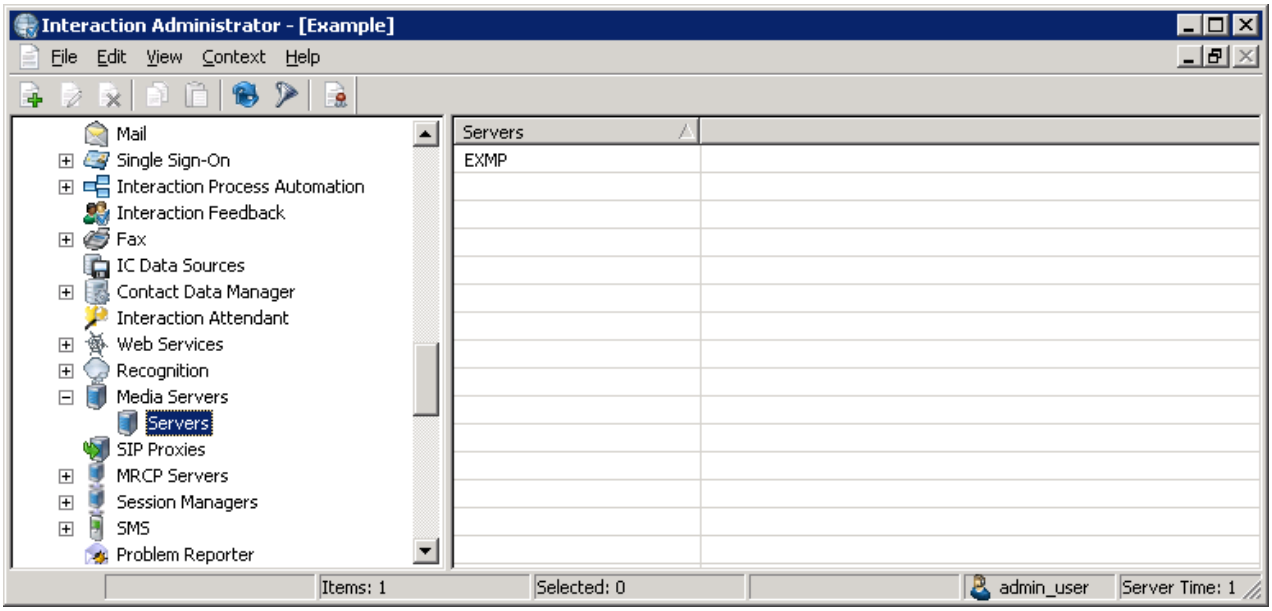


11. In the **Subsystem Certificates Configuration** area, click **Modify**. The **Subsystem Certificates** dialog box appears.



12. Click the **New** certificate from the Interaction Media Server that you configured to communicate with this CIC server.
13. Click **Trust**. The system now trusts the certificate from the specified subsystem.

14. On the **Subsystem Certificates** dialog box, click **Close**. The specified Interaction Media Server appears in Interaction Administrator under the **Media Servers** container and can now host sessions from the CIC server.



> **Note:**
> It can take up to 2 minutes for the Interaction Media Server certificate to appear in Interaction Administrator under the **Media Servers** object.

Add Interaction Media Server to a Domain

Interaction Media Server can be a member of a network domain. Consult your Microsoft Windows documentation and read the procedure for adding a server, such as Interaction Media Server, to a domain.

Apply Interaction Media Server Updates

Periodically, Genesys releases improvements to its products in the form of updates. Each update contains multiple improvements and distributes as an installation package.

To ensure that your CIC software is current with all features and fixes, install the latest update on Interaction Media Server, the CIC server, and any other related products.

> **Caution!**
> Apply the update to Interaction Media Server before applying the same level update to any other CIC products.

If you have multiple Interaction Media Servers providing service for a location, you can stop and update each one separately without impacting your call traffic. If you have only one Interaction Media Server in a location, applying an update interrupts call traffic until the process is complete. For the least amount of call traffic interruption, apply the update after office hours or during off-peak hours.

For more information, see the following:

- Complete Preinstallation Tasks
- Apply an Update to Interaction Media Server

Complete Preinstallation Tasks

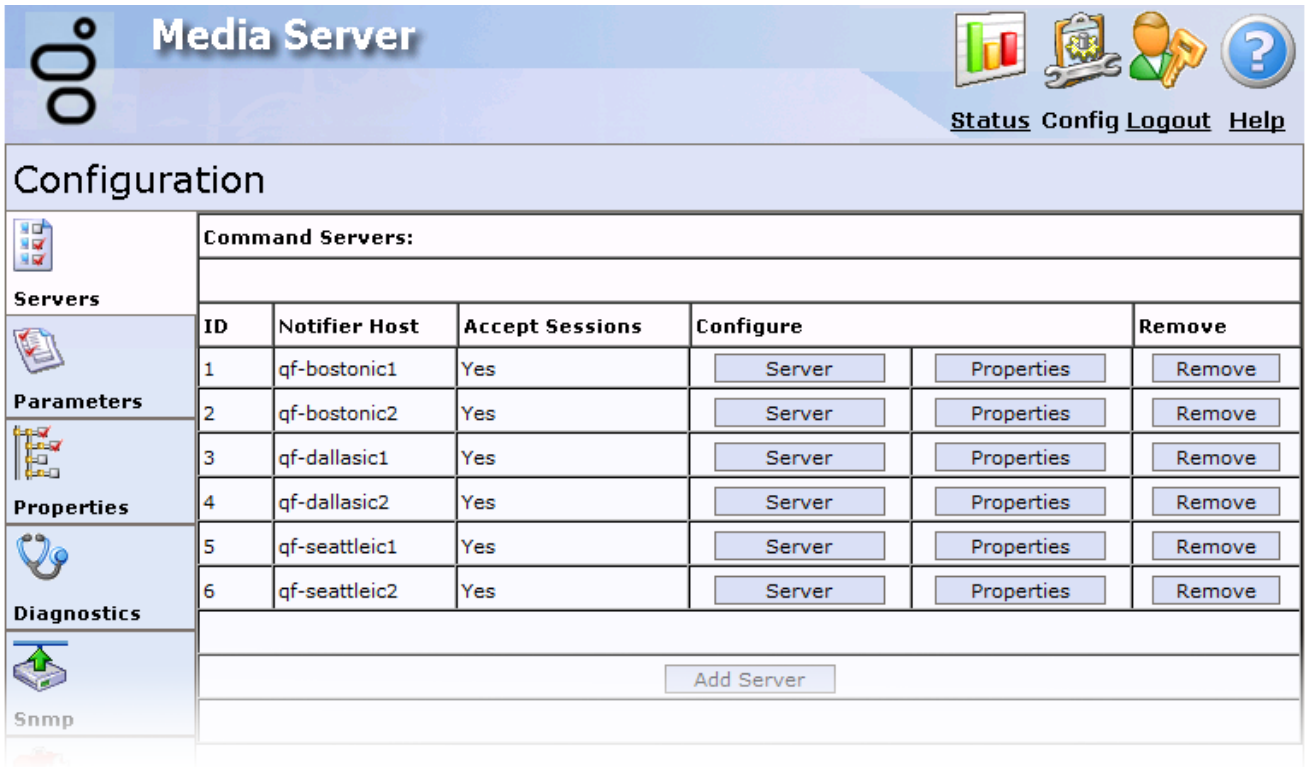
To complete preinstallation tasks

1. Open a web browser and go to the following URL address:
   https://my.inin.com/products/cic/Pages/Latest-Release.aspx
2. Read the release information for the update to understand the included features and changes.
3. After reading the page, click the **Download this release and the latest patch** hyperlink. The **Downloads** page displays.
4. In the **CIC** section, download either the latest CIC update or the Appliances update (both are available as `.ISO` files) from the following URL address:
   https://my.inin.com/products/Pages/Downloads.aspx
5. Move the `.ISO` file to a location where the Interaction Media Server to upgrade can access it.
6. Mount the `.ISO` file as a mounted volume.

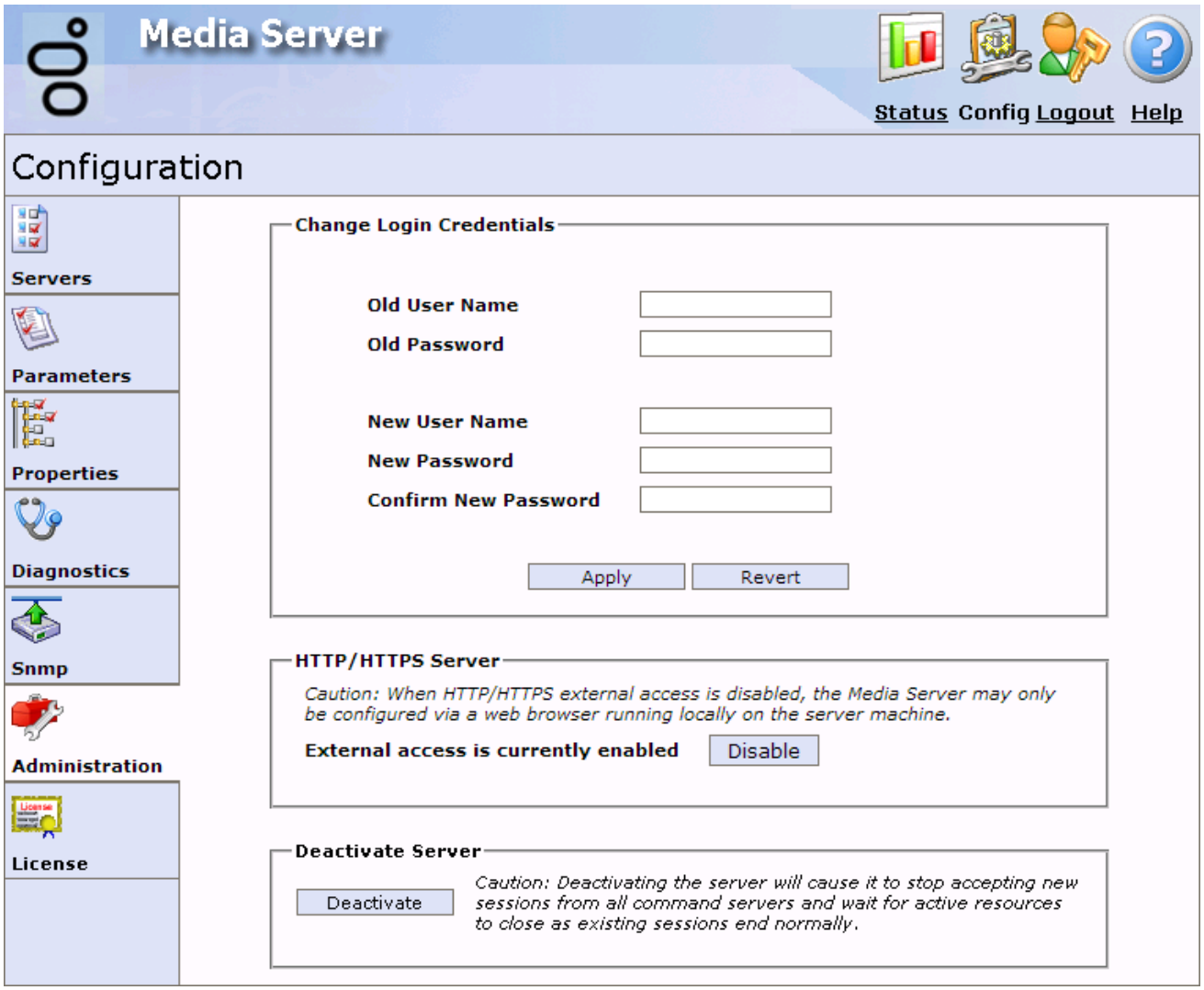
Apply an Update to Interaction Media Server

To apply an update to Interaction Media Server

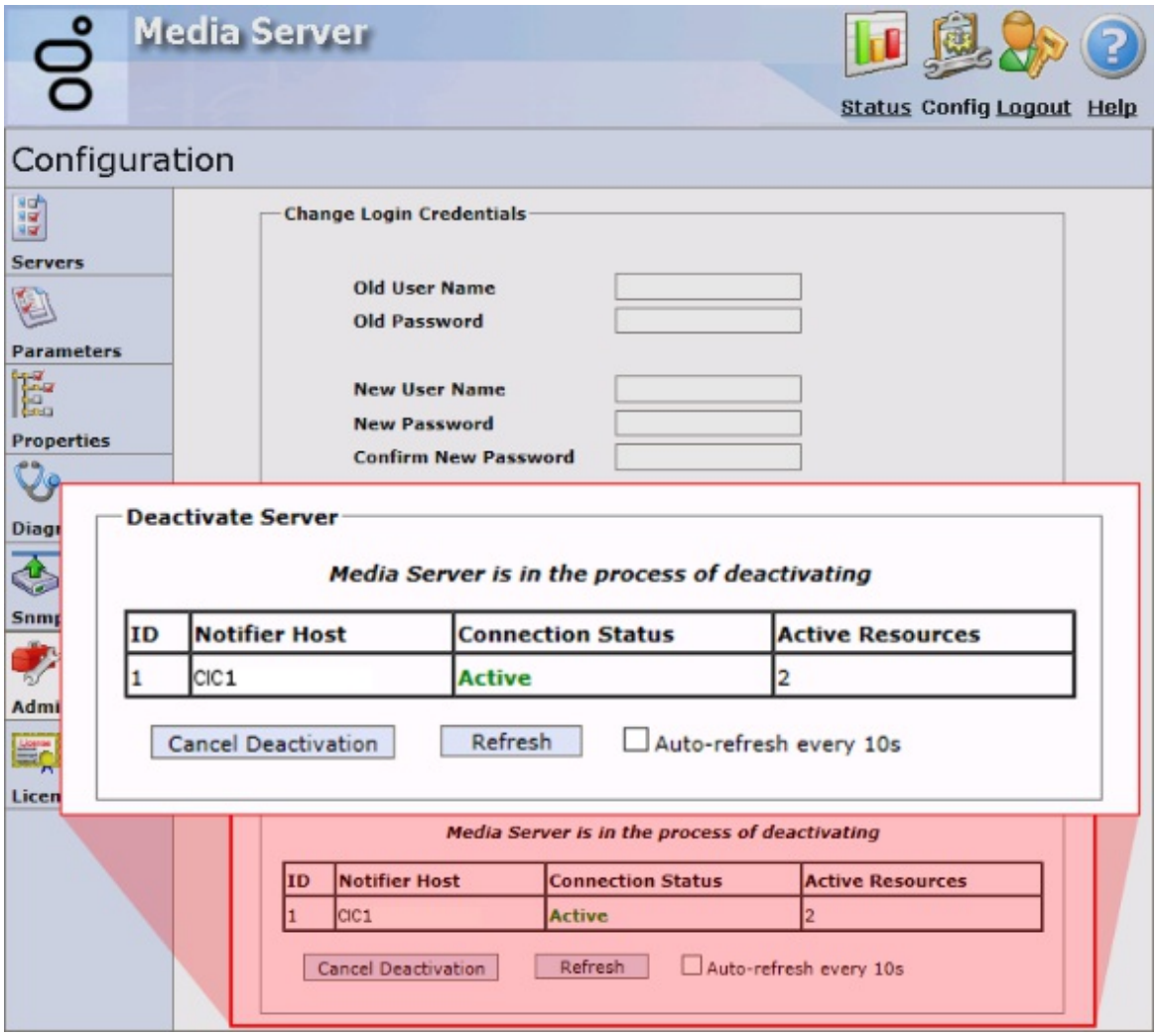
1. Access the Interaction Media Server web interface and log on with the administrative user name and password.
2. Click the **Config** icon in the upper right corner. The **Config - Servers** page appears.



3. On the left side of the page, click the **Administration** icon. The **Config - Administration** page appears.



4. In the **Deactivate Server** section, click **Deactivate**. The page displays the number of active sessions.



Interaction Media Server does not accept any new calls from CIC servers. Interaction Media Server maintains current calls until one of the parties on the call ends the call.

5. Click **Refresh** or select **Auto-refresh every 10s** to view the current number of active resources in use.
6. Wait until the number of active resources is **0** (zero).
7. If you record calls through this Interaction Media Server, wait another 5 minutes for Interaction Recorder to retrieve any active recordings from this Interaction Media Server.
8. Log out and close the web interface.
9. At the console of the inactive Interaction Media Server, log on with a user account that is a member of the Administrators domain group.
10. From Interaction Media Server, access the mounted `.ISO` file and navigate to the following directory:

CIC `.ISO` file	`\Installs\Off-ServerComponents\`

11. Run the following file: `MediaServer_20`*`nn`*`_R`*`n`*`.msi`

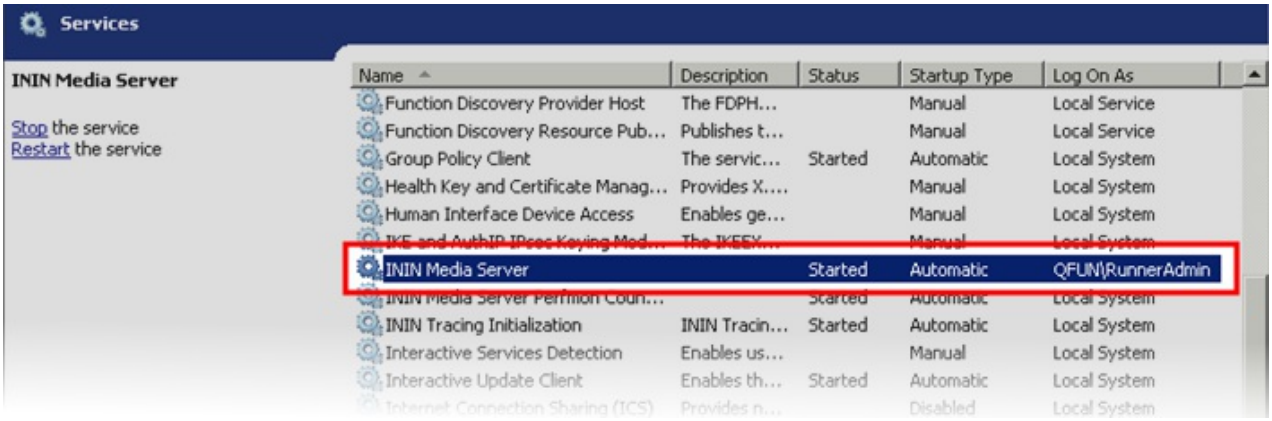
    n represents the digits specifying the release.

    > **Note:**
    > During an update to Interaction Media Server, ensure that you select the following entry:
    > - **Interaction Media Server -** If Interaction Media Server resides on your own hardware or a PureConnect Package Server, select this option.

    The system applies the update to this Interaction Media Server.
12. Restart Interaction Media Server.
13. Follow the instructions in the setup wizard, if displayed.

> **Note:**
> If you receive an error message regarding the maximum number of network filters, you must change a default registry setting to allow the update to upgrade the PureConnect QoS driver. For more information, see http://support.microsoft.com/kb/2530477.

14. Once you finish the setup wizard, restart the system.
15. Log on to Interaction Media Server again with an administrative user account.
16. In the Windows **Control Panel**, in the **Administrative Tools** folder, start the **Services** application. The **Services** window appears.
17. Ensure that the **ININ Media Server** service is started and running.



18. On any computer, open a web browser and navigate to the URL of the web interface of this Interactive Media Server.
19. Type the administrative user name and password for this Interactive Media Server web interface. The **Status-About** page appears.
20. On the left side of the page, click the **Server Status** icon.
21. Ensure that the update Interaction Media Server is accepting sessions and handling calls.

Important!
Because of licensing changes, upgrades of Interaction Media Server 4.0 GA or SU1 to the current version requires you to acquire a new Interaction Media Server license through the Customer Care portal at https://genesyspartner.force.com/customercare/LicenseManagement and apply it through the **Config-License** page in the Interaction Media Server web interface. For more information about generating the license, see Interaction Media Server Licensing. For more information about applying the license, see Apply an Interaction Media Server License.

Interaction Media Server Licensing

Interaction Media Server requires the following licenses and purchased sessions in the CIC environment.

For more information about fax license requirements, see Interaction Media Server Fax Licensing. For more information about getting licenses, see Acquire an Interaction Media Server License.

I3_FEATURE_MEDIASERVER_TYPE_STANDARD

You need one instance of this license for each physical Interaction Media Server. This license is unique and is associated to the host ID of the computer on which you installed Interaction Media Server.

I3_LICENSE_MEDIASERVER_MAX_MEDIA_ENGINES

Each instance of this license permits a media engine to use 32 CPU cores, both physical and hyper-threaded, for media engines to process interactions on the host computer.

Media sessions

Each audio operation on an Interaction Media Server requires a media session. Basic sessions, conference sessions, and fax sessions all require a media session. You must have enough media sessions to support your purchased basic, conference, and fax sessions.

Basic sessions

Interaction Media Server requires a basic session for each external call. Basic sessions permit the following operations:

- Manual outbound calls
- Inbound Direct Inward Dialing (DID) calls
- Voice mail access through a telephony user interface (TUI) or Interaction Mobile Office
- Non-ACD workgroup calls

- Interaction Attendant voice actions
- Dial by name
- Dial extension
- Remote access
- Play an Interaction Voice Response (IVR) menu

Each basic session requires a media session. Define basic sessions in the CIC server license.

> **Note:**
> Configured remote stations do not require sessions while dynamic stations do. For more information about the different types of stations, see the "Remote Station Types" topic in the *Interaction Desktop* documentation.

Conference sessions

Each participant in an ad hoc or scheduled CIC conference call requires a conference session. External parties also use a basic session to participate in a CIC conference call. Each conference session requires a media session. Define conference sessions in the CIC server license.

Fax sessions

Fax communications through Interaction Media Server require a fax session, a basic session, and a media session for each external fax call. Define fax sessions in the CIC server license.

I3_LICENSE_MEDIA_SERVER_G.729_SESSIONS

The G.729 codec requires less bandwidth usage at the expense of dynamic audio range. The G.729 codec is proprietary and requires that you purchase licenses for each interaction that uses the codec. The number of licenses that you purchase must equal the maximum number of simultaneous interactions that you want to support. For example, if you have two Interaction Media Servers that support up to 100 simultaneous G.729 sessions each, purchase 200 sessions in the CIC license. Use the Online Ordering System to purchase these licenses. You can then download the license from the Customer Care portal at https://genesyspartner.force.com/customercare/LicenseManagement.

Interaction Text To Speech (ITTS) licenses

Interaction Media Server provides a native text-to-speech synthesizer as an alternative to other third-party text-to-speech products. Usage of this feature requires a feature license:

I3_FEATURE_MEDIA_SERVER_TTS

Purchase a license specifying the number of simultaneous sessions that Interaction Text To Speech allows:

I3_SESSION_MEDIA_SERVER_TTS

Purchase the languages that you want to use with the text-to-speech synthesizer. The following list provides the languages that Interaction Text-to-Speech currently supports:

- **Dutch (Netherlands)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_NL
- **English (US)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_EN
- **English (Australia)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_EN_AU
- **English (Great Britain)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_EN_GB
- **French (Canada)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_FR_CA
- **French (France)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_FR
- **German (Germany)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_DE
- **Italian (Italy)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_IT
- **Japanese (Japan)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_JA
- **Mandarin Chinese (China)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_ZH_CN
- **Portuguese (Brazil)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_PT_BR
- **Spanish (US)** I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE_ES

> **Note:**
> Interaction Text-to-Speech is a required component for the Secure IVR Playback capability of the Secure Input feature as it synthesizes the DTMF sounds that correlate to the entry of digits through a telephone keypad.

Interaction Media Server Fax Licensing

Each simultaneous active fax, either inbound or outbound, requires a fax session license. Fax session licenses are in the CIC license.

If you exceed your fax session license count, the following events occur based on the direction of the fax:

- **Inbound:** These faxes fail and Interaction Media Server does not service them.
- **Outbound:** CIC holds these faxes in a queue until a fax session license becomes available.

To determine how many fax session licenses are in use, use Interaction Supervisor to view the **Fax Licenses Available** statistic.

I3_FEATURE_MEDIASERVER_TYPE_STANDARD

You need one instance of this license for each physical Interaction Media Server. This license is unique and is associated to the host ID of the computer on which you installed Interaction Media Server.

For more information about faxing, see Interaction Media Server Faxing.

Acquire an Interaction Media Server License

The Activation File Management Tool allows you to generate Interaction Media Server and CIC licenses. If you purchased the appropriate products, Genesys certifies and authorizes you to generate these licenses. You can access the tool from the Customer Care portal at https://genesyspartner.force.com/customercare/GenesysCommunityLogin.

If Genesys didn't certify you to log on to this website, you can send an email message to Genesys at: licenseissues@genesys.com. Include your order number and request a license file. If you are installing the Interaction Media Server software on your own hardware that you did not purchase from Genesys, include your server name and MAC address ID numbers for the computer that you intend to host Interaction Media Server.

For more information about generating your CIC server license for Interaction Media Server, see the *PureConnect Licensing Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/licensing_tr.pdf.

Apply an Interaction Media Server License

After you have acquired a CIC license that includes Interaction Media Server, apply it to both Interaction Media Server and CIC.

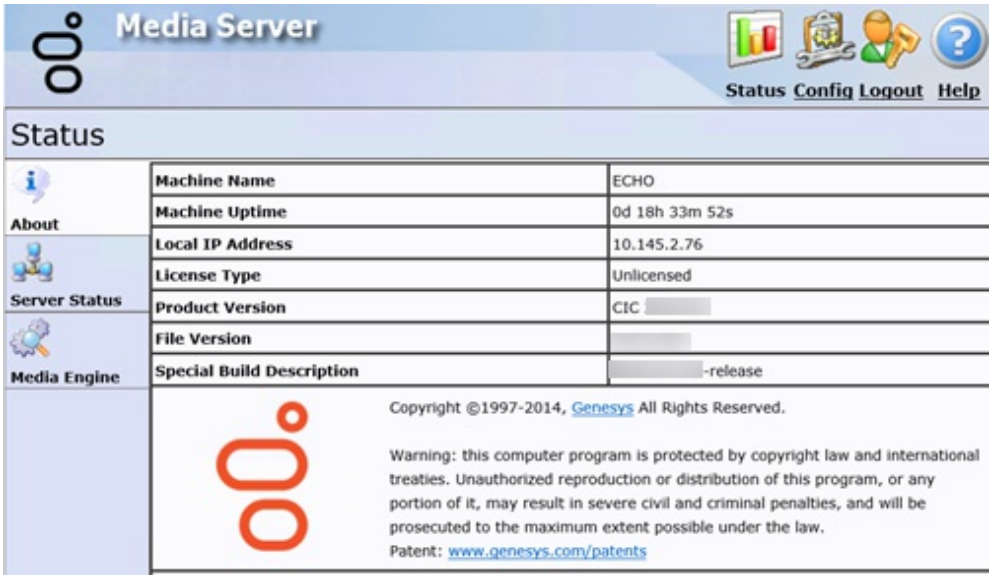
To apply an Interaction Media Server license

1. Do the following to load the license on Interaction Media Server:
   a. Place your CIC license on a local or shared network location.
   b. Open a web browser and navigate to the URL and port number of the Interaction Media Server web interface. See the following example for the format of specifying this address:

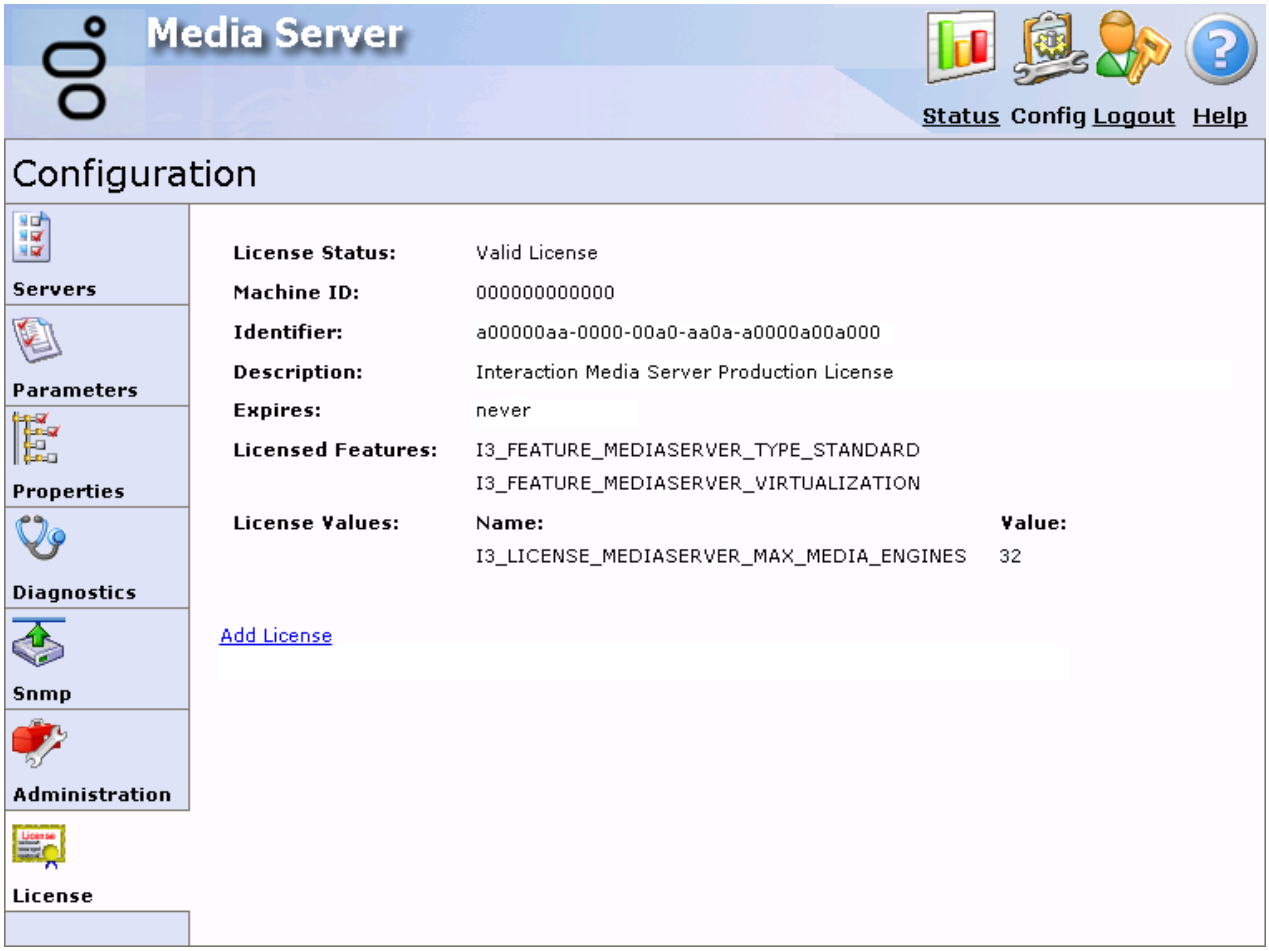
      http://mediaserver1.mydomain.com:8084/

      > **Note:**
      > Your address and port number could differ from the example. Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.

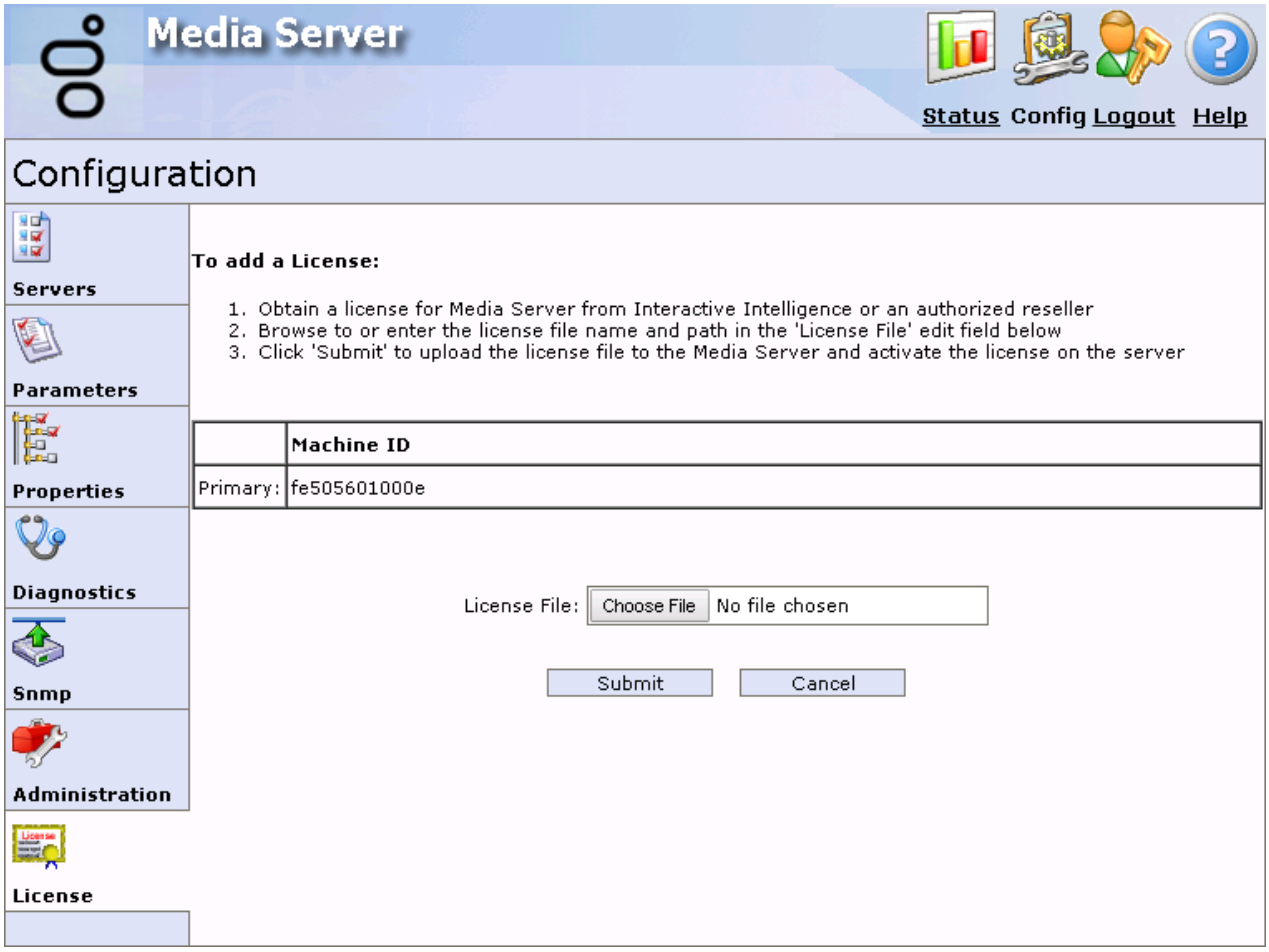
   c. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password. The **Status-About** page appears.



d. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.
e. On the left side of the page, click the **License** tab. The **Config-License** page appears.

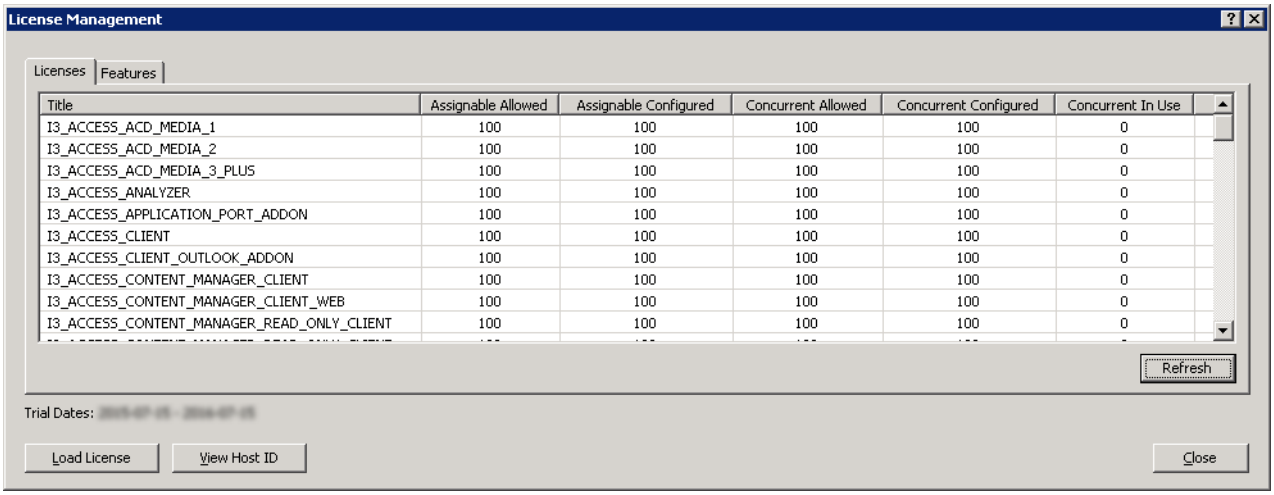


f. Click the **Add License** hyperlink. The **To add a License** page appears.



g. Follow the instructions at the top of the page.
h. Once you load the license, click the **Servers** icon on the left side of the page.
i. Click a CIC server to which to connect this Interaction Media Server and then click its **Server** button. The **Configuration of Command Server** page appears.
j. In the **Accept sessions** list, click **Yes**.
k. **Click Apply Changes**.
l. Repeat the **Accept sessions** configuration for each CIC server that you want to communicate with this Interaction Media Server.

2. Do the following to load the license on CIC:
   a. Place the license file in a local or network-accessible directory.
   b. Open Interaction Administrator and select **File** > **License Management**. The **License Management** dialog box appears.



   c. Click **Load License**. The **Load License** dialog box appears.
   d. In the **Load License** dialog box, navigate to the location of the license file and then double-click the license file. The system loads the included licenses and features into CIC.

e. Click **Close** to complete the process. The Interaction Media Server that you configured to communicate with this CIC server is now displayed in Interaction Administrator under the **Configuration**>**Media Servers**>**Servers** object.

Upgrade Interaction Media Server

Interaction Migrator enables you to export configuration data from previous versions of CIC and its subsystems, including Interaction Media Server. You then install and use Interaction Migrator to import that configuration data to the latest version of those products.

Interaction Migrator has two methods of migrating configuration data: full migration and partial migration. Whichever method you choose, ensure that the server meets the requirements as indicated in Interaction Media Server Requirements.

Important!

Interaction Migrator does not support migrating Interaction Media Server 2.4 configurations to this version of Interaction Media Server. Recreate the 2.4 configuration manually on a new Interaction Media Server.

Full migration

This method upgrades all products in your CIC network. If you are upgrading all products in your CIC network, follow the procedures in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf. You can download Interaction Migrator and its documentation from the following website: https://my.inin.com/products/cic/Pages/Migrations.aspx.

Partial migration

This method upgrades only specific products in your CIC network and migrates the configuration data from the previous version to the latest version. If you are upgrading only Interaction Media Server, the following table provides overviews of the available upgrade methods.

Method	Procedure overview
Install a new Interaction Media Server	1. Install Interaction Media Server on a new server with the Microsoft Windows Server 2012 R2 or Windows Server 2016 operating system. 2. Apply the latest update to the latest version of Interaction Media Server. For more information, see Apply Interaction Media Server Updates. 3. Install Interaction Migrator on the previous Interaction Media Server using the procedure in "Install Interaction Migrator" in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf. 4. Export the configuration data of the previous Interaction Media Server using the procedure in "Export Interaction Media Server 3.0 Configuration Data" in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf. 5. Install Interaction Migrator on the new Interaction Media Server. 6. Using Interaction Migrator, import the configuration data to the new Interaction Media Server using the procedure in "Import Interaction Media Server 3.0 Configuration Data" in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf.
Upgrade the existing Interaction Media Server	1. Install Interaction Migrator on the previous version of Interaction Media Server using the procedure in "Install Interaction Migrator" in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf. 2. Using Interaction Migrator, export the configuration data from the previous version of Interaction Media Server using the procedure in "Export Interaction Media Server 3.0 Configuration Data" in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf. 3. Ensure that the server meets the requirements for Microsoft Windows Server 2012 R2 or Windows Server 2016. For more information about Windows Server requirements, see http://technet.microsoft.com. 4. Upgrade the operating system to Microsoft Windows Server 2012 R2 or Microsoft Windows Server 2016. 5. Install the latest version of Interaction Media Server. For more information, see Install Interaction Media Server on a Certified Computer. 6. Apply the latest update to the latest version of Interaction Media Server. For more information, see Apply Interaction Media Server Updates. 7. Install Interaction Migrator using the procedure in "Install Interaction Migrator" in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf. 8. Using Interaction Migrator, import that configuration data using the procedure in "Import Interaction Media Server 3.0 Configuration Data" in the *CIC Migration Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/migration_icg.pdf.

Configure CIC for Interaction Media Server

After you install Interaction Media Server in your CIC environment, use Interaction Administrator to configure CIC to use Interaction Media Server appropriately.

There are significant differences between Interaction Media Server 3.0 and the current version. Where Interaction Media Server 3.0 required you to choose between **Basic** and **Advanced** operations, these modes of operation do not exist in the current version of Interaction Media Server. All features that were associated with the **Advanced** and **Basic** settings of Interaction Media Server, including faxing, are available. You can configure these features through the web interface and most are enabled by default.

Important!

Before you start configuring CIC or Interaction Media Server, Genesys recommends that you create a diagram of all components and their relationships. These components can include CIC servers, gateways, Interaction Media Servers, SIP lines and codecs, and SIP endpoints and codecs.

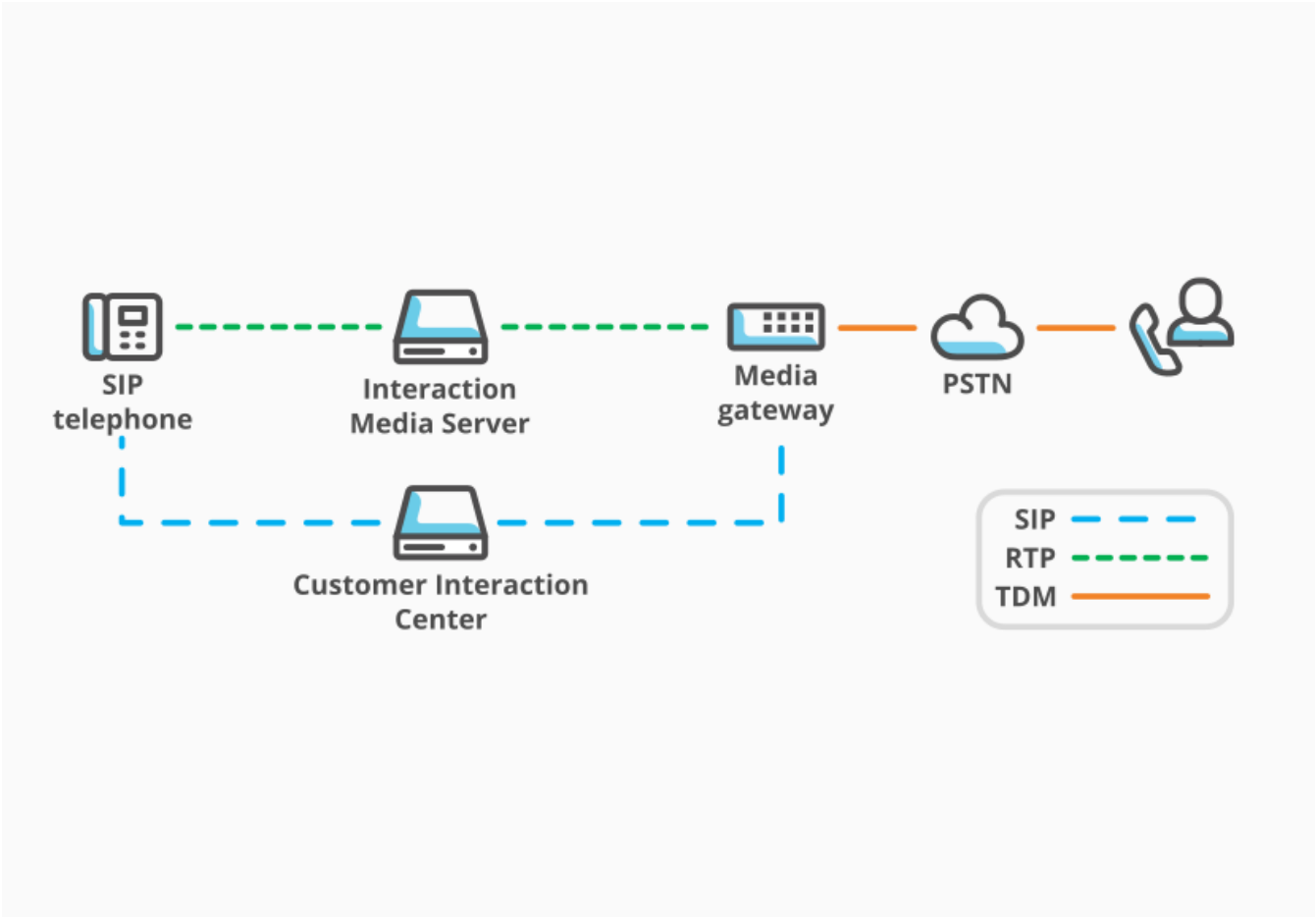
It is important that you understand the call flow from all devices when configuring lines and Regionalization Locations in Interaction Administrator. There are many possible combinations of call flow between these devices. The physical location of the servers, gateways, and telephones is not of vital importance except in the specification of the Regionalization Locations.

Configure "Always-in" or "Dynamic" Audio Path for Interaction Media Server

There are two methods of handling call audio streams with Interaction Media Server: *dynamic* and *always-in*. The difference in these two methods is how Interaction Media Server interacts with the audio stream.

Always-in audio path

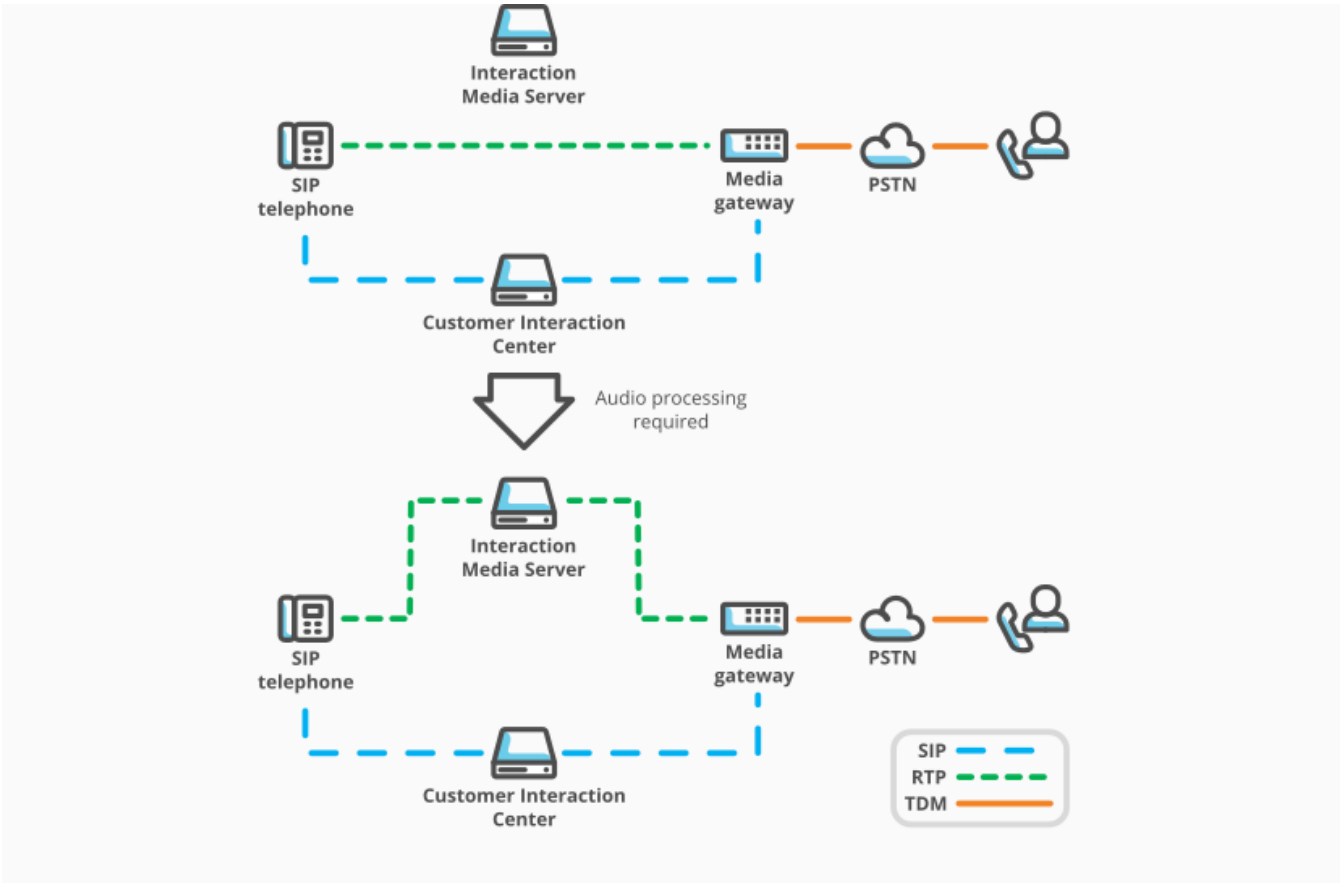
The *always-in* method specifies that Interaction Media Server receives and retransmits all RTP audio streams associated with Session Initiation Protocol (SIP) lines in the CIC system. CIC controls the SIP messages between SIP devices, as displayed in the following diagram:



Always-in media model

Dynamic audio path

The *dynamic* method specifies that SIP devices, such as SIP telephones and gateways send and receive RTP audio streams directly to each other without using Interaction Media Server. However, if a call requires audio processing from Interaction Media Server, such as an agent choosing to record a call, CIC sends SIP REINVITE packets to the endpoints. The endpoints then send the RTP audio streams to Interaction Media Server, which then records the call. Interaction Media Server also becomes involved in the RTP audio streams for special operations, such as transcryption, transcoding, or playing a media file, such as an audio prompt.



Dynamic audio media model

Which audio path method do I use?

The audio method that you choose depends on your usage of Interaction Media Server and how you want calls to behave.

The dynamic method is the default for Interaction Media Server. If you are intermittently recording calls and using special operations, Genesys recommends using this method as it only uses Interaction Media Server when requested. There is a 0.5-second delay that occurs when inserting Interaction Media Server into the audio path.

> **Note:**
> If you want the highest performance available for media operations, such as ad hoc recording or recording most calls, Genesys recommends the always-in method. As another example, if you want your customer to hear an agent without any delay, use this method as Interaction Media Server immediately inserts itself in the audio path.

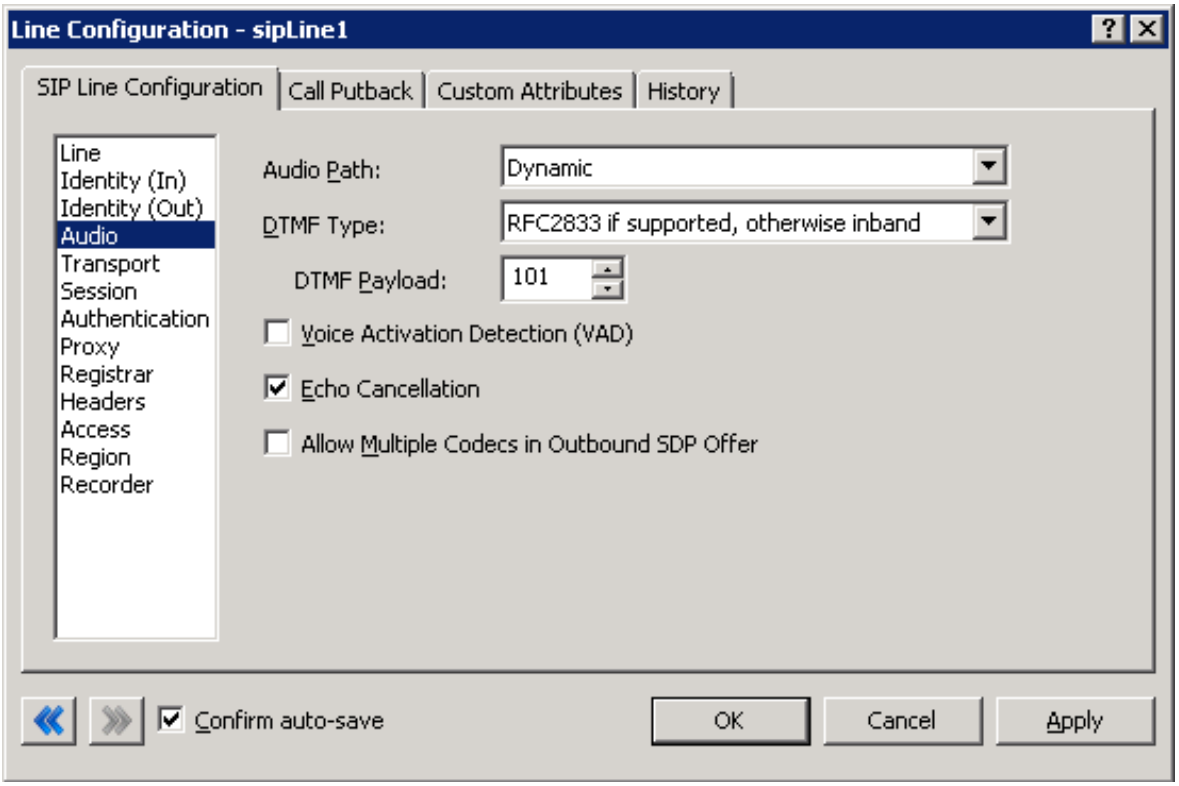
It is important that you analyze your call patterns and how you want to process calls in your contact center environment so that you can choose the most appropriate method.

Set the Interaction Media Server audio path behavior

Set a SIP line so that it uses the necessary audio path method in Interaction Media Server.

To set the Interaction Media Server audio path behavior

1. Open Interaction Administrator and log on with the administrator credentials. The Interaction Administrator main window appears.
2. In the left pane, click the **Lines** object. A list of defined SIP lines appears in the right pane.
3. In the right pane, double-click the line for which you want to configure the audio path method. The **Line Configuration** dialog box appears.



4. In the list on the left side of the dialog box, click the **Audio** item.
5. In the **Audio Path** list box, select either **Dynamic** or **Always-In**.
6. Click **OK**.

Configure Network Interfaces on Interaction Media Server

Interaction Media Server can use one or more network interfaces on the host computer. Interaction Media Server packaged servers provide multiple network interfaces.

If available, use multiple network interfaces with Interaction Media Server. With multiple interfaces available, Interaction Media Server can do its own load balancing by selecting different network interfaces for Real-time Transport Protocol (RTP) streams.

Also, using multiple network interfaces in your Interaction Media Servers enables you to connect them to different networks and hardware, which can eliminate single-point-of-failure scenarios, such as a network interface or switch becoming inoperative.

You can control multiple network interfaces in an Interaction Media Server host through the following Interaction Media Server properties.

- **RtpLocalAddress**
- **RtpLocalAddressMass**

Through a combination of these properties, you can specify a range of addresses for network interfaces that Interaction Media Server can select for RTP communications. For more information about these properties, see Interaction Media Server Config-Properties Page.

Teamed network interfaces

Teamed network interfaces bind multiple interfaces to a single IP address. This teaming capability is available through either one of the following means:

- Software designed specifically by the manufacturer for a specific network interface
- Windows Server 2012 R2 or Windows Server 2016 native functionality

Important!

Genesys testing has shown that network interface teaming in a load balancing configuration on Interaction Media Server results in the creation or increase of audio issues. Genesys does not support Interaction Media Server instances that use network interface teaming in a *load balancing* configuration.

You can use network interface teaming in a fault tolerance configuration. However, if you experience an increase in audio issues in such a configuration, Genesys recommends that you disable teaming and use the network adapters individually; with each having its own IP address.

For more information about configuring and using network interface teaming in a *fault tolerance* configuration, see the document for the software that you are using for that functionality.

Interaction Media Server provides its own form of load balancing when you specify multiple network interfaces on the host through usage of the **RtpAddressLocal** and **RtpAddressLocalMask** properties.

Configure Interaction Media Server for virtual local area networks

Some network environments use virtual local area networks (VLANs) to segregate different types of network traffic, such as voice and data, to ensure lower latency and to prevent the overloading of network entities, such as routers. Usually, a computer or server uses multiple network interface cards (NICs) to communicate with the separate VLANs.

Interaction Media Server allows you to direct Real-time Transport Protocol (RTP) network communications through a specified NIC in the host computer. Use the **RtpAddressLocal** and **RtpAddressLocalMask** properties in the Interaction Media Server Config-Properties Page of the Interaction Media Server web interface. For the procedure to configure the RTP NIC binding for Interaction Media Server, see "Configure Interaction Media Server to use a network interface for RTP communications."

Routing of network messages through other protocols, such as SIP, HTTP, and Notifier, depends on the current configuration of the Windows routing table. For more information about the routing table in Windows, see http://technet.microsoft.com/en-us/library/cc779122(v=ws.10).aspx. To modify the Windows routing table, use the `route` command in a command prompt. For more information about the `route` command, see http://technet.microsoft.com/en-us/library/ff961510.aspx

The Windows routing table contains destination IP addresses, subnet masks, default gateways, a NIC IP address, and a metric value so that Windows can determine which NIC to use to send a network message. Windows does not consider the protocol of a network message when it uses the routing table to determine the NIC to use. For example, you cannot configure Windows to route Session Initiation Protocol (SIP) messages to use a specific NIC or VLAN; only through the IP address mask of the destination.

Tip:

If you need help configuring Interaction Media Server for specific behaviors with virtual local area networks, contact Genesys Professional Services.

Note:

If you have not specified a network interface for the **UdptlAddressLocal** and **UdptlAddressLocalMask** properties, Interaction Media Server sends UDPTL packets for T.38 and T.30 faxing through the network interface specified in the **RtpAddressLocal** and **RtpAddressLocalMask** properties.

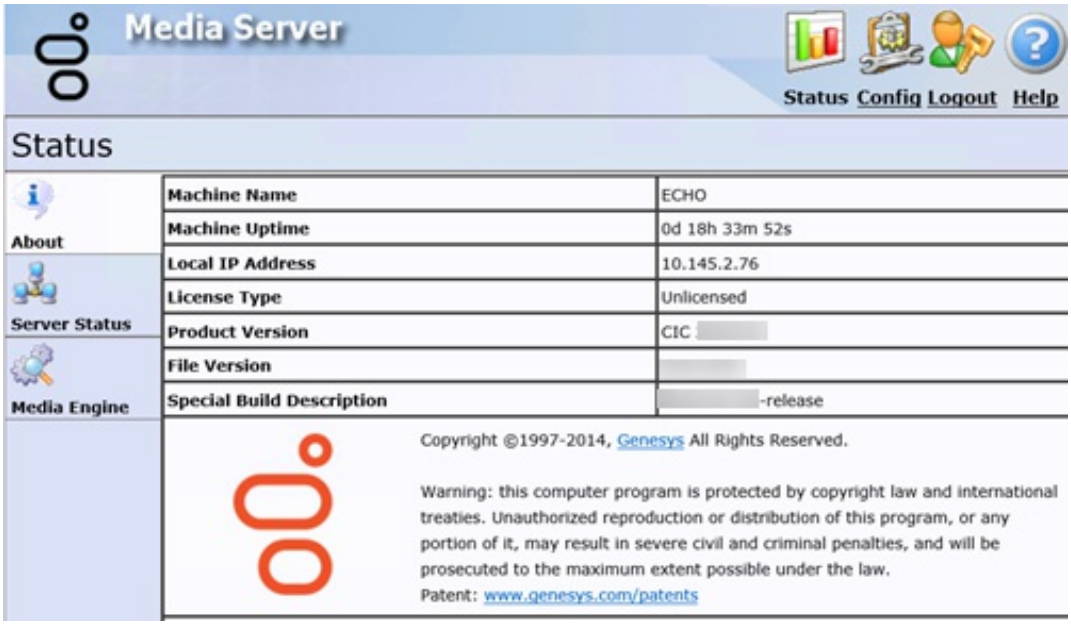
Configure Interaction Media Server to use a network interface for RTP communications

You can configure Interaction Media Server to send network communications containing RTP packets through a specific network interface on the host computer.

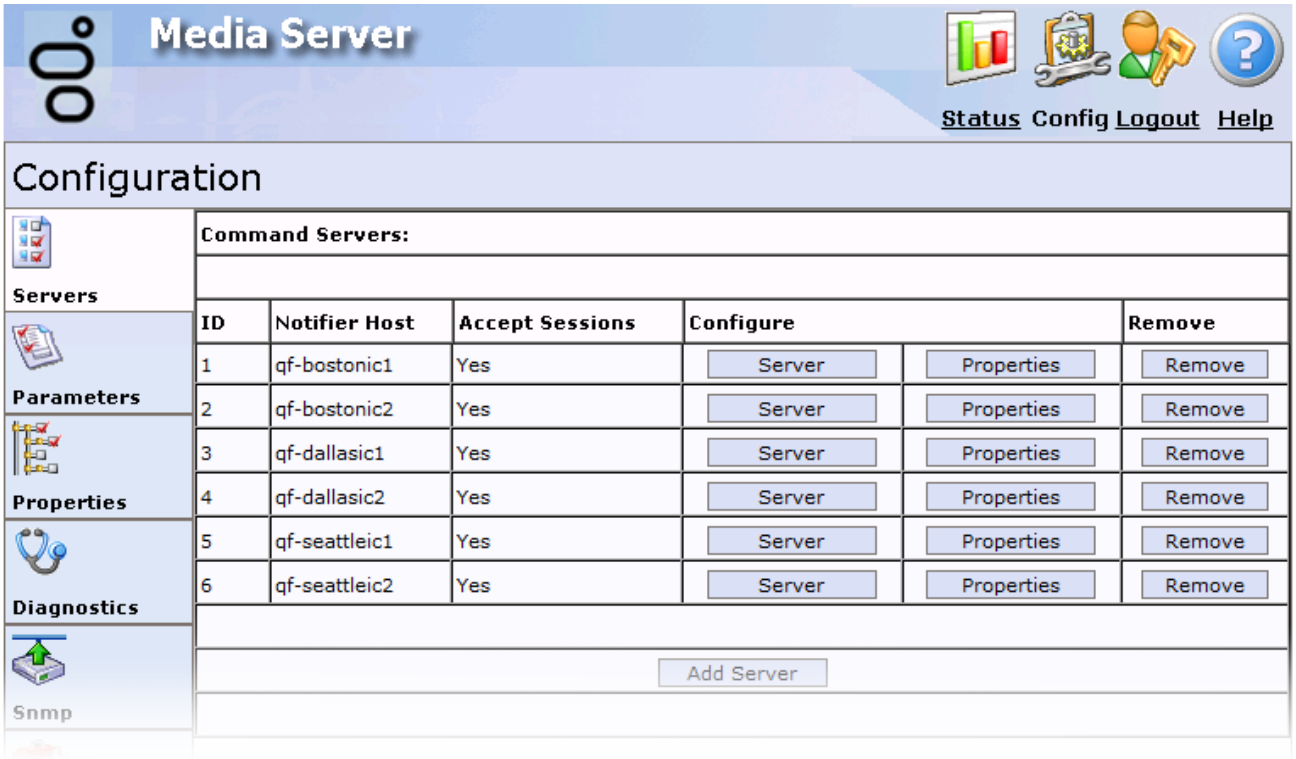
To configure Interaction Media Server to use a network interface for RTP communications

1. From a personal computer or the Interaction Media Server itself, open a web browser and navigate to the URL address and port number of the Interaction Media Server web interface. See the following example for the format of specifying this address:
   `http://mediaserver1.mydomain.com:8084/`

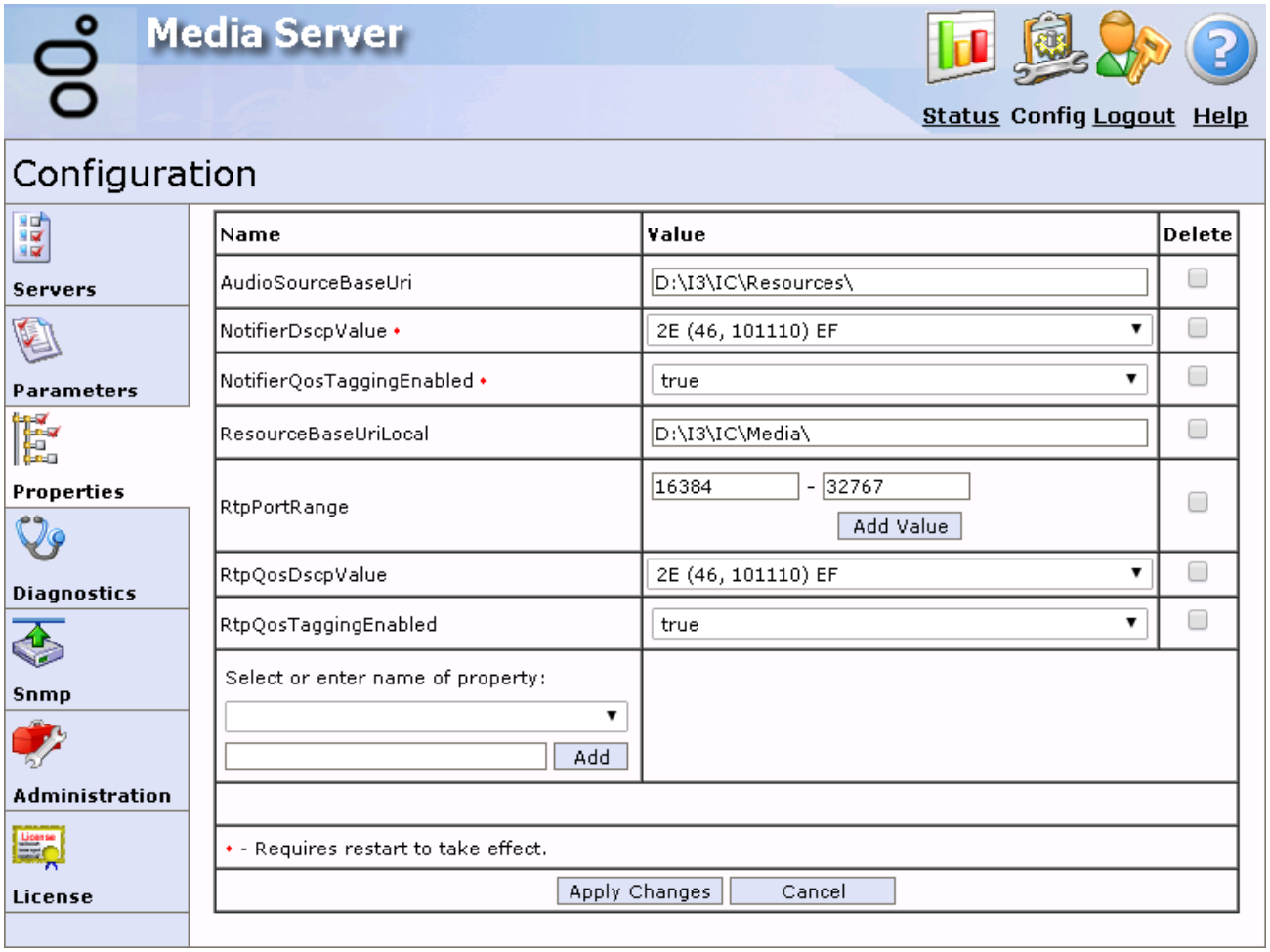
   Note:
   Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.
2. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password. The **Status-About** page appears.



3. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.



4. On the left side of the page, click the **Properties** tab. The **Config-Properties** page appears.



5. In the **Select or enter name of property** list box, select **RtpAddressLocal**. The **RtpAddressLocal** property appears in the list of current properties.
6. In the **Select or enter name of property** list box, click **RtpAddressLocalMask**. The **RtpAddressLocalMask** property appears in the list of current properties.
7. In the **RtpAddressLocal** box, type the IP address for the local network interface to use to send communications containing RTP packets.
8. In the **RtpAddressLocalMask** box, type a valid subnet mask that specifies the range of valid IP addresses of local network interfaces that Interaction Media Server can use to send RTP packets.

> **Note:**
> If the host machine has multiple network interface cards (NICs), Interaction Media Server balances RTP network communications by randomly selecting a socket from a NIC that matches an IP address within the **RtpAddressLocal** and **RtpAddressLocalMask** values.

9. Click **Apply Changes**.

Add Interaction Media Server to a CIC Location

Locations are the method through which CIC groups telephony network entities that communicate with each other, such as Interaction Media Servers, stations, and Session Initiation Protocol (SIP) lines. Locations specify the voice over IP (VoIP) coders/decoders (codecs) that are in use, such as G.711 or G.729. CIC then uses locations in dial plan processing, call routing, distributed conferencing, and to select Interaction Media Servers to process audio communications for interactions.

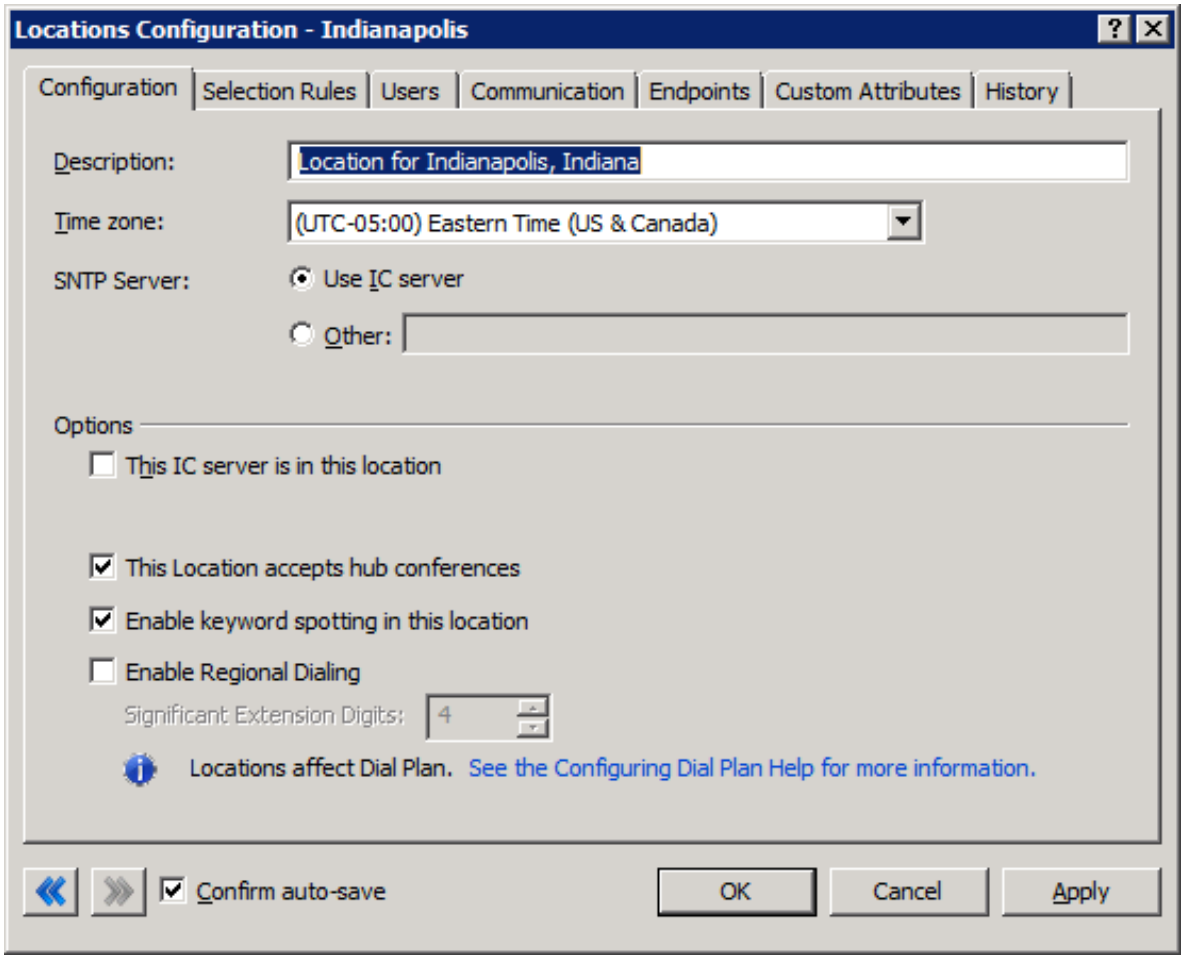
CIC has, by default, one predefined location: **<Default Location>**. Interaction Administrator adds new Interaction Media Servers, SIP lines, and stations to **<Default Location>** automatically.

> If you have a single office location, Genesys recommends that you keep all objects in **<Default Location>**. Interaction Administrator adds any new Interaction Media Servers, stations, or SIP lines to this location. If you have multiple office locations, create a location for each office. You can then specify the SIP lines and stations that are in each location. Afterward, you can specify which locations can communicate with devices in other locations.

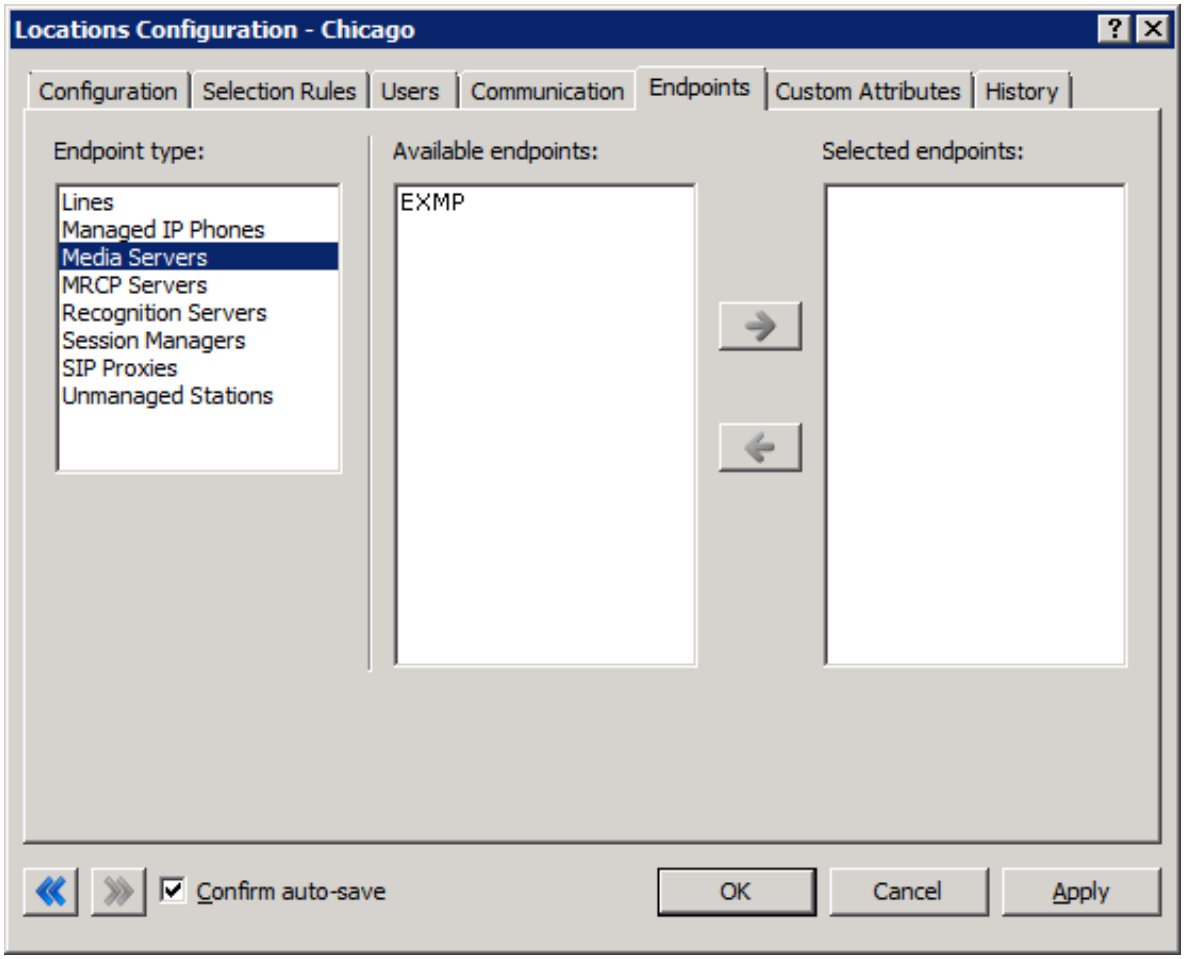
A location must exist before you can add an Interaction Media Server to it. For more information about creating locations, see "Create Location" in the *Interaction Administrator Help* at https://help.genesys.com/cic/mergedProjects/wh_ia/desktop/interaction_administrator_help.htm.

To add an Interaction Media Server to a location

1. On the CIC server or a remote personal computer, open Interaction Administrator.
2. Under the CIC server object in the left pane, expand the **Regionalization** container and then click the **Locations** object.
3. In the right pane, double-click the location to which to add Interaction Media Server. The **Locations Configuration** dialog box for the specific location appears.



4. Click the **Endpoints** tab.



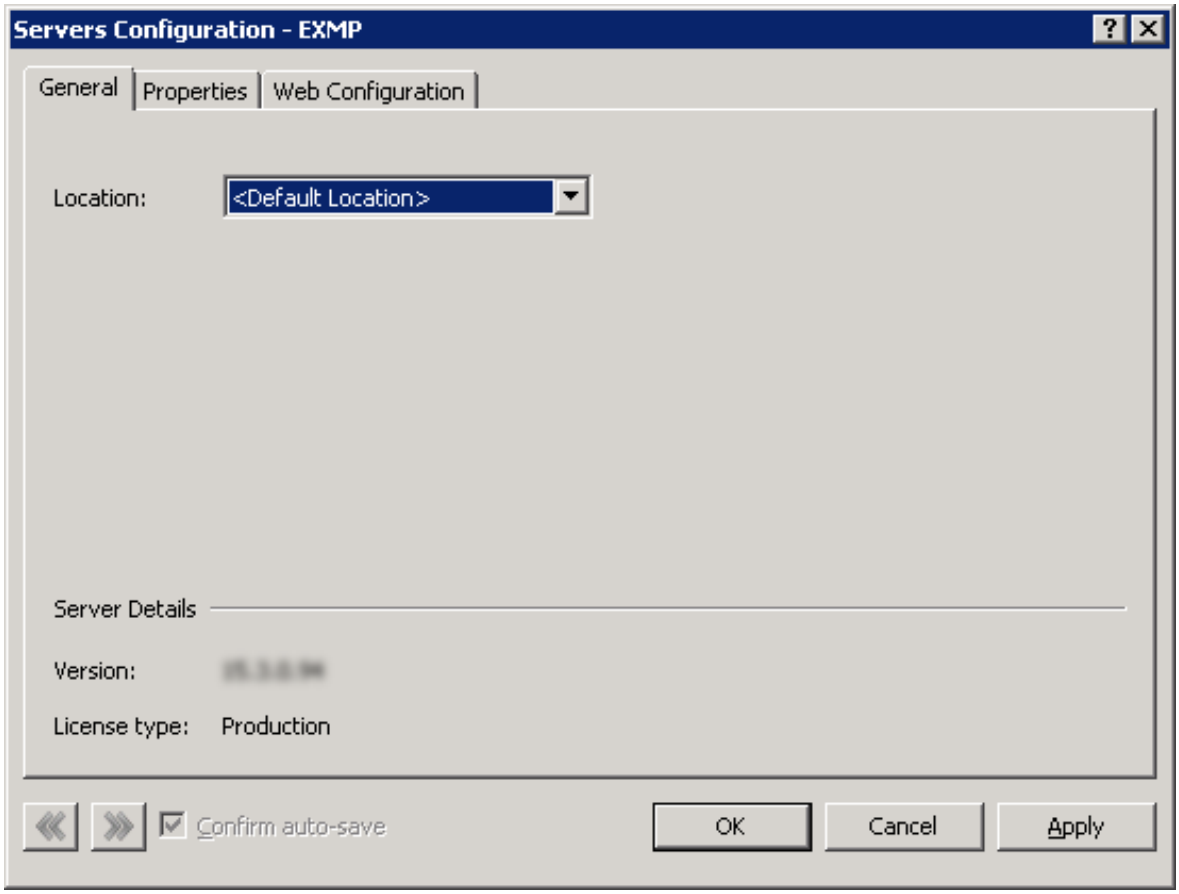
5. In the **Endpoint type** list box, click the **Media Server** item.
6. In the **Available endpoints** list box, click one or more Interaction Media Servers to add to this location.
7. Click the arrow that points to the right to move the selected Interaction Media Servers into the **Selected endpoints** list box.
8. Click **OK**. The system adds the specified Interaction Media Server to the list of Interaction Media Servers for this location.

Modify an Interaction Media Server Location

After you define the location for an Interaction Media Server, you can change the location assignment for an Interaction Media Server.

To modify an Interaction Media Server location

1. On the CIC server or a remote personal computer, open Interaction Administrator.
2. Expand the **System Configuration** container.
3. Expand the **Media Servers** container and then click the **Server** object.
4. Double-click the server definition for which to change the location. The **Servers Configuration** dialog box for the specified Interaction Media Server appears.



5. In the **Location** dialog box, click the new predefined location for this Interaction Media Server and then click **OK**.

Interaction Media Server Selection Rules for Audio Processing

CIC uses Interaction Media Server to process audio communications for an interaction between two or more endpoints, such as a telephone call. To select an Interaction Media Server, CIC uses Selection Rules.

The Selection Rules feature allows you to create prioritized lists of locations, which you define in Interaction Administrator. CIC uses these lists, named Selection Rules configurations, to select a server to service an interaction.

Within a location, CIC selects an Interaction Media Server, if more than one exists, based on the following criteria:

- Available CPU resources
- Number of resources in use

When an interaction that requires audio processing starts, CIC searches, in order, each location in a Selection Rules configuration. If a location does not have an Interaction Media Server or all Interaction Media Servers in that location are busy or unavailable, CIC searches the next location in the Selection Rules configuration. This process continues until CIC finds an available Interaction Media Server.

> **Note:**
> By default, CIC has only one location: <Default Location>. When you create a device in Interaction Administrator, the system assigns it to the <Default Location> location. To use the Selection Rules feature effectively, define more locations in Interaction Administrator and assign devices, such as stations, SIP lines, and Interaction Media Servers, to those locations. For more information about locations, see "Create Location" in the *Interaction Administrator Help* at https://help.genesys.com/cic/mergedProjects/wh_ia/desktop/interaction_administrator_help.htm.

Selection Rules Location Entry Types

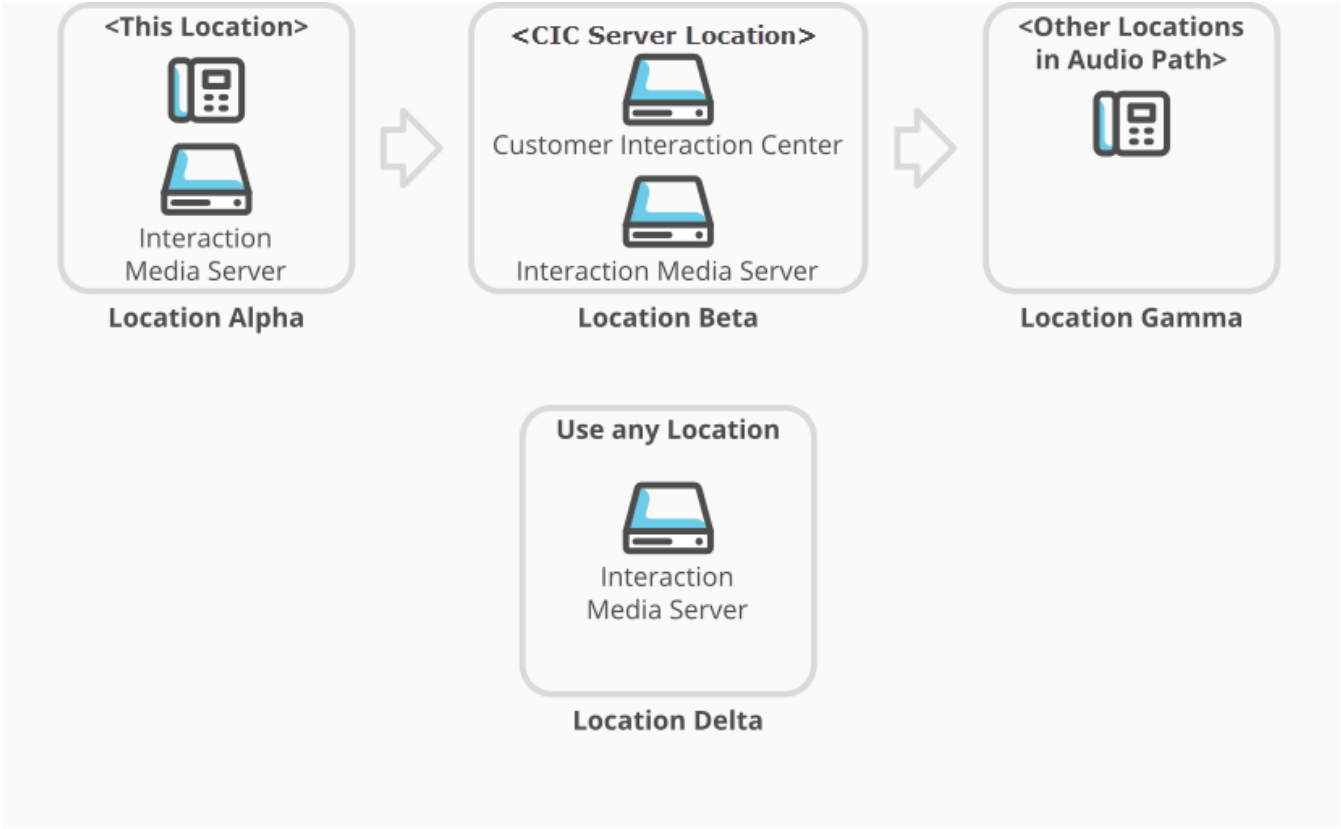
Selection Rules configurations can contain the following types of location entries:

- **Locations:** Locations are logical groups that you have previously defined through the **Locations** object in Interaction Administrator.
- **Location variables:** These variables represent relative locations involved in an interaction. The following table defines each location variable.

Location variable	Intercom interactions	External interactions
<This Location>	Location of the device that starts an interaction to another endpoint in the CIC network. **Note:** The system does not consider SIP lines during intercom interactions.	Location of the SIP line involved in the interaction in the following situations: • Receives the inbound interaction from a gateway or another CIC system • Sends the outbound interaction to a gateway
<Other Locations in Audio Path>	Any location involved in conveying the audio communications of the interaction.	
<IC Server Location>	Location containing the CIC server that controls the interaction.	

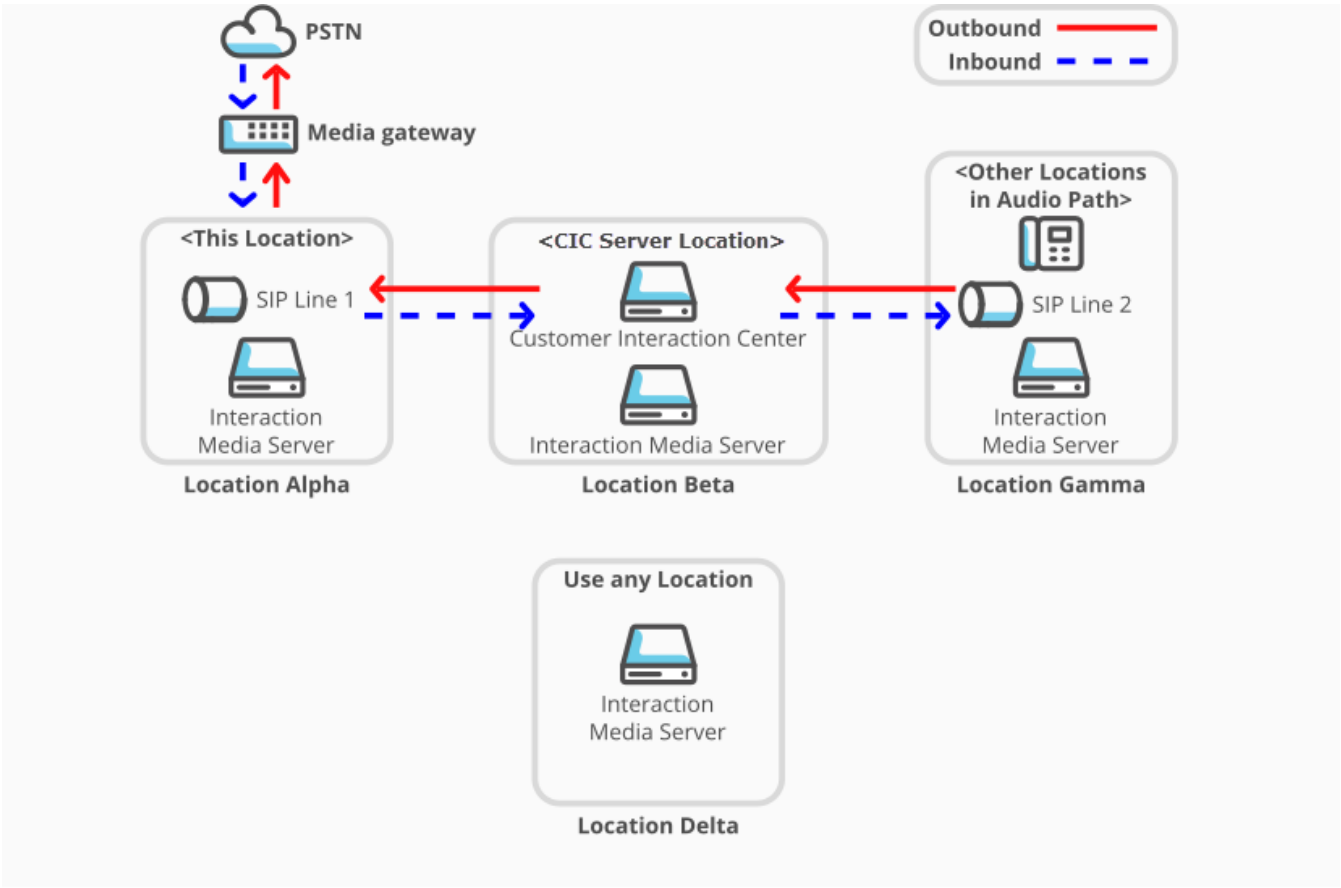
- **Any:** In each Selection Rules configuration, you can enable the **Use any Location** option. This option directs CIC to search any defined location in the network when it cannot find an available Interaction Media Server in the listed locations.

The following diagram shows how CIC assigns existing locations to the location variables for intercom interactions:



Media Server Selection Rules for Intercom communications

The following diagram shows how CIC assigns existing locations to the location variables for external interactions:



Media Server Selection Rules for external communications

Note:
Initially, in all interactions that connect to external entities through a gateway, CIC assigns the <This Location> location variable to the location that contains the SIP line defined for that gateway. This behavior differs from that of intercom (internal) interactions as the considerations for connections to external entities must include TDM connection costs, regional and international dialing routes, and support for different languages (IVR, speech analytics) and regional standards (call analysis).

Default Selection Rules Configuration for Interactions

For selecting an Interaction Media Server to service an interaction, including conference calls, CIC uses the default Selection Rules configuration: **<Default Media Server Selection Rule>**. CIC assigns this default configuration automatically to any locations that you define in Interaction Administrator.

By default, CIC uses the following list of entries in any Interaction Media Server Selection Rules configuration:

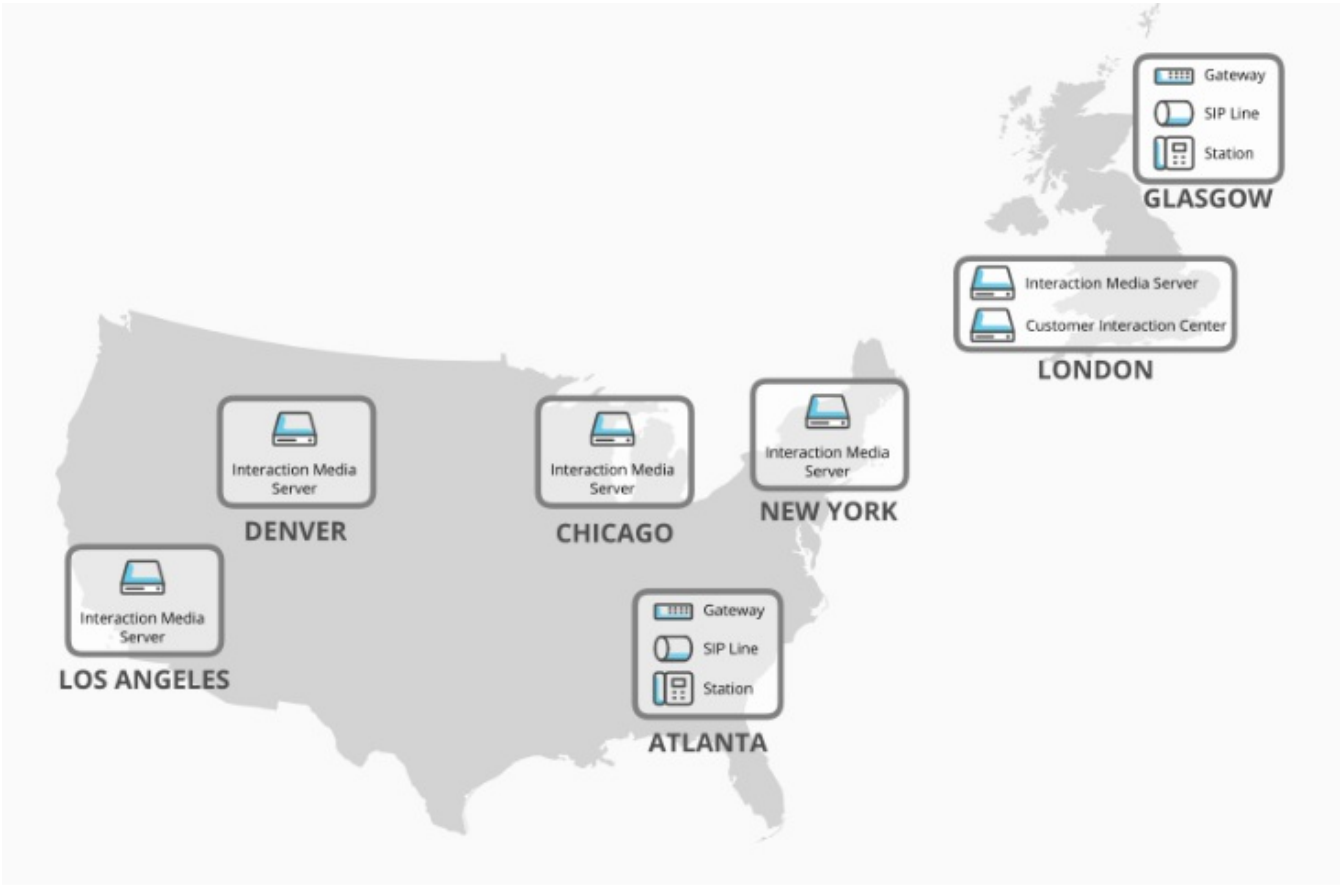
- <This Location>
- <Other Locations in Audio Path>
- <IC Server Location>
- Any available Interaction Media Server in any other defined location (**Use any Location** option)

Selection Rules Configuration by Location

To control how CIC selects an Interaction Media Server to service an interaction, create separate Selection Rules configurations and assign them to each defined location in your CIC network. When an interaction originates from a location, CIC uses the assigned Selection Rules configuration to select an Interaction Media Server to service an interaction.

The following diagram displays an example of a geographically dispersed CIC network. In this network, the administrator wants interactions that originate from the Atlanta location to use a specific sequence of Interaction Media Servers in locations in the

United States. Alternatively, the administrator wants interactions that originate from the Glasgow location to use Interaction Media Servers in UK-based locations before any other Interaction Media Server.



Selection Rules configuration by Location

To address this situation, the administrator can create the following Selection Rules configurations and then assign them to the separate locations:

Atlanta location **US Selection Rules configuration**	**Glasgow location** **UK Selection Rules configuration**
Chicago New York Denver Los Angeles <IC Server Location> (London)	<IC Server Location> (London) <Other Locations in Audio Path>

If the Atlanta location starts an interaction, CIC first searches the Chicago location for an available Interaction Media Server. If CIC cannot find an Interaction Media Server or one is not available, it then searches the subsequent locations in the order in which they appear.

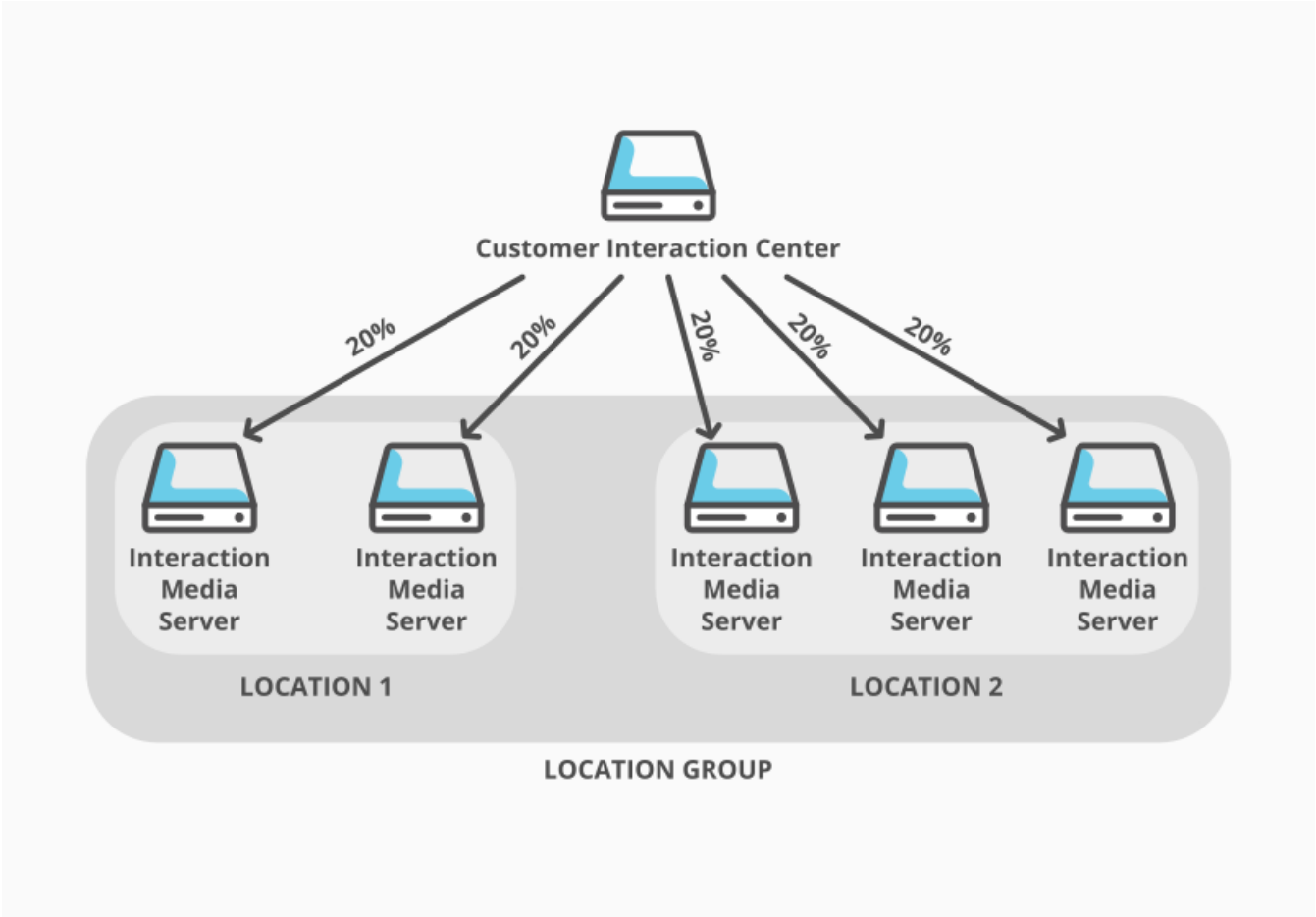
If the Glasgow location starts an interaction, CIC first searches the <IC Server Location>, which is in the London location, for an available Interaction Media Server. If CIC cannot find an Interaction Media Server or one is not available, it then searches for any Interaction Media Server in locations that relay the audio communications for the interaction.

For more information about assigning a Selection Rules configuration to a location, see Assign an Interaction Media Server Selection Rules Configuration to a Location.

Selection Rules Location Groups

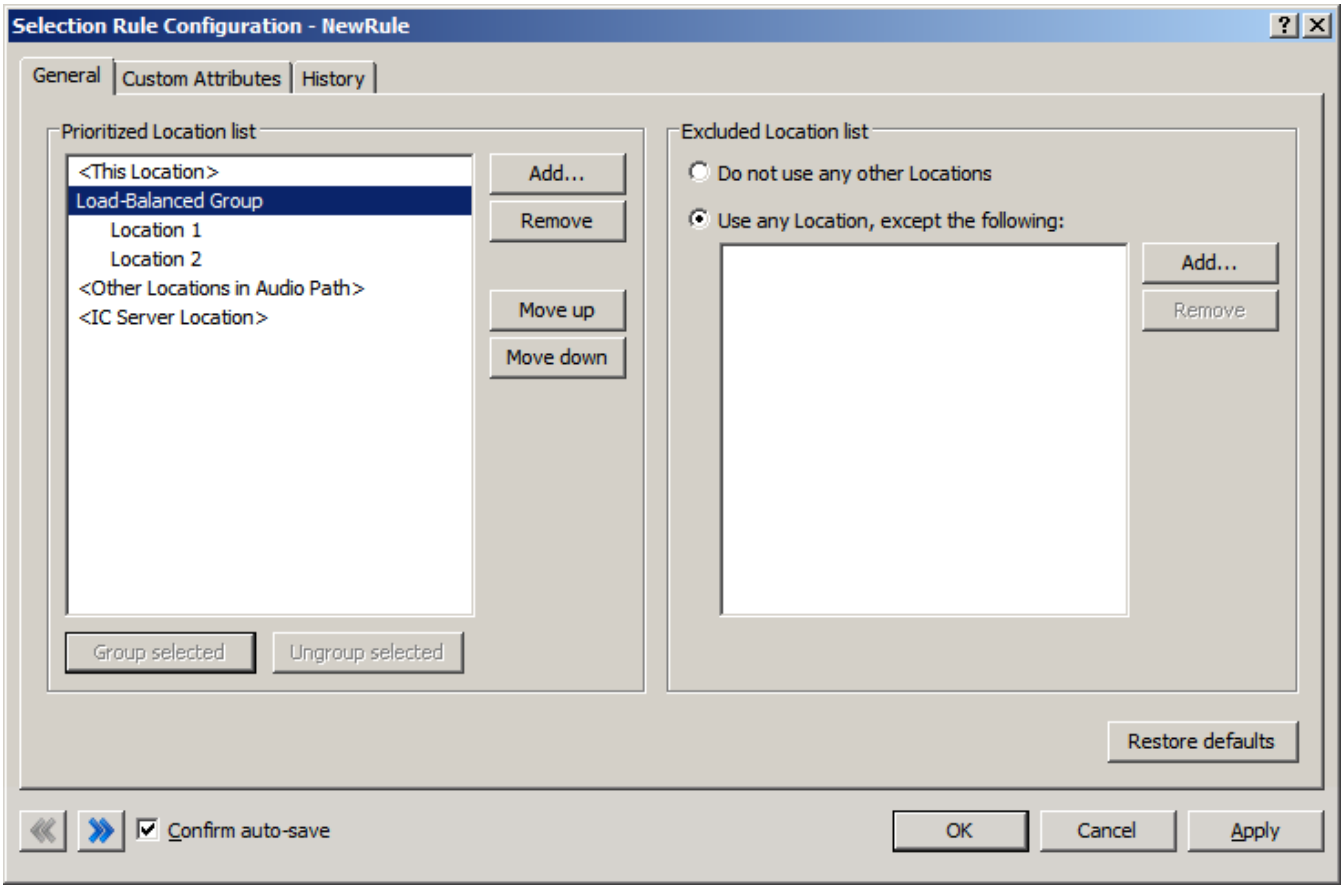
In a Selection Rules configuration, you can group multiple locations, both variable and defined. Grouped locations provide a method

of distributing audio processing tasks. In this method, CIC distributes audio processing tasks between all of the Interaction Media Servers in the grouped locations, as displayed in the following diagram:



Selection Rules - Location Groups

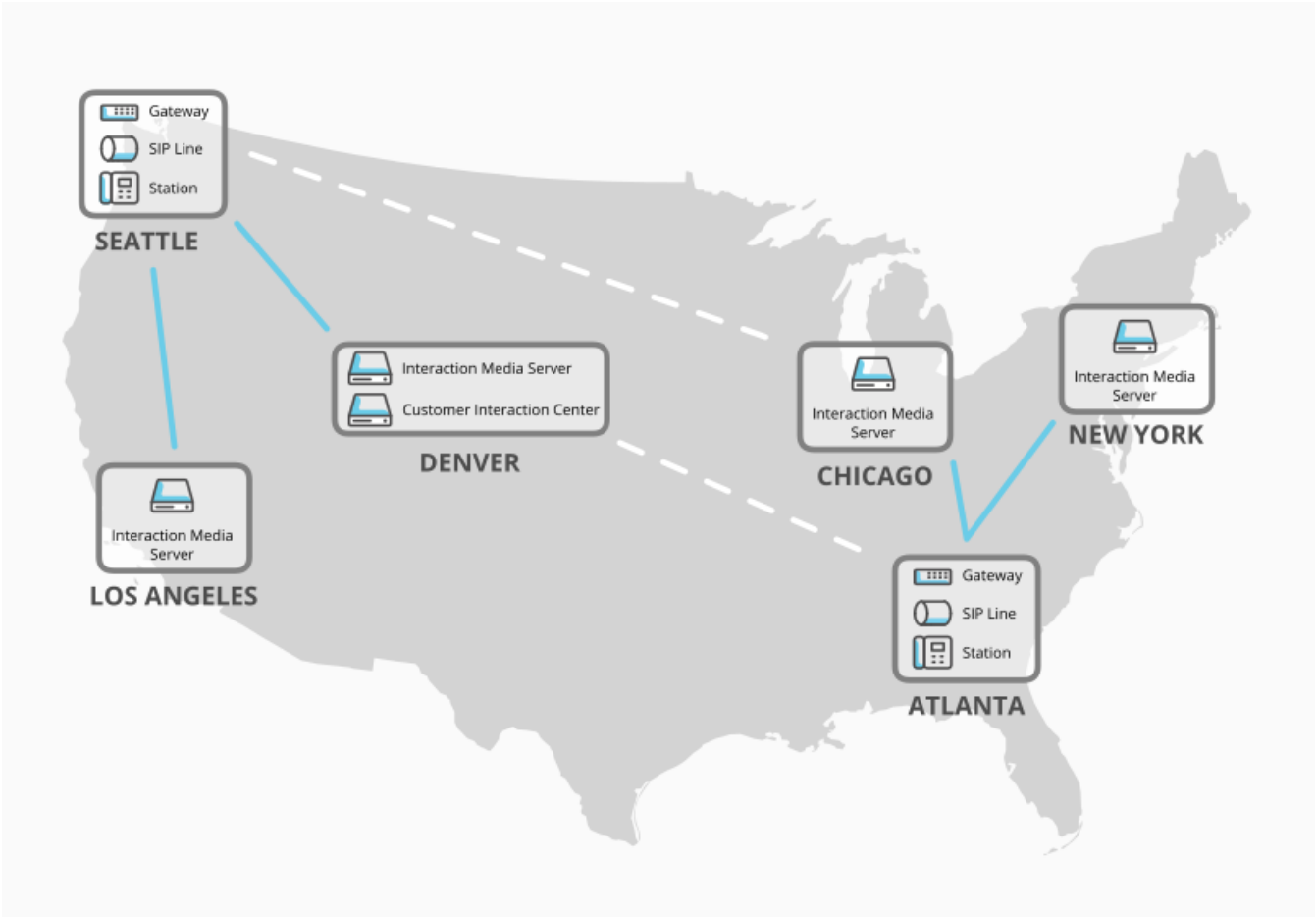
When you add or modify Selection Rules configurations, a location group appears under a **Load-Balanced Group** heading as displayed in the following example:



Selection Rules Excluded Locations

When you enable the **Use any Location** option in a Selection Rules configuration, you can also specify locations that CIC must exclude from the selection process. Reasons for excluding locations can include network latency issues, load balancing considerations, bandwidth costs, and others.

The following diagram displays an example network where the Seattle and Atlanta locations create interactions, such as telephone calls. The administrator has assigned separate Selection Rules configurations to the Seattle and Atlanta locations. The configurations contain a list of prioritized locations, use the **Use any Location** option, and exclude a specific location.



Selection Rules - Excluded Locations

Selection Rules configuration	Prioritized location list	"Use any Location" option	Excluded locations
Seattle	Los Angeles Denver	Enabled	New York
	If the Seattle location starts an interaction, CIC first searches the Los Angeles location and then the Denver location for an available Interaction Media Server. To comply with the enabled **Use any Location** option, CIC then searches other locations. Because the Selection Rules configuration specifies the New York location as excluded, CIC can only search the Chicago location for an available Interaction Media Server.		
Atlanta	New York Chicago	Enabled	Los Angeles
	If the Atlanta location starts an interaction, CIC first searches the New York location and then the Chicago location for an available Interaction Media Server. To comply with the enable **Use any Location** option, CIC then searches other locations. Because the Selection Rules configuration specifies the Los Angeles location as excluded, CIC can only search the Denver location for an available Interaction Media Server.		

Note:
You can specify only static locations as exclusions.

Add or Modify an Interaction Media Server Selection Rules Configuration

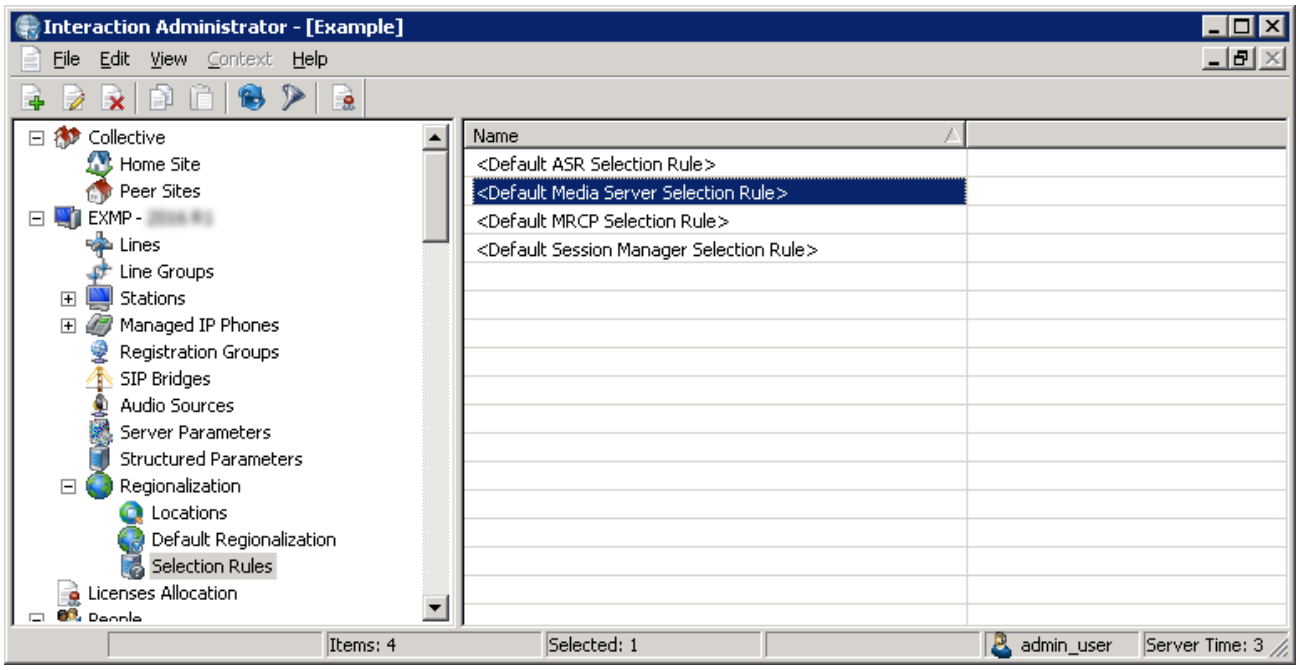
Important!
If you modify an existing Selection Rules configuration, it affects all locations that currently use that configuration. Before you modify the configuration, Genesys recommends that you validate how the proposed modifications can affect each location that uses the configuration.

To add or modify an Interaction Media Server Selection Rules configuration

1. On the CIC server or a remote personal computer, open Interaction Administrator.

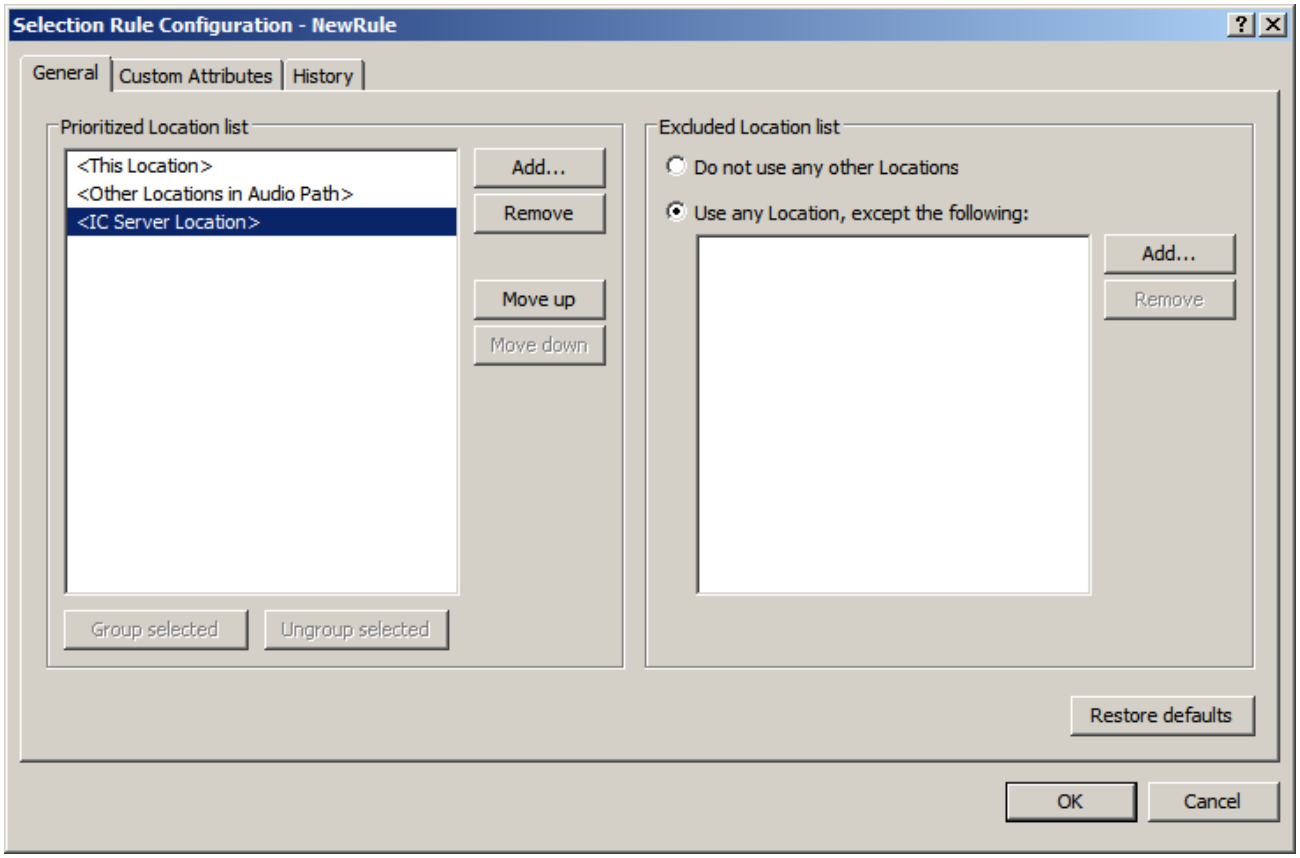
   Note:
   To add or modify Selection Rules configurations, your CIC user ID must have the **Administrator Access** permission for the configurations. Those configurations appear in the **Selection Rules** section of the **Administrator Access** dialog box in Interaction Administrator. For more information, see "Administrator Access" in the *Interaction Administrator Help* at https://help.genesys.com/cic/mergedProjects/wh_ia/desktop/interaction_administrator_help.htm.

2. In the left pane of the **Interaction Administrator** window, under the object that represents your CIC server, expand the **Regionalization** container.
3. Under the **Regionalization** container, click the **Selection Rules** object.



4. Do one of the following steps:
   - To create a Selection Rules configuration, do the following steps:
     a. Right-click an empty area in the right pane and then click **New**.
     b. In the resulting **Entry Name** dialog box, type a unique name for the new Selection Rules configuration and then click **OK**.
   - To modify an existing Selection Rules configuration, double-click the Selection Rules configuration item in the right pane.

   Interaction Administrator displays the **Selection Rule Configuration** dialog box for the Selection Rules configuration.



5. On the **General** tab, use the following controls to modify the Selection Rules configuration:

Prioritized Location list	
Add	Adds a static or variable location to the **Prioritized Location** list box.
Remove	Removes the selected location from the **Prioritized Location** list box.
Move up	Moves the selected location to higher position in the **Prioritized Location** list box.
Move down	Moves the selected location to a lower position in the **Prioritized Location** list box.
Group selected	Assigns the selected locations to a group that provides load balancing of call audio processing. **Tip:** To select multiple locations, press and hold the **Ctrl** key while clicking each location in the box.
Ungroup selected	Removes the selected location from an existing call audio processing group.
Excluded Location list	
Do not use any other Locations	Restricts CIC from selecting any other location than those locations specified in the **Prioritized Location** list box.
Use any Location, except the following	Allows CIC to select any available location after it cannot locate an available Interaction Media Server in the **Prioritized Location list** box. CIC excludes any Interaction Media Server location specified in the **Excluded Location** list box.
Add	Adds a location to the **Excluded Location** list box.
Remove	Removes the selected location from the **Excluded Location** list box.
Restore defaults	Resets this configuration to the default settings.

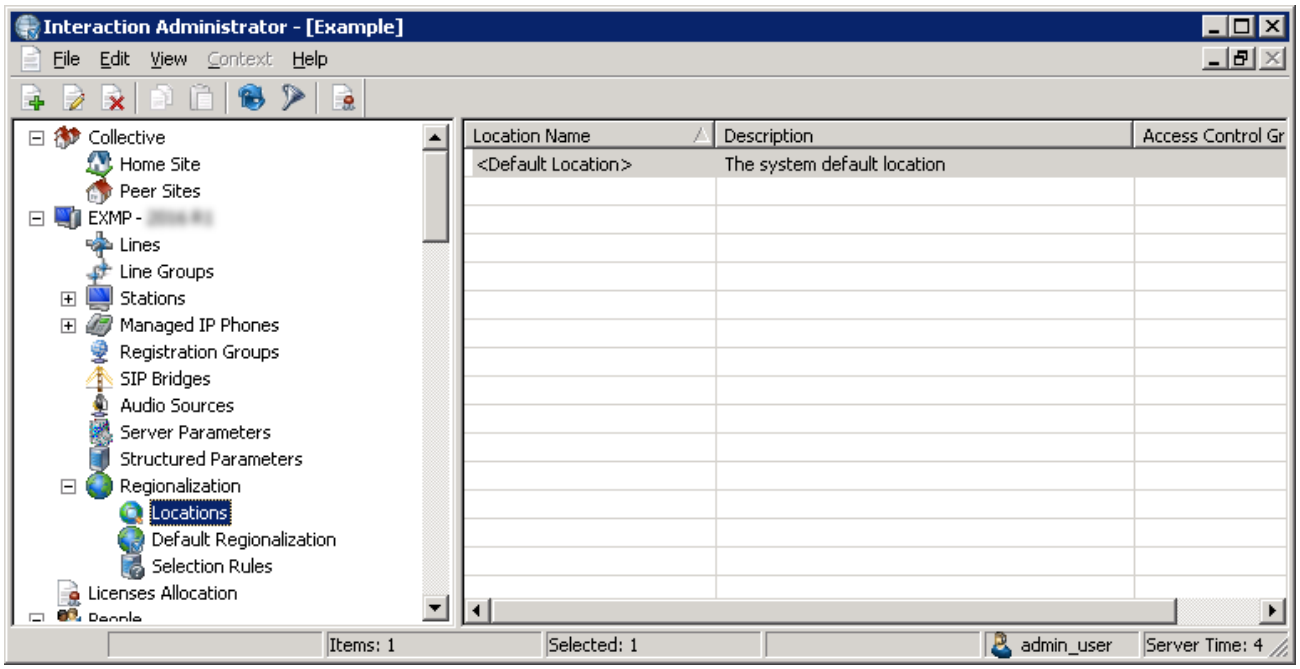
6. Click **OK**.

Assign an Interaction Media Server Selection Rules Configuration to a Location

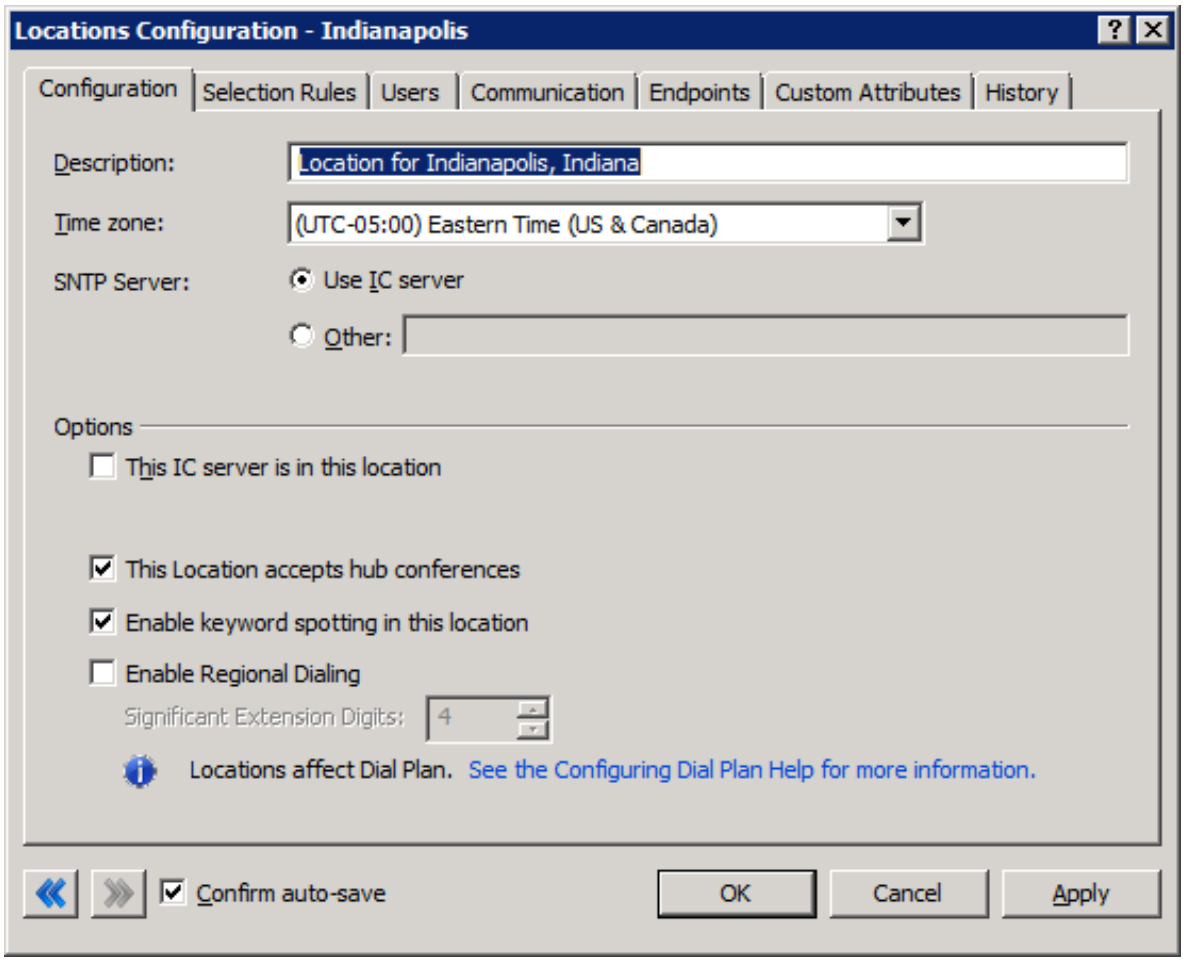
This procedure allows you to assign a Selection Rules configuration to an existing CIC location. Assigning a Selection Rules configuration causes CIC to use this configuration for any media operations that other entities within the location require.

To assign an Interaction Media Server Selection Rules configuration to a location

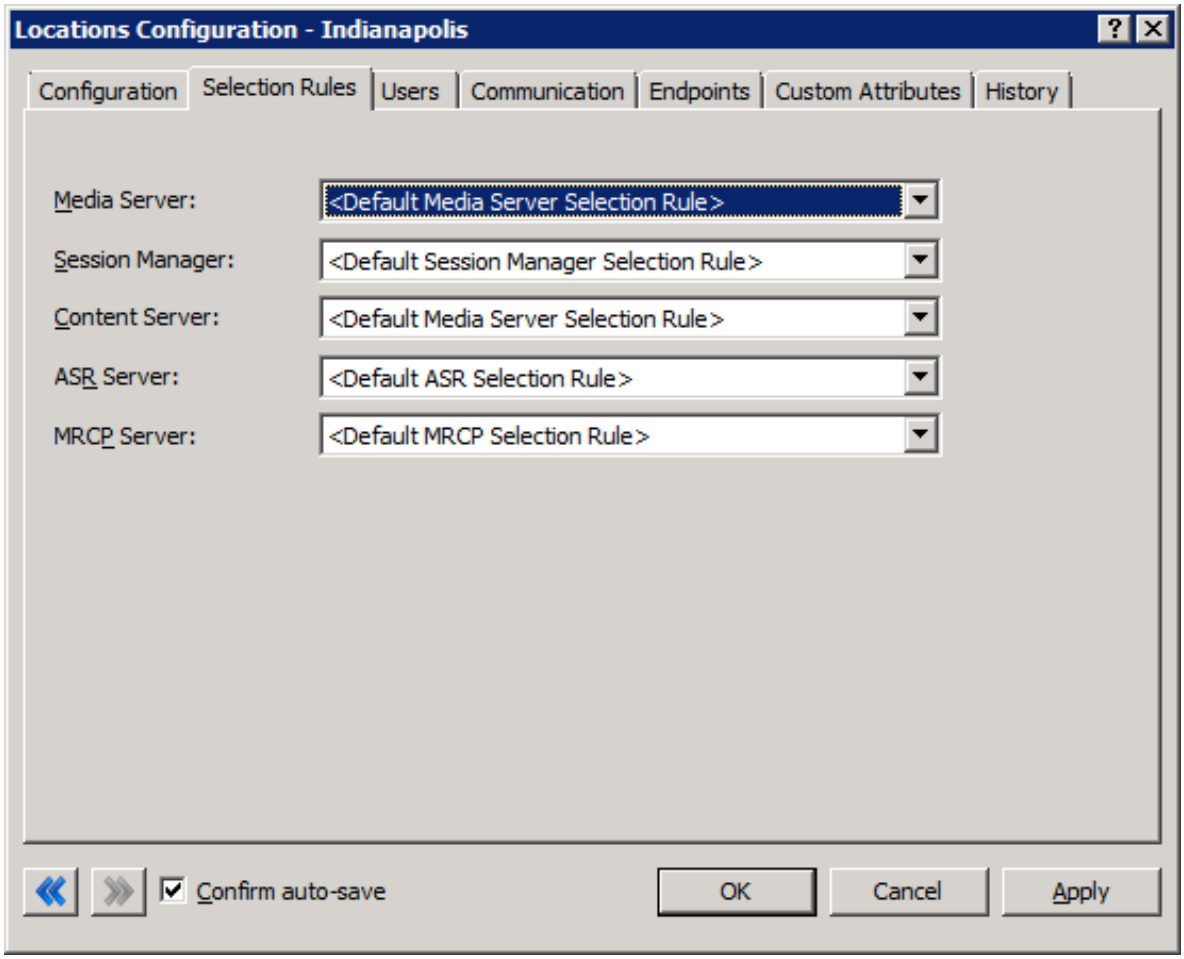
1. On the CIC server or a remote personal computer, open Interaction Administrator.
2. In the left pane of the **Interaction Administrator** window, under the object that represents your CIC server, expand the **Regionalization** container.
3. Under the **Regionalization** container, click the **Locations** object.



4. In the right pane, double-click the location for which to assign an existing Selection Rules configuration. Interaction Administrator displays the **Locations Configuration** dialog box for the selected location.



5. Click the **Selection Rules** tab.



6. In the **Media Server** box, click the Selection Rules configuration to assign to this location and then click **OK**.

Configure Prompt Server for Interaction Media Server

Before you allow the CIC system to process calls, ensure that you configure the Prompt Server to serve audio files to Interaction Media Server.

Prompt Server overview

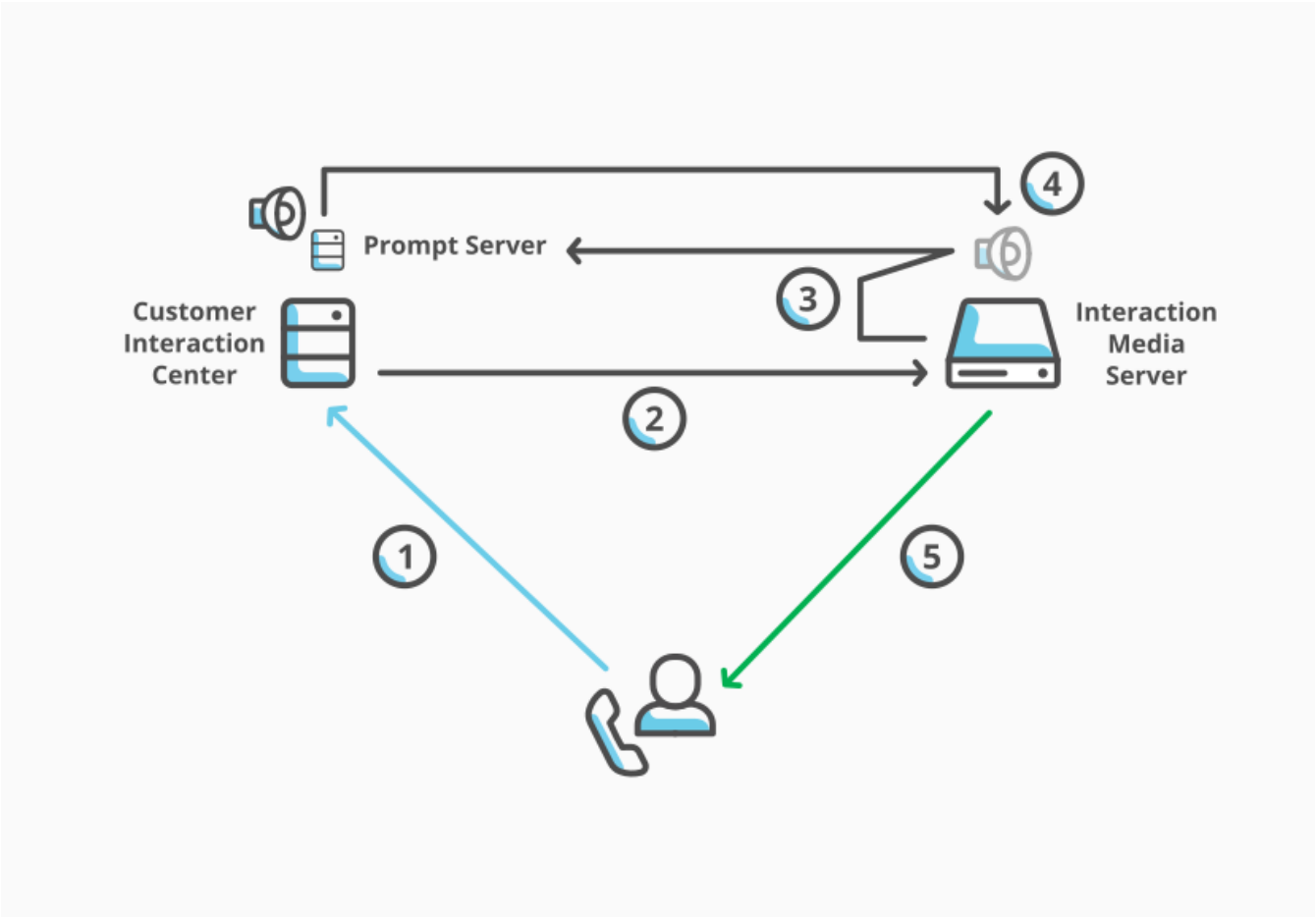
A CIC subsystem, known as Prompt Server, copies audio files, such as `.wav`, `.au`, and `.snd` in specified directories, from the CIC server to Interaction Media Server using HTTP or HTTPS. Interaction Media Server includes a client component that requests prompts and other audio files from the CIC server by way of the Prompt Server. Interaction Media Server then plays the audio file and sends the RTP/SRTP stream to the gateway or internal endpoints, such as SIP telephones.

The Prompt Server subsystem includes the following components:

- An on-host client that manages converting files into URIs that include unique version identifiers
- An intelligent attribute-caching system that manages all of the prompts and audio files

Using these components, Prompt Server can track and tag all audio files. For a non-cached file on Interaction Media Server, Prompt Server always sends the latest version of the audio file to Interaction Media Server.

The following diagram and table describe the process by which Interaction Media Server acquires prompts and plays them.



Prompt Server overview

The following table describes the callouts in the diagram.

Item	Description
1	CIC receives notification to play a prompt for a specific call.
2	It then notifies Interaction Media Server to play the prompt.
3	Interaction Media Server determines whether the audio file for the prompt cached locally. If it is, Interaction Media Server proceeds to step 5.
4	If Interaction Media Server determines that the audio file for the prompt is not cached locally, it retrieves it from Prompt Server through HTTP or HTTPS and stores it locally.
5	Interaction Media Server plays the audio file for the prompt to the specific call.

Supported audio formats for Prompt Server

Interaction Media Server supports the following audio formats as prompts.

File type	Extension	MIME type	Codecs	Bits/Sample
Wave file	`.wav`	• audio/x-wav • audio/wav	G.711 MuLaw/ALaw	8
			Linear16bit	16
			G.726 32-bit	4
			GSM 6.10	-
			TrueSpeech	1
			G.722 8k	8
Sound file	`.snd`	audio/basic	G.711 MuLaw	8
			Linear16bit	16
Simple Audio	`.au`	audio/basic	G.711 MuLaw	8
			Linear16bit	16
		audio/x-alaw-basic	G.711 ALaw	8

Note:
Interaction Media Server supports only 8Khz sampling rates.

Prompt files transfer from the CIC server to Interaction Media Server through HyperText Transfer Protocol (HTTP) or HyperText Transfer Protocol Secure (HTTPS). Interaction Media Server determines the format of the audio file by the content type specified in the HTTP/HTTPS header—if transferred from the CIC server—or by the file name extension—if the file is local to the computer. If a prompt file is local, Interaction Media Server always considers files with the extensions of `.snd` and `.au` as using the MuLaw codec.

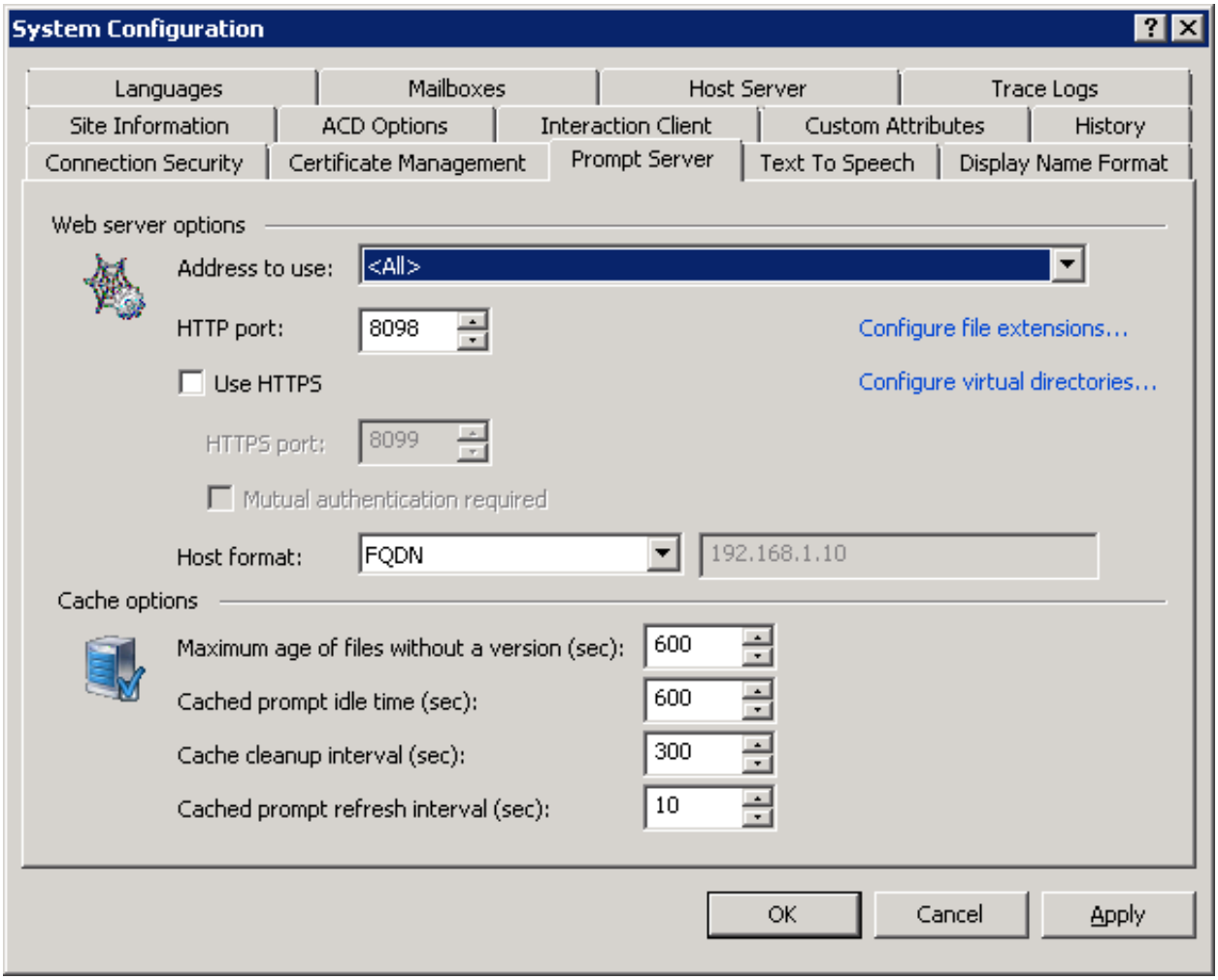
Note:
To support headerless files using an ALaw codec, you must either change the `.au` or `.snd` extension mapping to allow the **alaw** MIME type or create a file extension, such as `.alaw`.

Configure Prompt Server settings in Interaction Administrator

By default, Prompt Server has settings that are sufficient for most CIC environments. However, you can review these settings or alter them, depending on your configuration.

To configure Prompt Server settings in Interaction Administrator

1. On the CIC server or a remote personal computer, open Interaction Administrator.
2. In the left pane, click the **System Configuration** container.
3. In the right pane, double-click the **Configuration** item. The **System Configuration** dialog box appears.
4. Click the **Prompt Server** tab. The **Prompt Server** tab appears.



5. Use the controls on the **Prompt Server** tab to configure the transport protocol, address, and format to use in the connection. For more information about the controls in this dialog box, click the question mark icon in the upper right corner.
6. After you review or modify these settings, click **OK**.

Caution!
Do not change the protocol (HTTP/HTTPS) or change the **Mutual authentication required** check box on a live Interaction Media Server as it can cause Interaction Media Server to retrieve all prompts from the CIC server again. The number and size of prompt files can degrade the available network bandwidth for Interaction Media Server to continue servicing existing or new interactions.

Interaction Media Server Conference Calls

In a CIC environment, Interaction Media Server processes all audio communications for conference calls.

Conference call features

Conference calls that Interaction Media Server hosts include features such as dominant speaker detection with echo cancellation (muting errant noises from other callers), automatic level control (volume), support for Interactive Voice Response (IVR) input, and other optimizations.

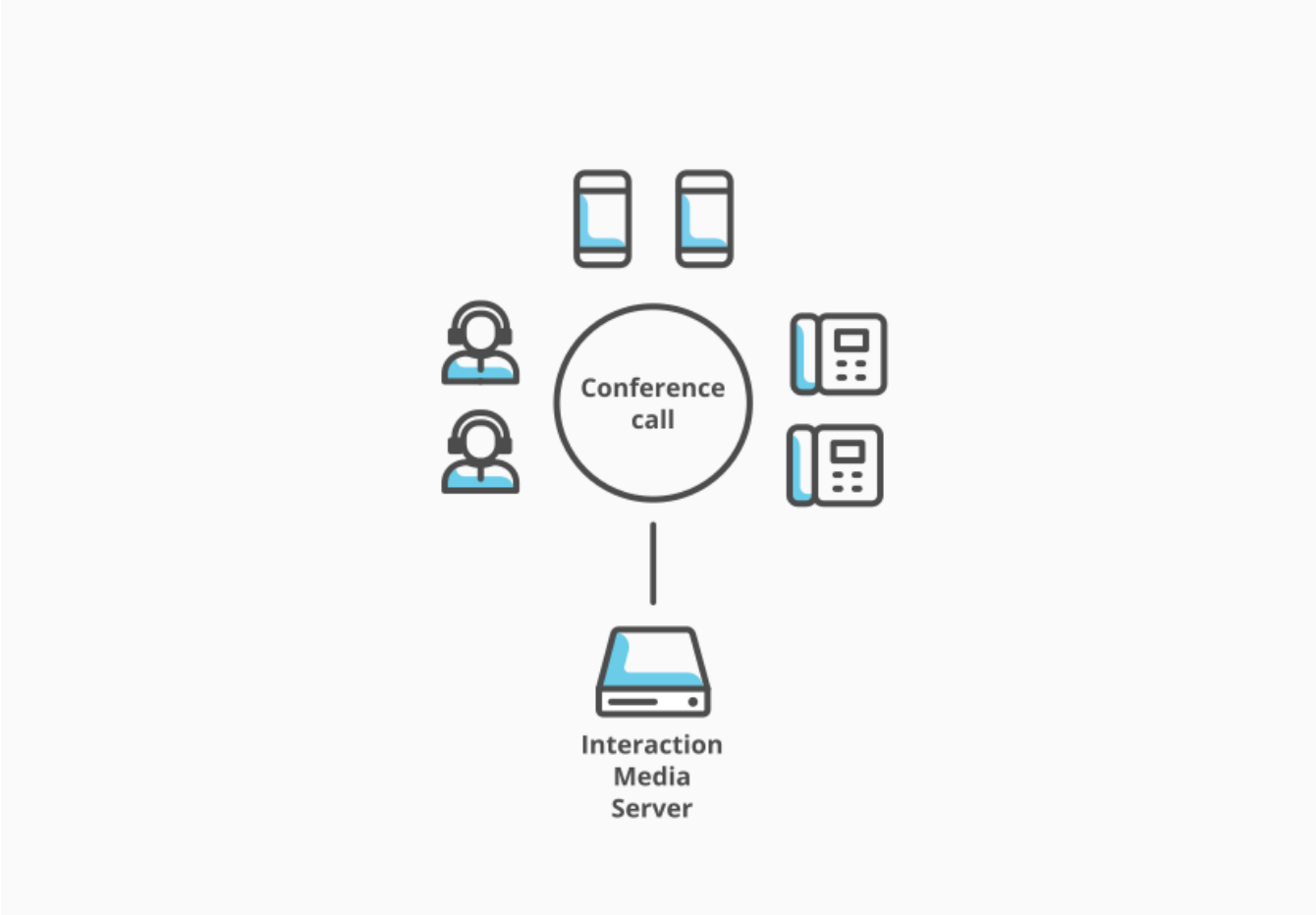
Note:

In Interaction Administrator, use the **Optimize Audio for Conferences** list box on the **Telephony Parameters** tab of the **Server Configuration** dialog box to control dominant speaker detection globally with echo cancellation for conference calls.

If you experience audio issues when you enable Optimize Audio for Conferences, you can specify the **ConferenceTypeDominantSpeakerDiagnosticRecording** property through the Media Servers container in Interaction Administrator and set the value to **true**. This property creates diagnostic recordings that you can send to a PureConnect Customer Care representative for analysis.

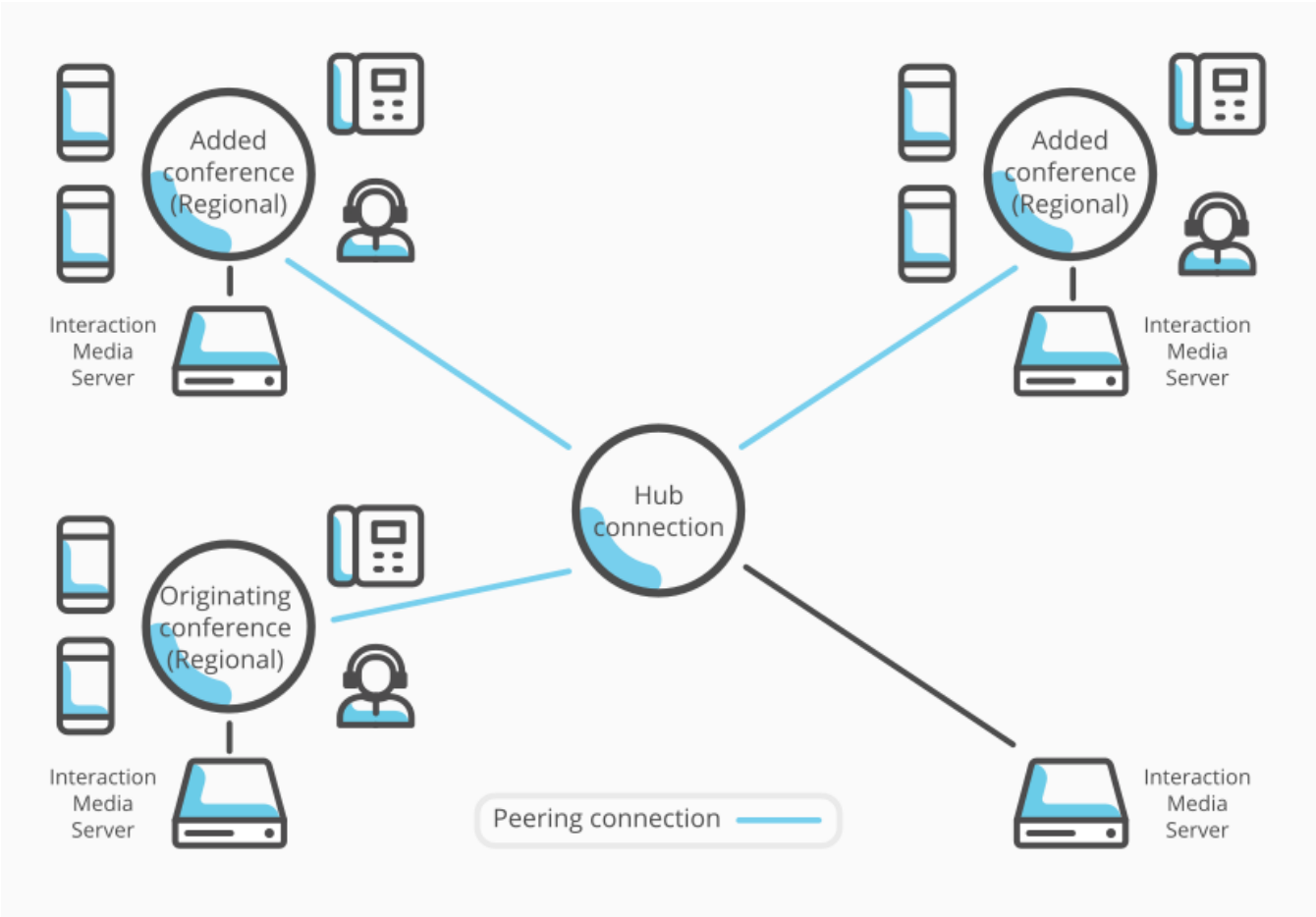
Conference call overview

For fewer than 20 participants in a conference call, a single Interaction Media Server can process all audio communications for all parties.



Conference call with 20 or fewer participants

However, for the conference call to support more than 20 participants or participants distributed over a large geographical area, CIC creates more conference calls—each supporting up to 20 participants—on other Interaction Media Servers and connects them to the original conference call through peering connections.



Large conference calls - peering connections

Note:
You cannot merge two or more existing conference calls on the CIC server with this feature. This feature enables expansion of one existing conference call by creating conference calls and connecting them to the original conference call.

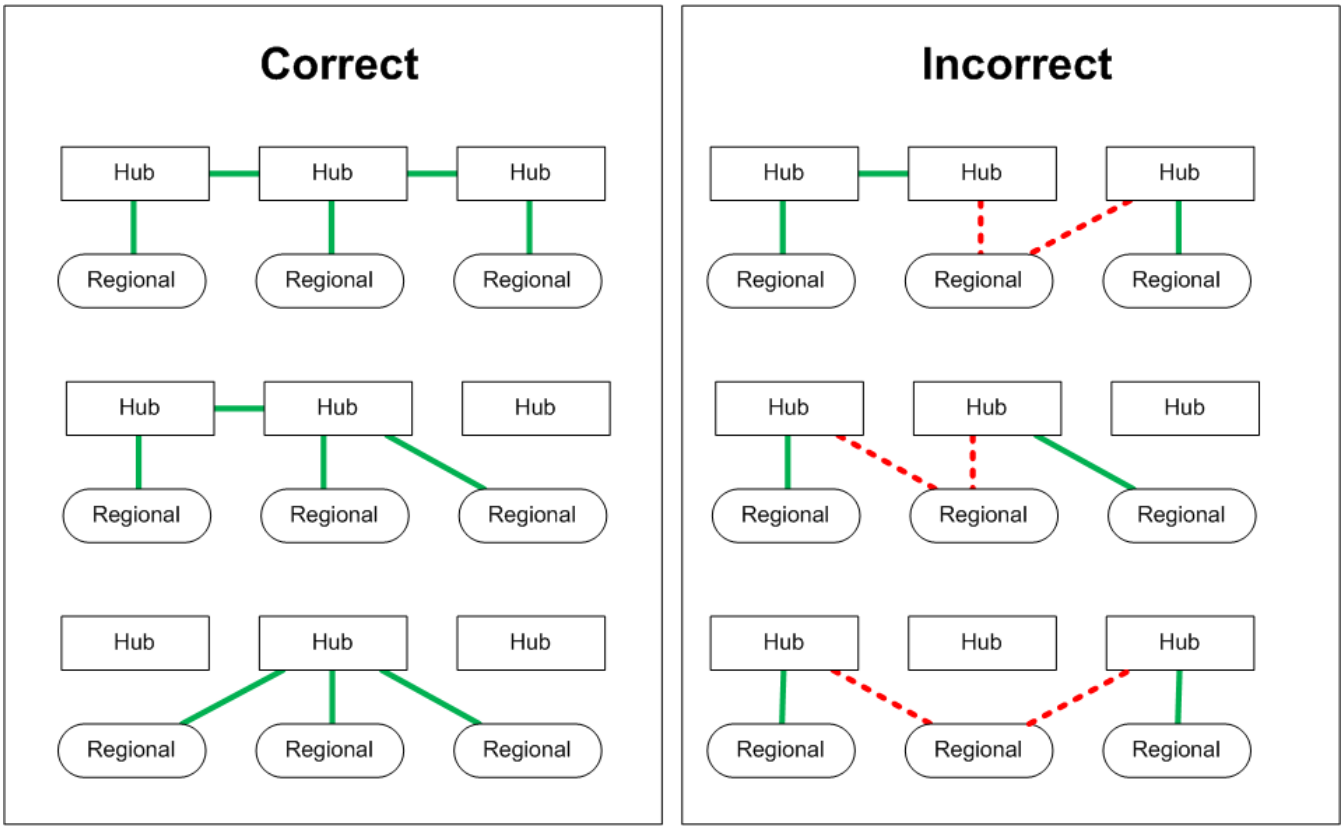
Location types for conference calls

For a conference call, a location containing Interaction Media Servers can serve as one of the following types:

- **Regional:** Hosts conferences by connecting parties to an audio resource. This type allows only one peering connection to a conference call on an Interaction Media Server. Regional conference locations cannot connect directly to other regional conference locations. Conference calls in regional locations can connect to each other only through one or more hub locations.
- **Hub:** Connects multiple conferences to a host conference and allows multiple peering connections. CIC can use multiple hub locations to connect one or more regional conference calls to the host conference call. A hub type location can also create and host conference calls on any available Interaction Media Server assigned to that location.

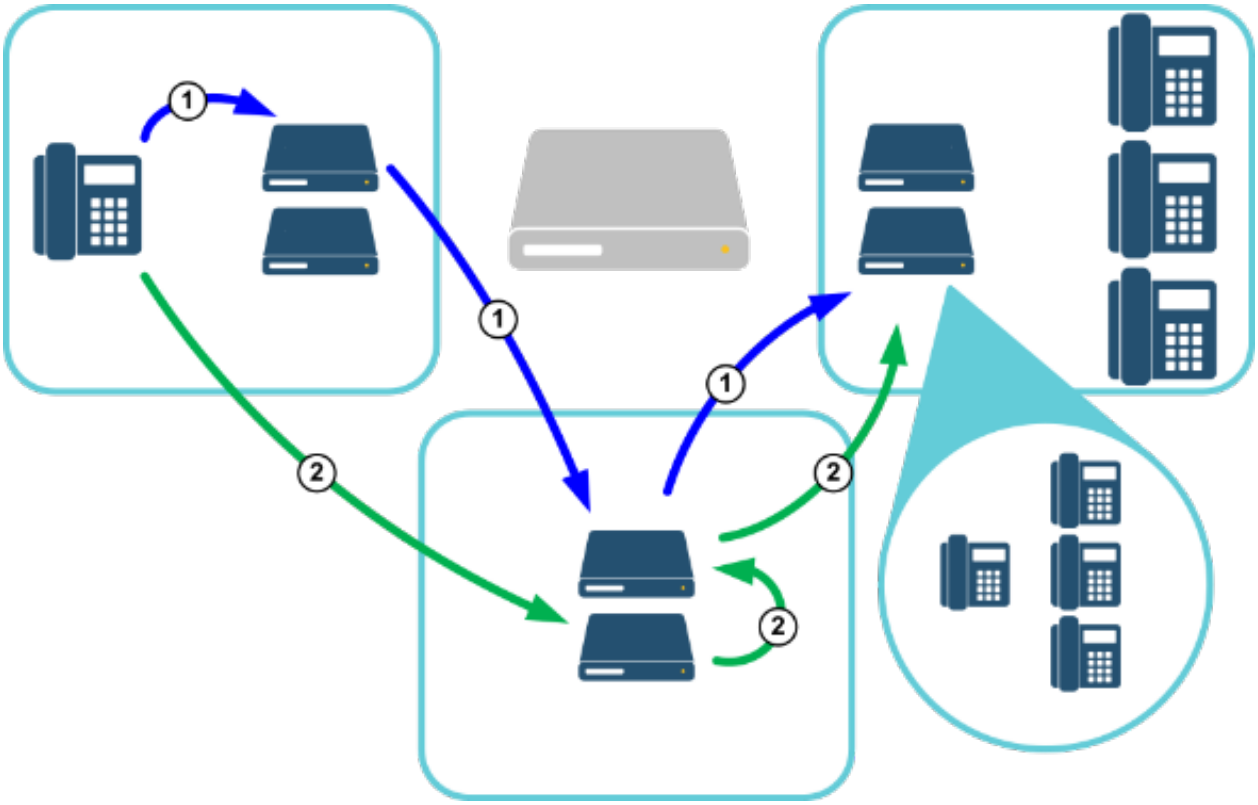
Note:
By default, all new locations in CIC are configured to accept hub connections for joining regional conference calls. If you are updating CIC from GA through SU3, applying a later release or upgrade configures all existing locations to accept hub conference connections automatically.

The following diagram displays how CIC can connect conference calls hosted on regional Interaction Media Servers, which allow only one peering connection, through hub locations.



Interaction Media Server Selection for Conference Call Processing

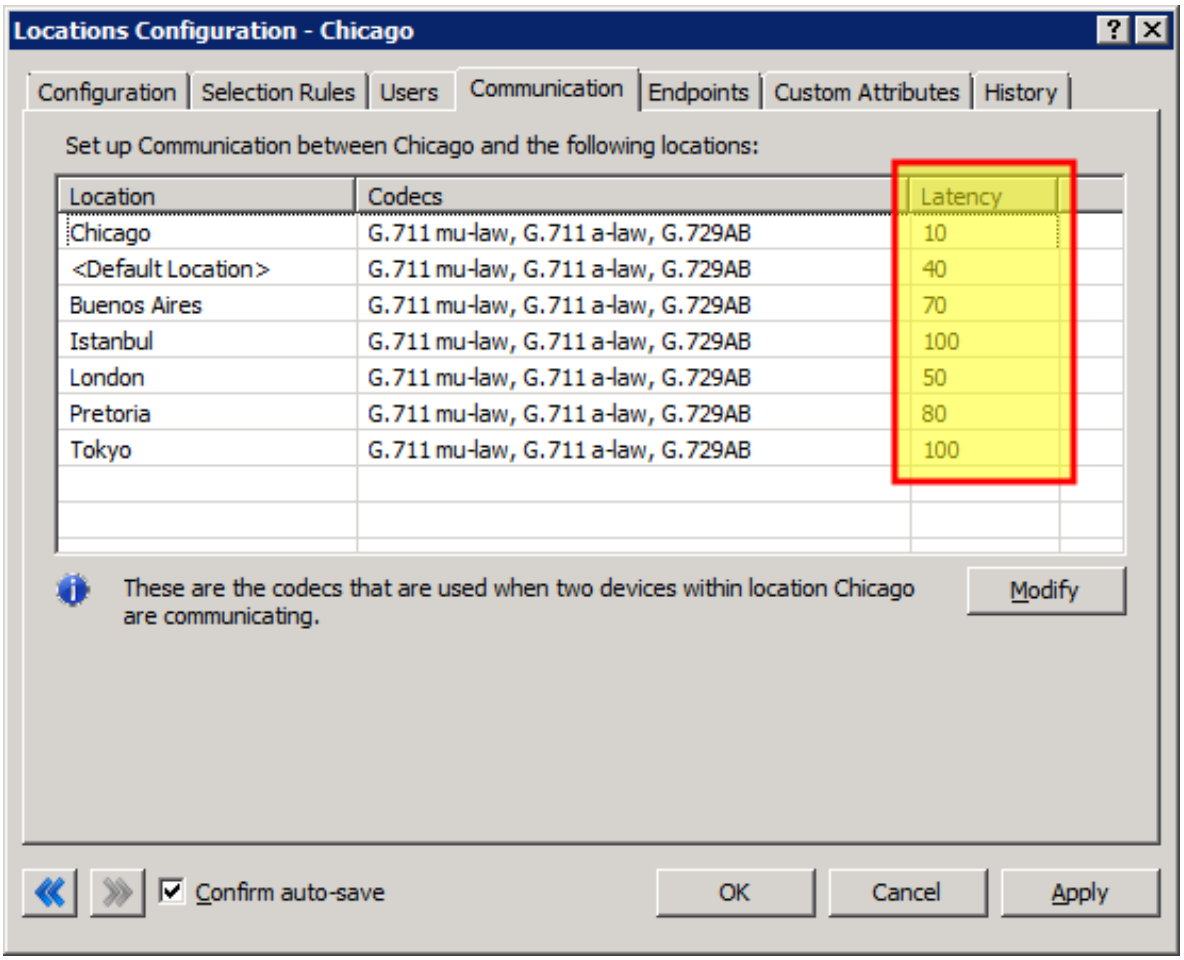
CIC uses Selection Rules to determine which Interaction Media Server processes a call. This process is the same for all conference calls, including both the original and any secondary conference calls.



A caller dials a telephone number to join an existing conference call hosted on an Interaction Media Server in another location.

Scenario	Description
1	• Based on Media Server Selection Rules, the CIC server selects an Interaction Media Server in the same location as the caller to service the call. • The CIC server creates a separate regional conference call on the selected Interaction Media Server. • The CIC server connects the separate conference call through an Interaction Media Server in a hub location. • The CIC server joins the hub connection to the original conference call hosted on an Interaction Media Server in another location.
2	• Based on Media Server Selection Rules, the CIC server selects an Interaction Media Server in a location other than the location of the caller to service the call. • The CIC server creates a separate regional conference call on the selected Interaction Media Server. • The CIC server connects the separate conference call through another Interaction Media Server in the same location as that location allows hub connections. • The CIC server joins the hub connection to the original conference call hosted on another Interaction Media Server in another location.

CIC selects which locations serve as hubs for connecting regional conference calls through the availability of an Interaction Media Server to facilitate the connection and latency values.



Note:
For distributed conference calls in the CIC environment, latency does not implicitly refer to the delay in the relaying of transmissions on a network. Instead, latency is a value that an administrator specifies to indicate which locations CIC uses first to find an Interaction Media Server in a hub location for joining regional conference calls together.

Using Interaction Administrator, you assign latency values to connections between locations. By specifying the latency values, you create a method of indicating which connections CIC prefers when it joins regional conference calls through hub locations.

By default, the latency value for communications within a location is 10. The default latency value for communications to other locations is 100. Acceptable latency values range from 1 to 3000. You can specify a latency value of -1 to indicate that CIC does not

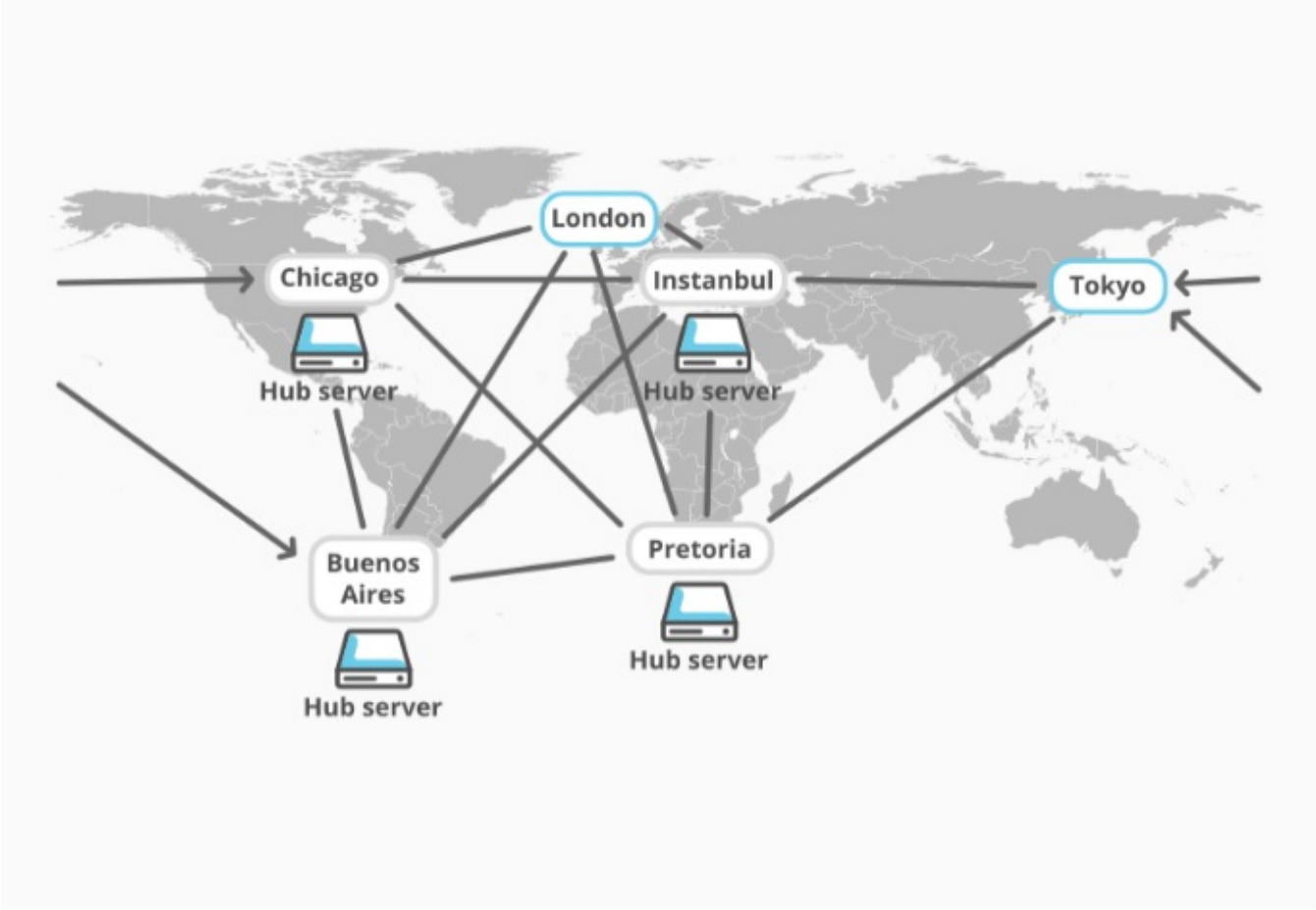
consider that location when calculating the preferred route between locations. You can adjust the latency values to specify which location for CIC to attempt first in establishing connections between regional locations and hub locations.

As an example, if the cost of bandwidth usage to one location is much more expensive than another location, you could give a higher latency value to the first location. CIC would try to join conference calls through a hub connection in the second location. If no Interaction Media Servers in the second location had enough resources to facilitate the conference calls, CIC tried to use an Interaction Media Server in the first hub location.

You can use any criteria you prefer to determine the latency values to assign to connections between locations. The criteria could include things like bandwidth costs, bandwidth limits, and network quality.

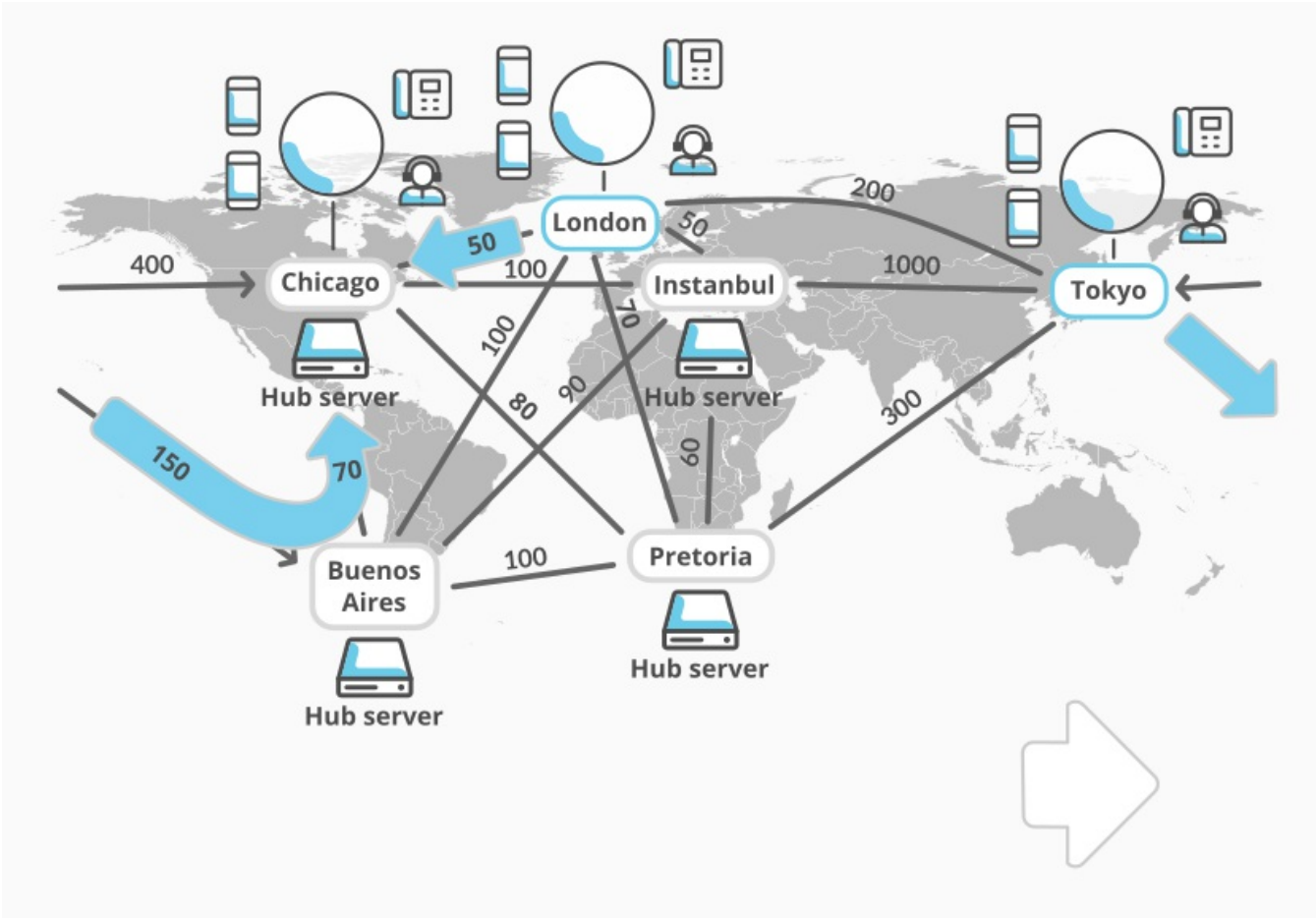
Distributed Conference Call Example

The following diagram represents locations defined in CIC. The London and Tokyo locations support the creation of conference calls but cannot provide hub connections. The remaining four locations can create conference calls and provide hub connections. If a conference call originates in the Chicago location and reaches its maximum number of participants, CIC creates new regional conference calls, based on Selection Rules, for other callers.



Distributed conferencing

In the following diagram, callers are joining the conference call from the London and Tokyo locations. The administrator has specified latency values for the connections between all regions.



Distributed conferencing - Latency

Since the London and Tokyo locations do not allow hub connections, CIC uses the specified latency values for all connections to other locations to determine which Interaction Media Server can act as a hub server to connect the calls. CIC includes and adds all latency values for all necessary connections as the selection process could require multiple hub connections between each regional conference call.

Regional conference calls support only one peering connection; however, hub locations support multiple peering connections. Because of these restrictions, the CIC server in this example selects the Chicago location to act as a hub to connect the originating conference call with the other regional conference calls.

CIC then determines, using latency values, which other hub locations, if any, to connect the regional conference calls in London and Tokyo with the Chicago hub location. The following table displays how CIC chooses the hub servers in this example through latency values.

Regional conference call locations	**Hub locations with cumulative latency values**			
London	Chicago (50)	Pretoria (70 + 80)	Istanbul (50 + 100)	Buenos Aires (100 + 70)
Tokyo	Buenos Aires (150 + 70)	Pretoria (300 + 80)	Chicago (400)	Istanbul (1000 + 100)
The shaded cells represent the hub locations with the lowest cumulative latency value.				

Considerations for Configuring Distributed Conferencing

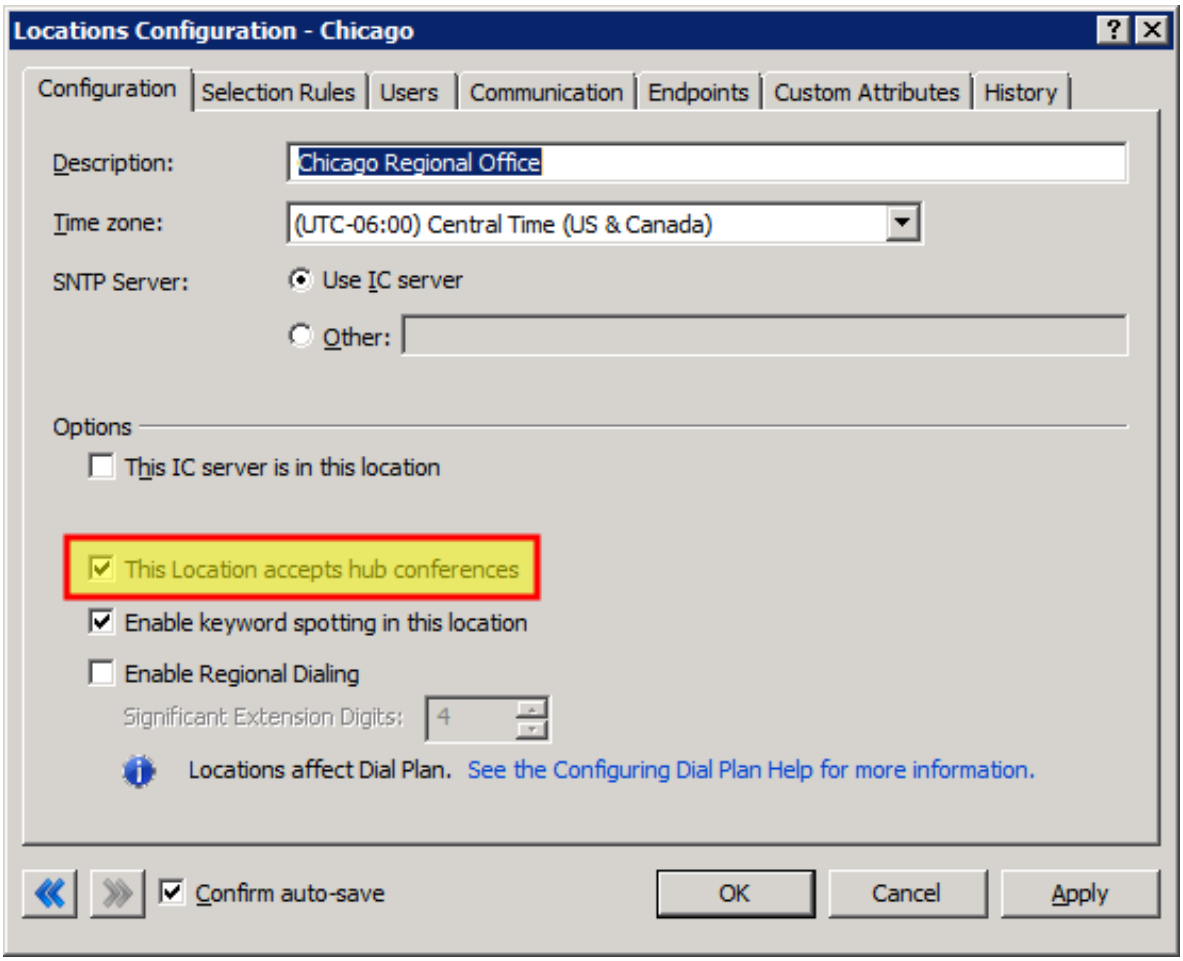
By default, CIC enables hub conferences for new locations that you create in Interaction Administrator and defines default latency values of 10 (within location) and 100 (outside current location). These default actions ensure functionality of the distributed conferencing feature in the CIC network.

Genesys recommends that you use these default settings for the distributed conferencing feature. Extensive modification of hub locations and latency values could result in unforeseen or unintended consequences, such as usage of expensive network connections and the inability of Interaction Media Server to connect regional conference calls. Other variables, such as allowed codecs, can increase the possibility of not being able to connect regional conference calls.

Configure a Location to Provide Hub Connections for Distributed Conference Calls

To configure a location to provide hub connections for distributed conference calls

1. On the CIC server or a remote personal computer, open Interaction Administrator.
2. Under the CIC server object in the left pane, expand the **Regionalization** container and then click the **Locations** object.
3. In the right pane, double-click the defined location. The **Locations** dialog box appears.



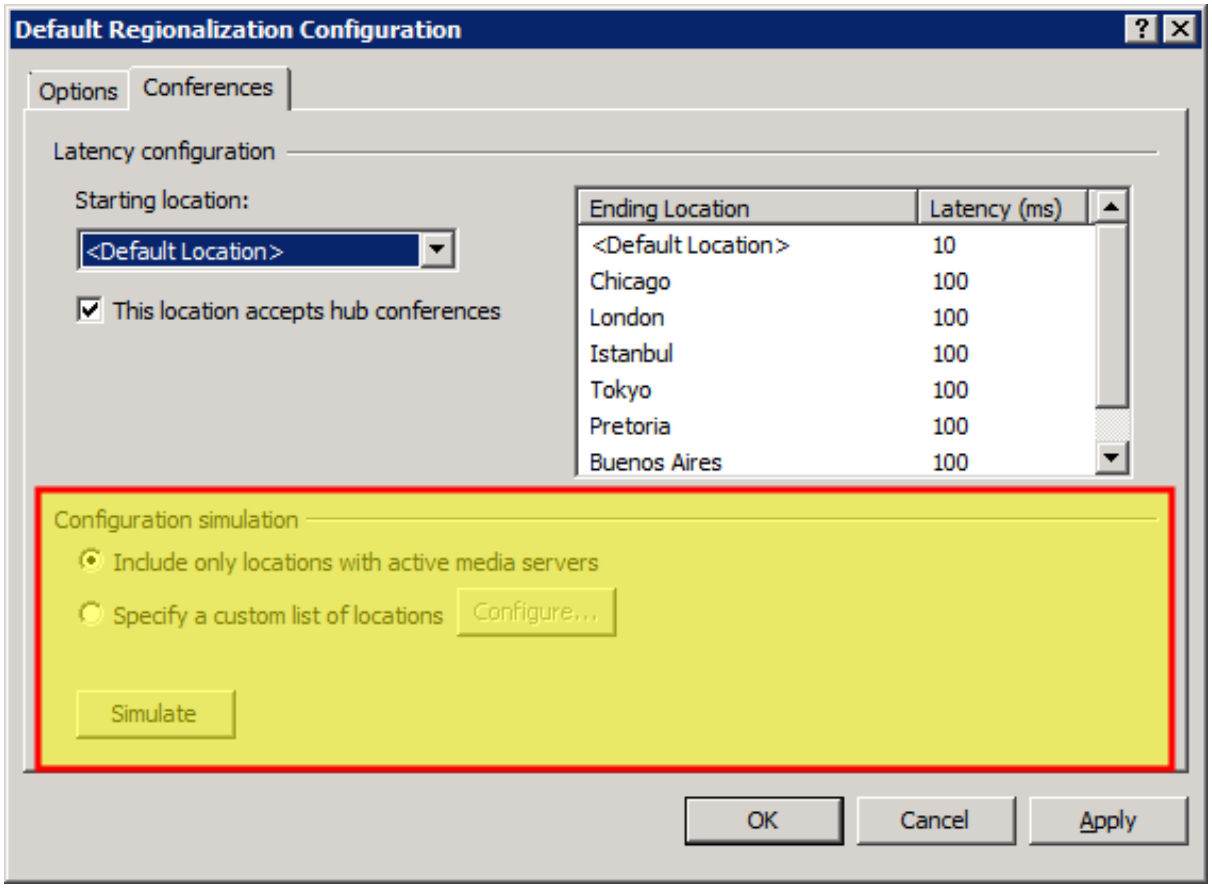
4. Select the **This Location accepts hub conferences** check box and then click **OK**.

> **Important!**
> To restrict a location from providing hub connections for distributed conference calls because of bandwidth limitations, too few Interaction Media Servers, network quality, or costs, ensure that the remaining locations can facilitate connecting conference calls without this location.

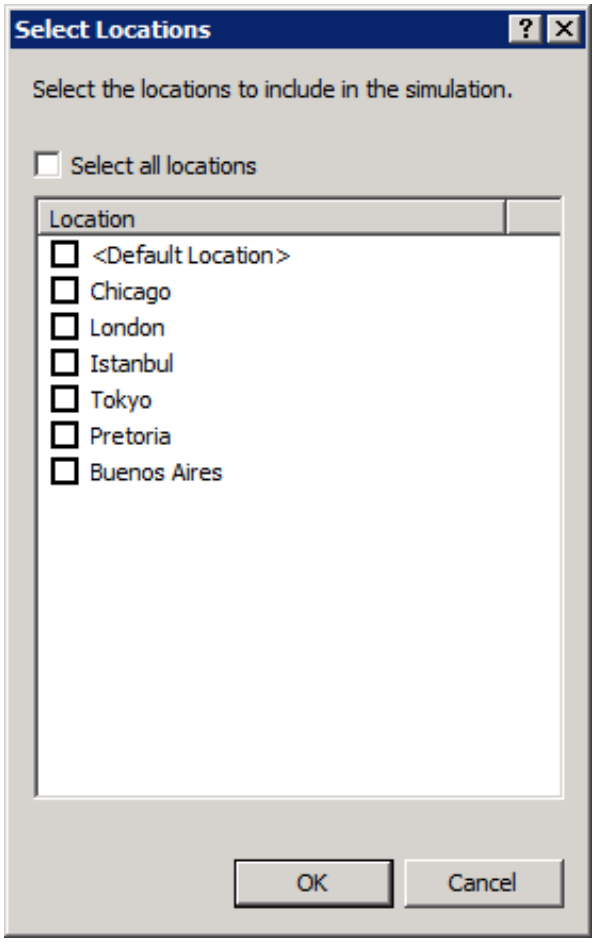
Test Configuration of Distributed Conference Calls

To test configuration of distributed conference calls

1. On the CIC server or a remote personal computer, open Interaction Administrator.
2. Under the CIC server object in the left pane, expand the **Regionalization** container and then click the **Default Regionalization** object.
3. In the right pane, double-click the **Configuration** item. The **Default Regionalization Configuration** dialog box appears.
4. Click the **Conferences** tab.

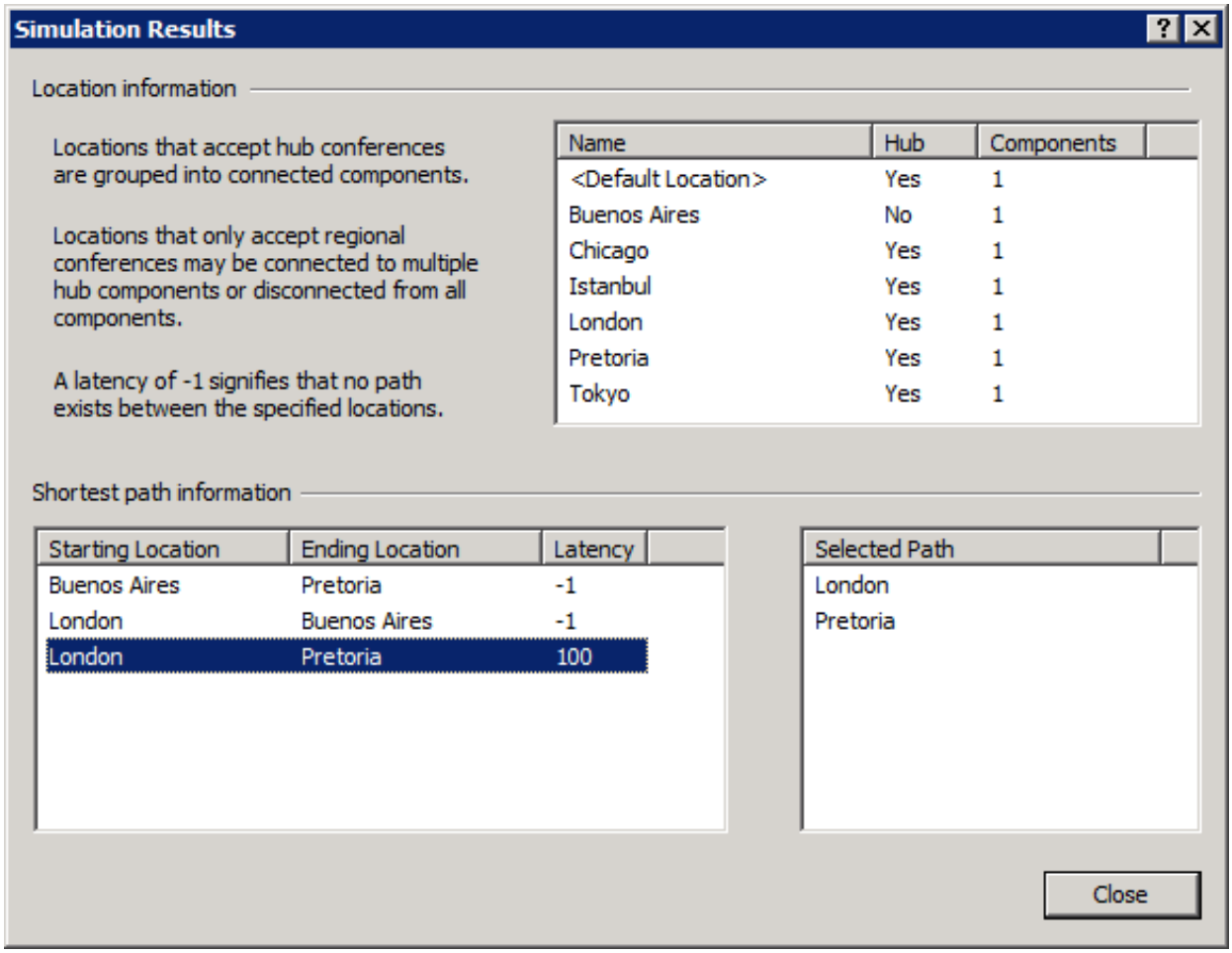


5. In the **Configuration simulation** area, select one of the following options:
   - **Include only locations with active media servers** (default)
   - **Specify a custom list of locations**
     a. Click **Configure**. The **Select Locations** dialog box appears.



b. In the **Location** column, select two or more locations for which you want to see the accumulated latency values and then click **OK**.

6. Click **Simulate**. The **Simulation Results** dialog box appears.



If you select more than two locations, CIC calculates the path between each combination of locations.

> **Note:**
> The **Components** column of the list box in the upper right corner of the **Simulation Results** dialog box displays one or more numbers that indicate which groups of locations can communicate with each other. If you configured locations so that some cannot communicate with other locations, including locations that provide hub connections, it is possible that CIC cannot connect distributed conference calls between those locations.

7. In the list box on the left side of the dialog box, select an item.

   The list box on the right side of the dialog box displays a list of locations through which CIC can connect a distributed conference call.

   To view the path of the other location combinations, select each item in the list box on the left side of the dialog box.

   > **Important!**
   > If an item in the list box on the left side of the **Simulation Results** dialog box displays **-1**, CIC cannot connect a distributed conference call between the two locations. This issue occurs when you configure a location not to provide hub connections or you set the latency value to **-1**. To fix this issue, configure the location to allow hub connections or change the latency value to a non-negative number.

8. Click **Close**.

Interaction Media Server Conference Call Considerations

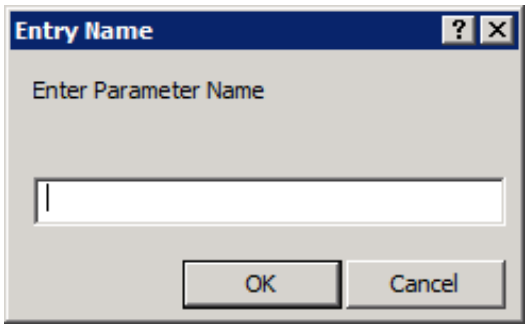
- You can coach conferences that contain fewer than 20 participants. If there are any coaching sessions in a conference that exceeds 20 participants, Interaction Media Server downgrades the coaching sessions to single listen sessions.
- You can monitor conferences that contain fewer than 50 participants. If there are any hosted monitors in a conference that exceeds 50 participants, Interaction Media Server downgrades the hosted monitor sessions to single listen sessions.
- You can use hosted listen sessions in conferences that contain fewer than 50 participants. Interaction Media Server downgrades hosted listen session to single listen sessions, including the recording session, for the following conditions:
  - One hosted listen session listens to another hosted listen session.
  - Interaction Media Server recorded a hosted listen session.
- CIC disconnects conferences that consist of only external parties. For example, if you use a station to create a conference call with two external parties, CIC disconnects the conference call when you disconnect from the conference. This feature ensures resource and cost savings as communications between external parties do not use the resources of the CIC environment.

Specify Interaction Media Server Call Analysis Language Model

Interaction Media Server analyzes speech when you use the call analysis feature that you configured in Interaction Administrator. As languages differ greatly in pronunciations, Interaction Media Server can use different language model files to ensure that its analysis is accurate. The speech model files for call analysis are language and region-dependent.

To specify an Interaction Media Server call analysis language model

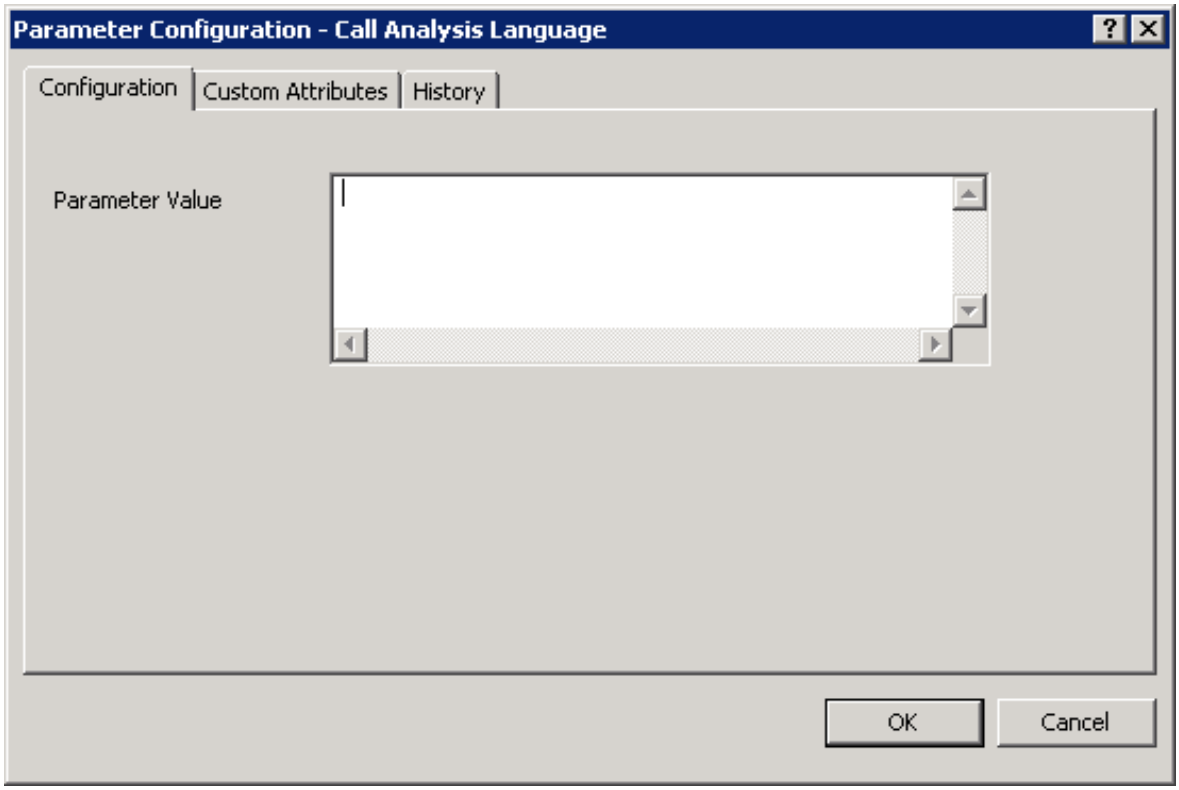
1. On the CIC server or a remote personal computer, open Interaction Administrator.
2. In the left pane, expand the named **CIC server** object and then click the **Server Parameters** object.
3. In the right pane, right-click anywhere and then click **New**. The **Entry Name** dialog box appears.



4. In the **Enter Parameter Name** text box, type `Call Analysis Language` and then click **OK**.

   Important!
   Type the parameter name in the proper case. Using all lowercase letters in this parameter name causes this feature to fail.

   The **Parameter Configuration** dialog box appears.



5. In the **Parameter Value** box, type one of the supported language model codes.
   For a list of supported call analysis language models, see Supported Call Analysis Language Models and Regions.

   Important!
   Use the proper case when entering the language model code. Failure to do so causes this feature to function improperly.

6. Click **OK**. The system assigns the specified language model to the new **Call Analysis Language** server parameter.

Tip:
You can change whether Interaction Media Server uses call analysis for different call types, such as Call Forward. For more information about CIC server parameters, see the *Interaction Administrator* documentation.

Note:
Genesys tunes the call analysis models carefully to ensure the best performance under the widest possible conditions. You cannot modify the call analysis models. However, if you have recordings where the call analysis feature did not work as expected, contact PureConnect Customer Care and provide those recordings. Genesys adds the recordings that you provide to the PureConnect call analysis database to ensure that PureConnect addresses the most situations in future versions.

Supported Call Analysis Language Models and Regions

x-inin-global (Global)	es-PA (Spanish, Panama)
af-ZA (Afrikaans, South Africa)	es-PE (Spanish, Peru)
ar-AE (Arabic, United Arab Emirates)	es-PR (Spanish, Puerto Rico)
ar-KW (Arabic, Kuwait)	es-US (Spanish, United States)
bg-BG (Bulgarian, Bulgaria)	es-VE (Spanish, Venezuela)
cs-CZ (Czech, Czech Republic)	fr-CA (French, Canada)
da-DK (Danish, Denmark)	fr-FR (French, France)
de-CH (German, Switzerland)	he-IL (Hebrew, Israel)
de-DE (German, Germany)	hi-IN (Hindi, India)
en-AU (English, Australia)	it-IT (Italian, Italy)
en-CA (English, Canada)	ja-JP (Japanese, Japan)
en-GB (English, Great Britain)	ko-KR (Korean, Republic of Korea)
en-IN (English, India)	ms-MY (Malay, Malaysia)
en-NZ (English, New Zealand)	nl-NL (Dutch, Netherlands)
en-US (English, United States)	no-NO (Norwegian, Norway)
en-ZA (English, South Africa)	pl-PL (Polish, Poland)
es-CL (Spanish, Chile)	pt-BR (Portuguese, Brazil)
es-CO (Spanish, Colombia)	pt-PT (Portuguese, Portugal)
es-CR (Spanish, Costa Rica)	ru-RU (Russian, Russia)
es-EC (Spanish, Ecuador)	sv-SE (Swedish, Sweden)
es-ES (Spanish, Spain)	tl-PH (Tagalog, Philippines)
es-GT (Spanish, Guatemala)	tr-TR (Turkish, Turkey)
es-HN (Spanish, Honduras)	zh-CN (Chinese, China)
es-MX (Spanish, Mexico)	zh-HK (Chinese, Hong Kong)
es-NI (Spanish, Nicaragua)	zh-TW (Chinese, Taiwan)

Special Information Tones Reference

Special Information Tones (SIT) are sequences of tones in a certain frequency range. This series of tones uses cadences and durations to identify problematic situations related to the construction of a telephone call.

The call analysis feature of Interaction Media Server recognizes the following SIT in calls:

- intercept
- ineffectiveother
- nocircuit
- reorder
- reorder.congestion ("fast busy")
- vacantcode

Call Analysis for Remote Stations

Previous versions of CIC would start call analysis when connecting to a remote station in the network and wait for a voice response. This situation is problematic as it caused delays in connecting a caller to the agent at the remote station as call analysis was still running.

In the current version, CIC stops call analysis when it connects to the remote station. The result is a decrease in the time that it takes to connect the caller to the agent at the remote station.

To restore the previous functionality of using call analysis when connecting to remote stations, set the **Remote Station Call Analysis Answer Supervision** CIC server parameter to **false**.

Optional Administrative Tasks for Interaction Media Server

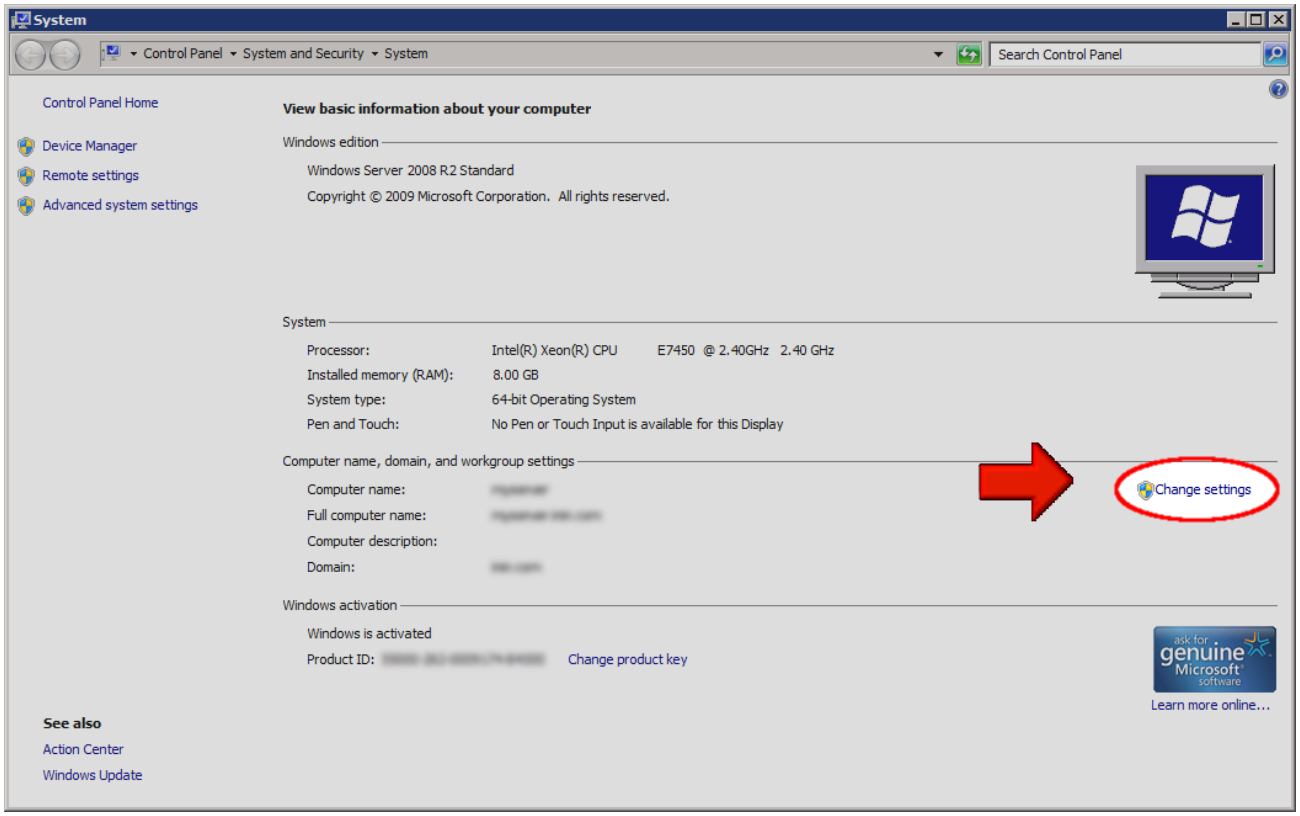
For information about optional tasks that you can do for Interaction Media Server, see the following:

- Change the Name of Interaction Media Server
- Change Defragmentation Schedule on Interaction Media Server
- Delete an Interaction Media Server From CIC
- Enable Secure Input Feature
- Enable Secure IVR Playback Feature

Change the Name of Interaction Media Server

To change the name of the Interaction Media Server

1. Log on to Windows Server computer that hosts Interaction Media Server.
2. Right-click the **Computer** icon on the Desktop and then click **Properties**. The **System** dialog box appears.



3. On the right side of the dialog box, click the **Change settings** hyperlink. The **System Properties** dialog box appears.
4. On the **Computer Name** tab, click **Change**. The **Computer Name/Domain Changes** dialog box appears.
5. In the **Computer name** box, type the name to assign to this server and then click **OK**.

> **Important!**
> If you do not make this server a member of a domain, the name can be only 15 characters in length. A longer name causes Interaction Media Server to fail to communicate with CIC.

6. In the **System Properties** dialog box, click **OK**.

Change Defragmentation Schedule on Interaction Media Server

By default, Interaction Media Server runs the disk defragmenter on all drives each night. Genesys recommends the following guidelines regarding disk defragmentation:

- Do not change the schedule to run during operational hours. Defragmenting drives can result in decreased performance of Interaction Media Server.
- If you have a dedicated volume for storing recordings and faxes, do not defragment the volume as the system only writes and reads these files once.

However, if changes are necessary, you can edit or delete disk defragmenter sessions through Windows Task Scheduler. For information about using Task Scheduler, see your Windows documentation.

Delete an Interaction Media Server From CIC

To delete an Interaction Media Server from CIC

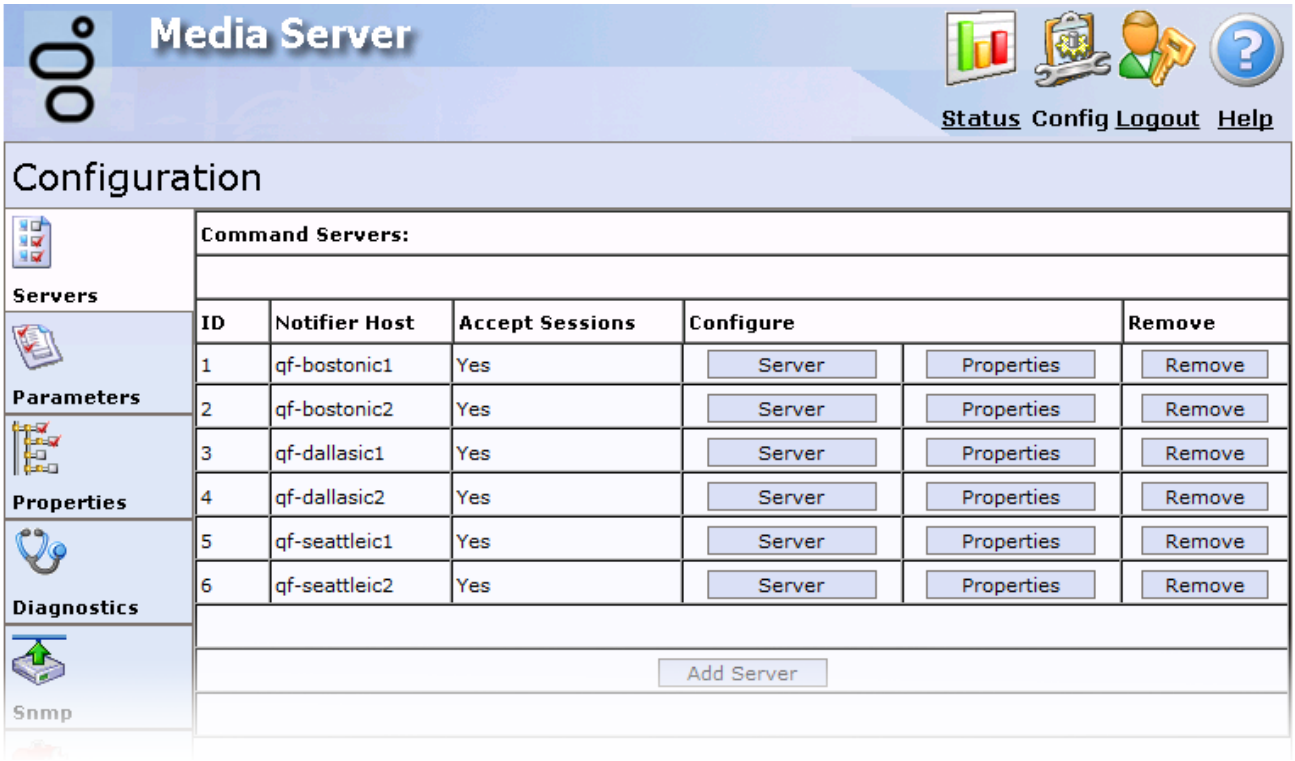
1. From a personal computer or the Interaction Media Server itself, open a web browser and navigate to the URL address and port number of the Interaction Media Server web interface. See the following example for the format of specifying this URL address:

   http://mediaserver1.mydomain.com:8084/

   > **Note:**
   > Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.

2. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password. The **Status-About** page appears.

3. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.

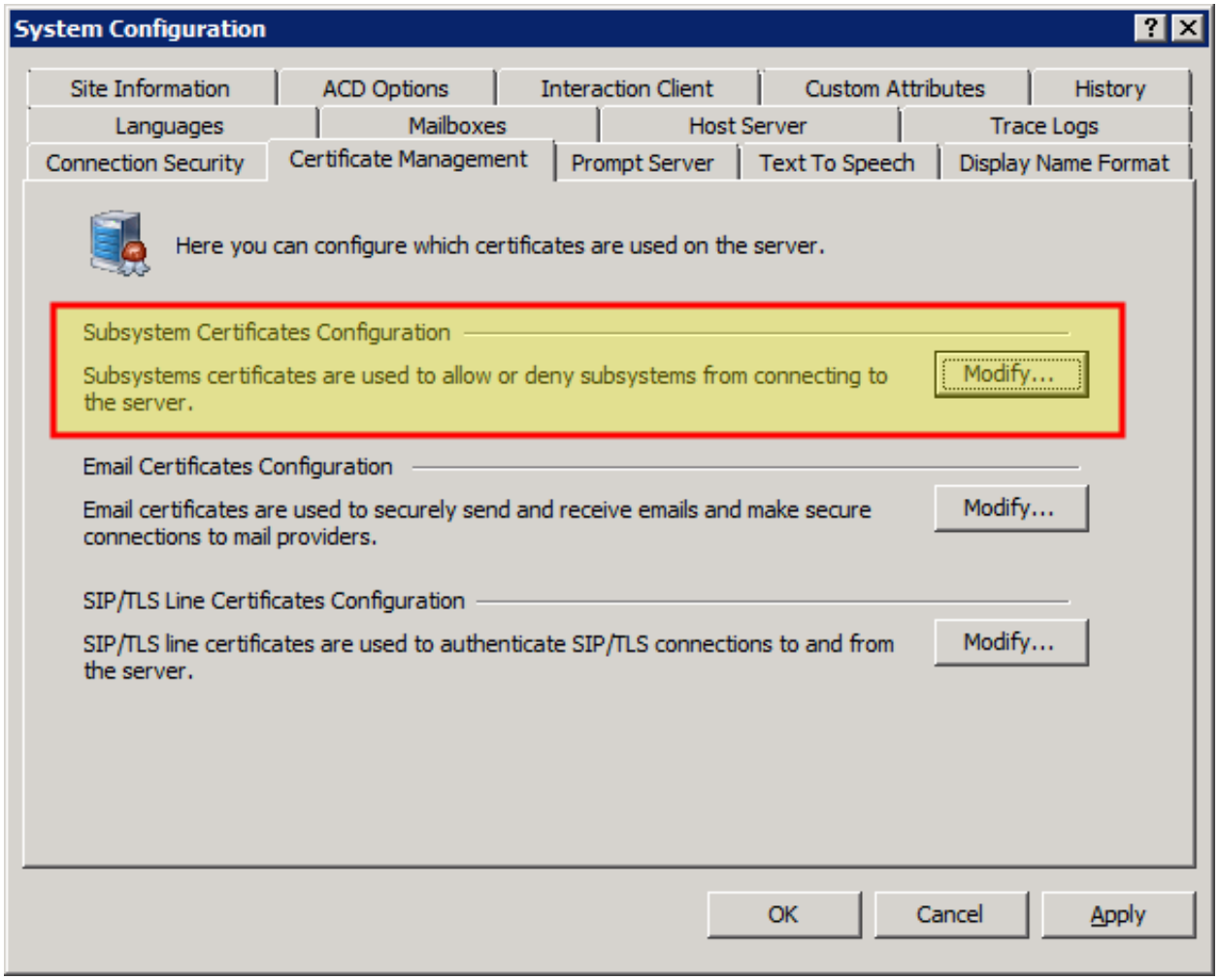


4. Locate the CIC server from which to remove this Interaction Media Server and click the associated **Remove** button. The system removes the selected CIC server from the Interaction Media Server configuration.
5. Click the **Logout** icon in the upper right corner and close the web browser.
6. From a personal computer or the CIC server itself, open Interaction Administrator and log on with the administrative ID and password.
7. In the left pane under the **System Configuration** container, expand the **Media Servers** container and then click the **Servers** object.
8. In the right pane, locate the Interaction Media Server to remove from this CIC server, right-click it, and then click **Delete**.

   The system removes the selected Interaction Media Server from this CIC server.

   > **Caution!**
   > If you are running Interaction Recorder Remote Content Service or an off-host Session Manager server on Interaction Media Server, do not complete the remaining steps in this procedure. Completion of these steps results in the deletion of the certificates that those systems use to connect to the CIC server.

9. In the left pane, click the **System Configuration** container.
10. In the right pane, double-click the **Configuration** item. The **System Configuration** dialog box appears.
11. Click the **Certificate Management** tab. The **Certificate Management** tab appears.



12. In the **Subsystem Certificates Configuration** area, click **Modify**. The **Subsystem Certificates** dialog box appears.
13. Click the Interaction Media Server entry to remove and then click **Delete**.

> **Note:**
> If you are using a pair of CIC servers in a switchover configuration, you see two certificates; one for each server. Delete both of these certificates.

14. Click **Close**.
15. In the **System Configuration** dialog box, click **OK**. The selected Interaction Media Server no longer appears in Interaction Administrator.

Enable Secure Input Feature

The Secure Input feature for CIC provides security regarding the accessibility of sensitive information, such as credit card or account numbers, during and after an interaction.

For Interaction Media Server, the Secure Input feature affects audio communications and log files as described in the following list:

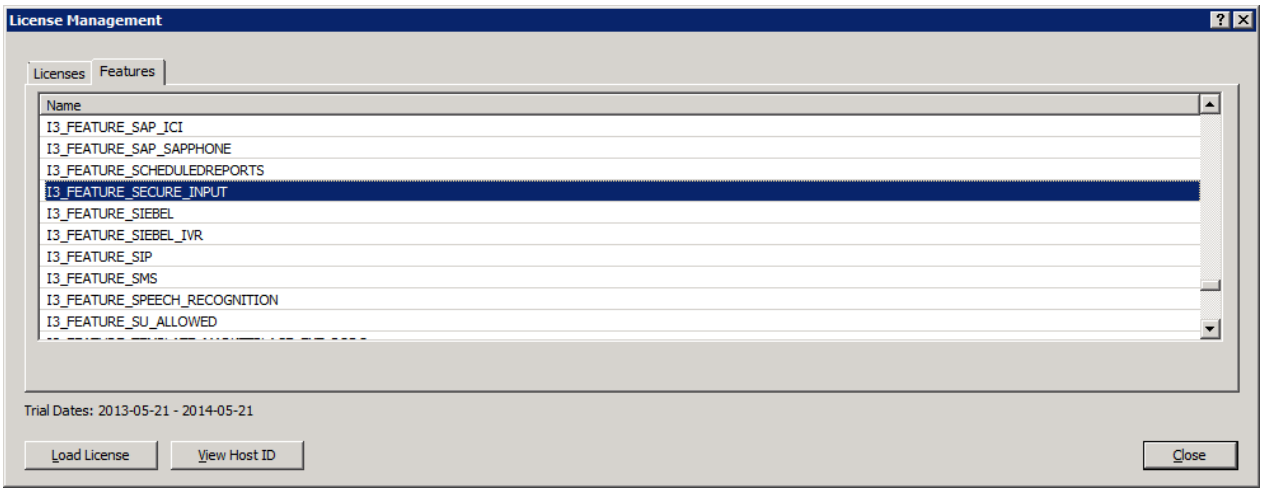
- During recordings and monitoring, Interaction Media Server replaces DTMF tones with white noise in recordings and when monitoring a call.
- When you enable the Secure Input feature, Interaction Media Server does not write digits that are associated with DTMF tones to the log file. If you must diagnose a situation regarding DTMF digit detection, create an encryption key for this Interaction Media Server. Interaction Media Server then encrypts DTMF digits in the log file. The encryption key is not persistent. After a restart of the system, Interaction Media Server reverts to the default behavior of excluding DTMF digits in the log file.

> **Note:**
> Interaction Media Server does not support the Secure Input feature for conference calls, even if the call has only two parties.

To enable the Secure Input feature

1. On the CIC server or a remote personal computer, open Interaction Administrator. The Interaction Administrator window appears.

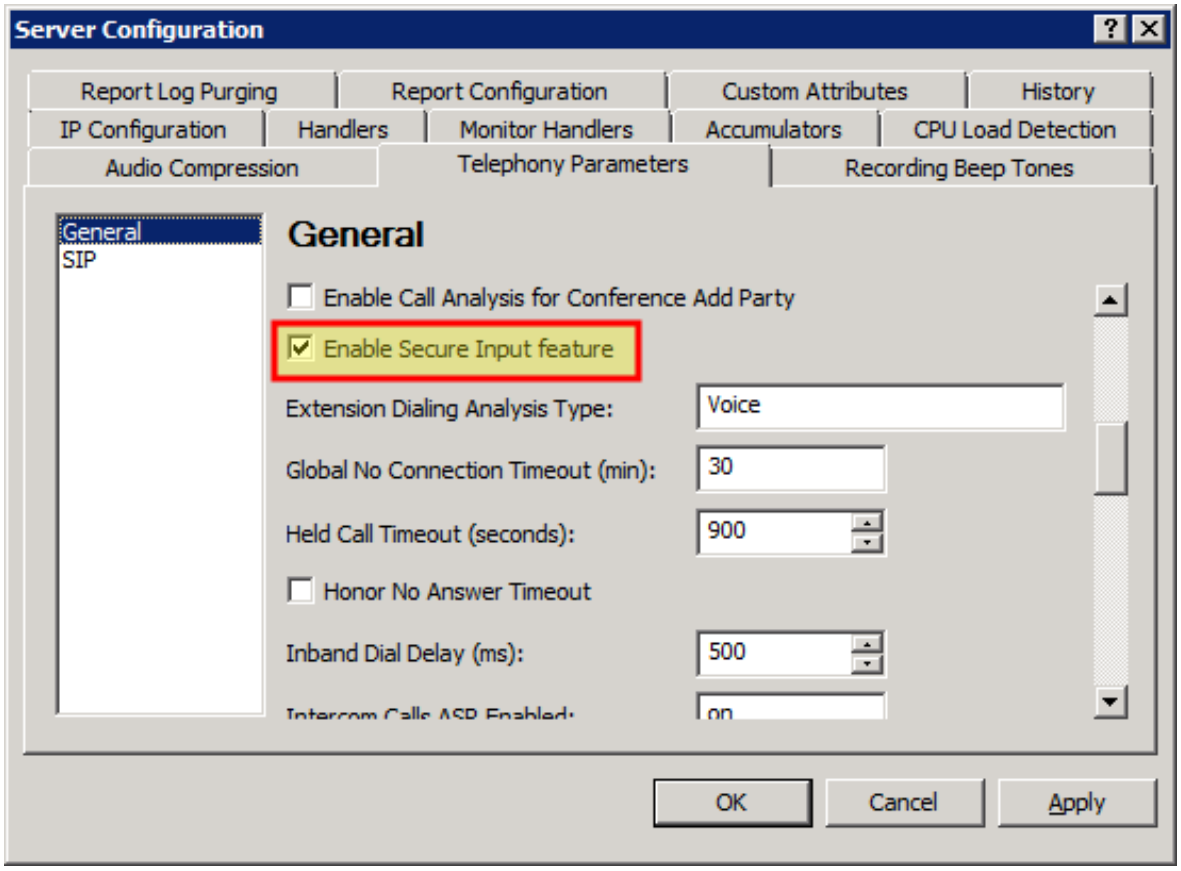
2. In the toolbar, click **License**. The **License Management** dialog box appears.
3. In the **License Management** dialog box, click the **Features** tab.



4. Ensure that the list contains an **I3_FEATURE_SECURE_INPUT** entry.

> **Note:**
> If the list does not contain the **I3_FEATURE_SECURE_INPUT** feature license, you must purchase the feature and update your CIC license.

5. Click **Close**.
6. In the left pane of Interaction Administrator, click the **CIC server** object.
7. In the right pane, double-click the **Configuration** item. The **Server Configuration** dialog box appears.
8. Click the **Telephony Parameters** tab.



9. Use the scroll bar on the right side of the dialog box to display the **Enable Secure Input feature** check box.
10. Select the **Enable Secure Input feature** check box and then click **OK**.

> **Tip:**
> To disable the Secure Input feature for a specific Interaction Media Server, access the configuration for that Interaction Media Server in Interaction Administrator, add the **SecureInputModeEnabled** property, and set the value to **False**.

For more information about Secure Input, see the *Secure Input Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/secure_input_tr.pdf.

Enable Secure IVR Playback Feature

The Secure IVR Playback feature, as part of a Secure Input feature implementation, enables callers in an Interactive Voice Response session to provide DTMF digits securely through a telephone keypad and hear the corresponding DTMF digits as feedback. Interaction Media Server does not include the entered digits in call recordings or keyword spotting diagnostic recordings. Interaction Media Server does not include the digits in log or tracing files, and no one else on the call can hear them. Interaction Meida Server encrypts the digits between all points within the CIC system to ensure security and to meet PCI compliance standards. The Secure IVR Playback feature works for internal calls, external calls, and ACD-routed calls.

> **Note:** Genesys is not responsible for external network entities that do not conform to PCI compliance standards. To ensure the data security of callers into your contact center, work with your network providers to ensure that they meet all necessary PCI compliance standards.

Secure IVR Playback licensing

The Secure IVR Playback feature requires the following feature licenses in your CIC license:

- Secure Input
- Interaction Text-To-Speech and applicable languages

For more information about Interaction Text To Speech licenses, see Interaction Text To Speech (ITTS) licenses.

You apply the CIC license through Interaction Administrator. For more information, see the *Interaction Administrator* documentation.

For more information about Interaction Text To Speech, see the *CIC Text To Speech Engines Technical Reference*.

> **Note:**
> The Secure IVR Playback feature is only available with Interaction Text To Speech and is not compatible with other text-to-speech solutions.

Secure IVR Playback configuration

Once you apply the CIC license in Interaction Administrator, you start the Secure IVR Playback feature through customization of handlers in Interaction Designer.

In a handler using the **Secure Input** initiator, modify the **Play audio file** tool step by entering `x-inin-audiosrc:securedigits` in the **Audio file name** field. This step instructs CIC to replay the captured DTMF digits securely.

Interaction Media Server Faxing

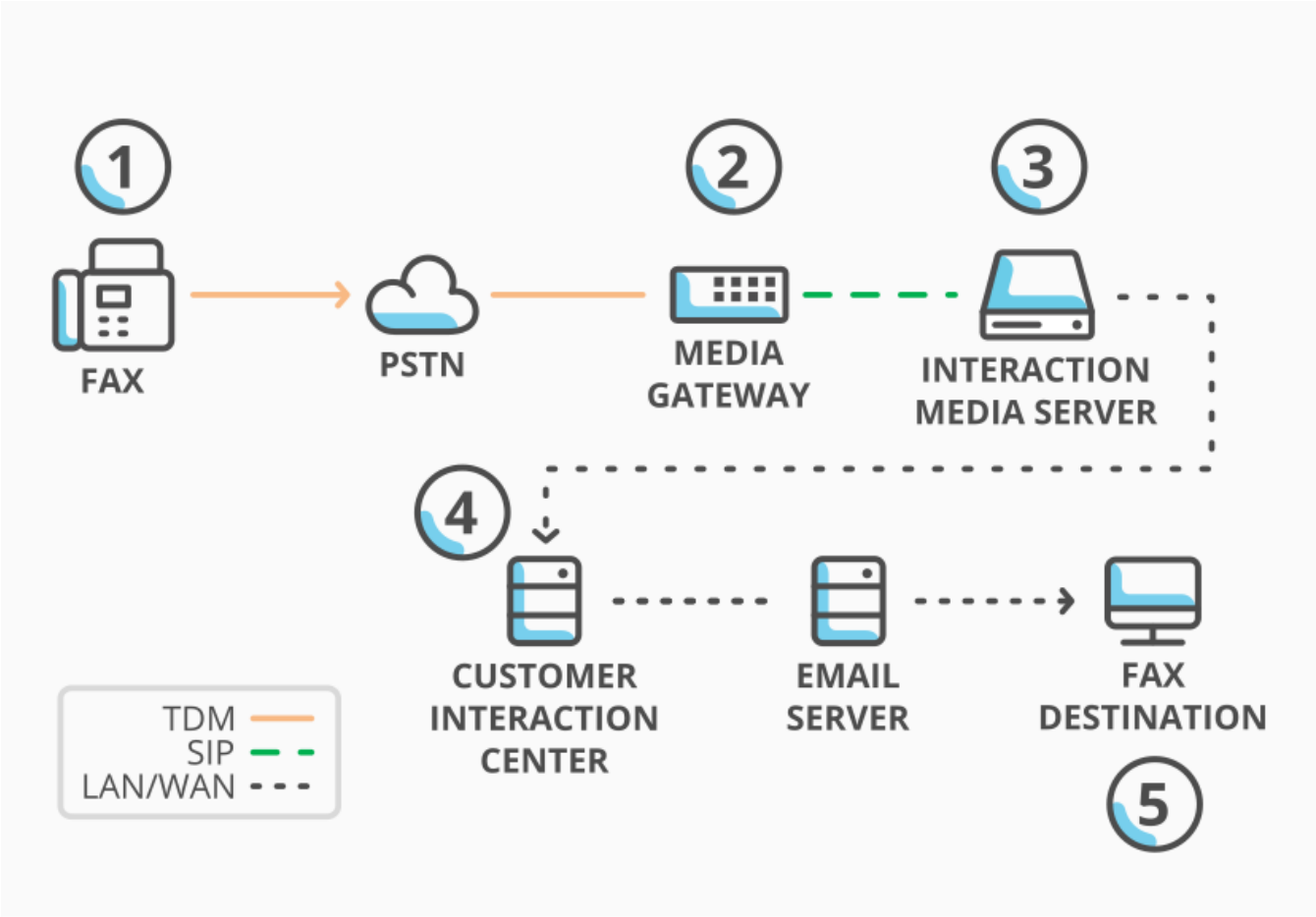
CIC uses Interaction Media Server to handle the transmission and reception of fax documents to and from client workstations. Interaction Media Server uses the T.38 or T.30 protocol (fax over IP) to transmit faxes in IP networks. Also, you can add Quality of Service (QoS) to the T.38 or T.30 protocol. QoS snds IP packets with high priority, which network routing devices recognize.

You can configure CIC to use the T.38 protocol, the T.30 protocol, or both protocols for faxing through **Line Configuration** dialog box in Interaction Administrator.

For information about fax license requirements, see Interaction Media Server Fax Licensing.

Inbound fax processing

The following diagram shows how Interaction Media Server processes inbound faxes in your CIC environment:



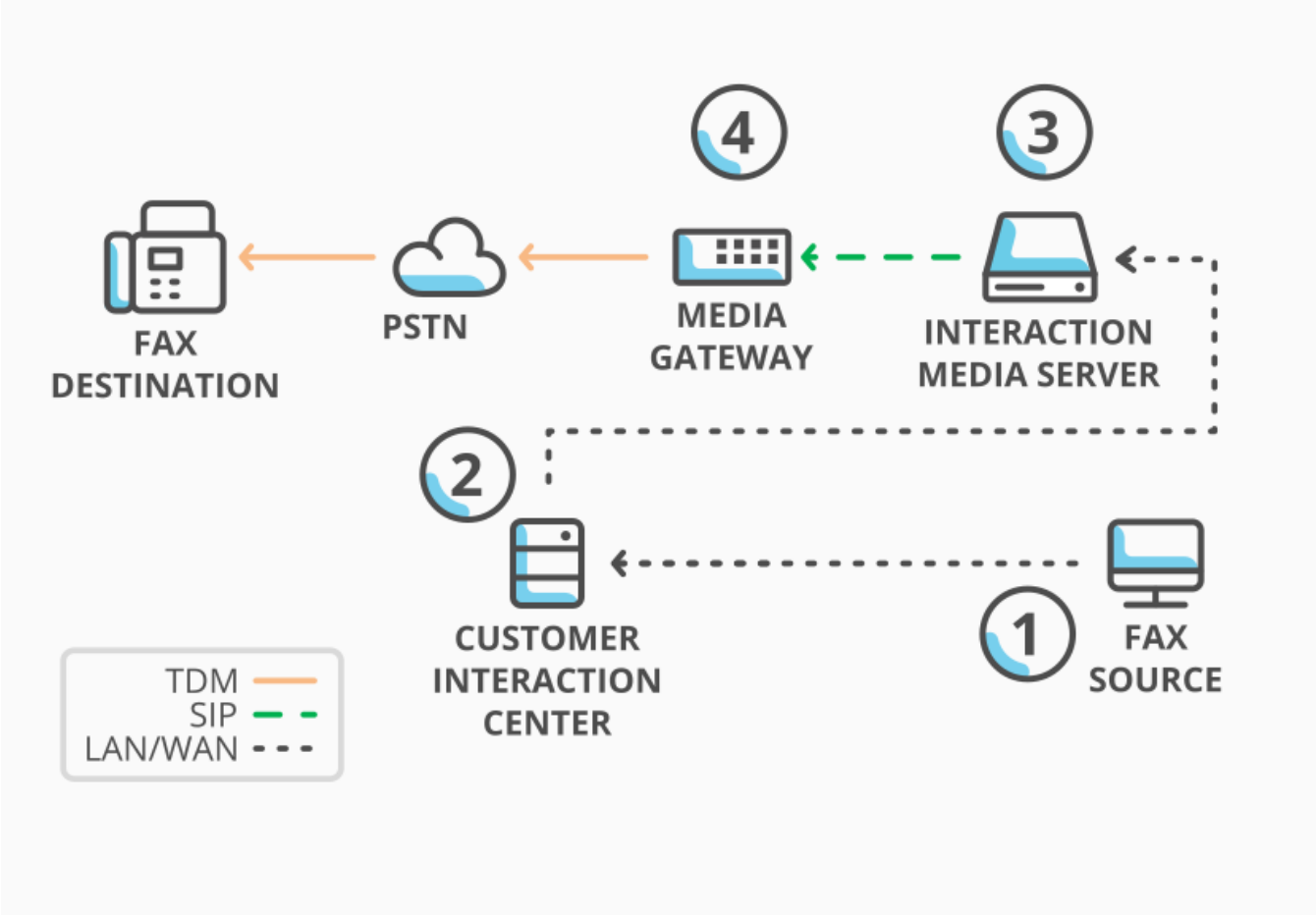
Inbound fax processing

Item	Description
1	An external source transmits a fax to a telephone number for a user extension in the CIC network. **Note:** Faxes sent to a station extension do not require audio processing through Interaction Media Server.
2	A gateway converts the analog fax data to a digital format and sends the data to Interaction Media Server.
3	Interaction Media Server converts the fax data to TIFF format image files and sends the files to CIC.
4	CIC attaches the fax images to an email message and addresses it to the associated user of the target station.
5	A user receives an email message with the fax attachment.

Note:
Inbound faxes to stand-alone fax machines do not go through Interaction Media Server. For more information about configuring CIC for stand-alone fax machines, see the *PureConnect Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/Installation_Configuration_Guide.pdf.

Outbound fax processing

The following diagram shows how Interaction Media Server processes outbound faxes in your CIC environment:



Outbound faxing

Item	Description
1	Using Interaction Fax, a user of a station sends a fax to an external telephone number.
2	CIC sends the fax data—in the form of TIFF format image files—to Interaction Media Server.
3	Interaction Media Server converts the TIFF format images of the fax to either the T.38 or T.30 protocol and sends that data to the gateway that conveys communications for the external telephone number.
4	The gateway converts the digital fax data to analog fax signals and sends that signal to the external telephone number.

Note:
If you use a SIP carrier to transmit faxes to external destinations, that SIP carrier must support the T.38 or T.30 protocol.

Configure Interaction Media Server Through the Web Interface

Complete the following to configure Interaction Media Server through its web interface:

- Configure Audio Recording Retrieval on Interaction Media Server
- Configure Quality of Service on Interaction Media Server
- Configure SNMP Support on Interaction Media Server

Configure Audio Recording Retrieval on Interaction Media Server

By default, Interaction Media Server uses HTTP to transfer recordings from Interaction Media Server to an associated CIC server. However, if you want a more secure method of transferring recordings, Interaction Media Server also supports the HTTPS protocol.

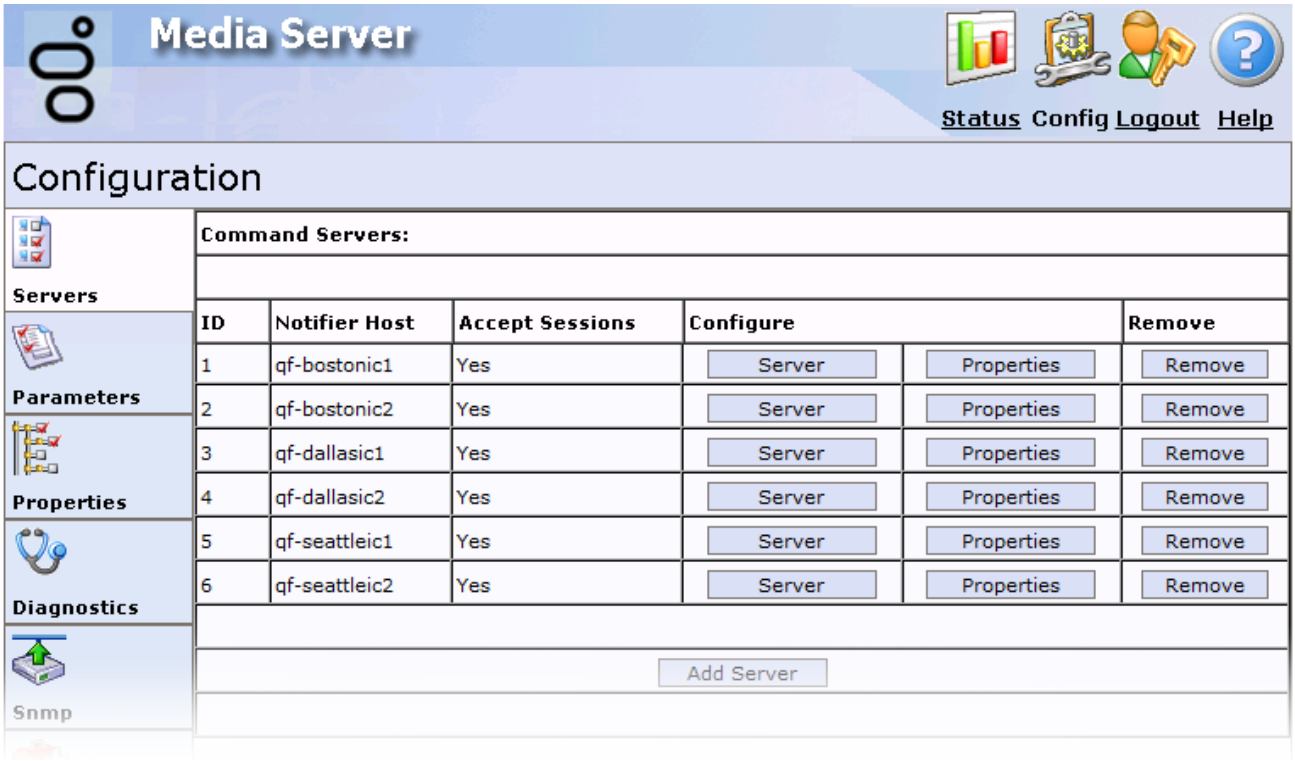
To configure audio recording retrieval on Interaction Media Server

1. On a personal computer or the Interaction Media Server itself, open a web browser and navigate to the URL address and port number of the Interaction Media Server web interface. See the following example for the format of specifying this URL address: `http://mediaserver1.mydomain.com:8084/`

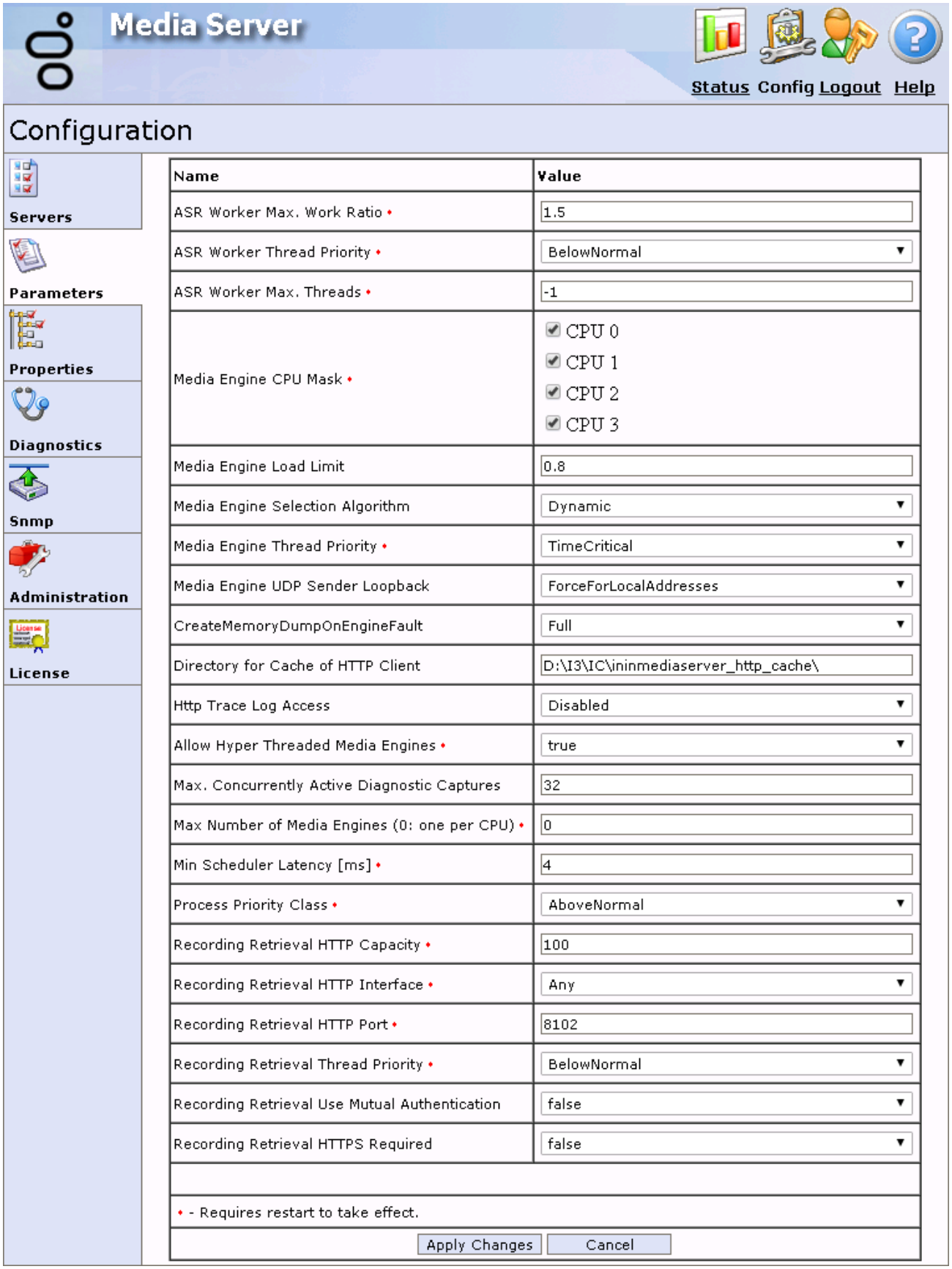
   > **Note:**
   > Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.

2. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password. The **Status-About** page appears.

3. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.



4. On the left side of the page, click the **Parameters** tab. The **Parameters** page appears.



5. In the list of parameters, locate the **Recording Retrieval HTTPS Required** parameter.

> **Note:**
> Enabling recording retrieval through the HTTPS protocol makes Interaction Media Server incompatible with CIC 3.0. If Interaction Media Server is supporting CIC 3.0 servers, do not enable this parameter .

6. In the associated list box, click **true**.
7. At the bottom of the page, click **Apply Changes**. Interaction Media Server now uses the HTTPS protocol to transfer recordings to CIC.

> For even more security in the transfer of recordings, you can set the **Recording Retrieval Use Mutual Authentication** parameter to **true**. This parameter requires that both the Interaction Media Server and the CIC server exchange certificates to prevent interception of recordings during retrieval. This exchange occurs automatically and does not require further administration.

Configure Quality of Service on Interaction Media Server

During the installation of Interaction Media Server, the process installs its own Quality of Service (QoS) driver to handle the prioritization of VoIP communications. For more information about stopping the Interaction Media Server installation process from installing the PureConnect QoS driver or the associated certificate to the Trusted Publishers list, see the *PureConnect Quality of Service Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/qos_tr.pdf.

Interaction Media Server uses QoS to mark Internet Protocol (IP) packets that contain Real-time Transport Protocol (RTP) data with prioritization information. Almost all network devices recognize QoS. QoS devices route marked IP packets containing RTP data ahead of lower-priority IP packets that are usually associated with data. QoS enables voice communications over an IP network to have fewer occurrences of voice quality issues. This feature is always enabled by default.

For more information, see the following:

- Modify the DSCP Value of IP Packets for Interaction Media Server
- Configure Layer 3 Switches to Trust the DSCP Values From Interaction Media Server

Modify the DSCP Value of IP Packets for Interaction Media Server

You can change the Differentiated Service Code Point (DSCP) value of an IP packet containing RTP data, which alters the QoS priority of that packet.

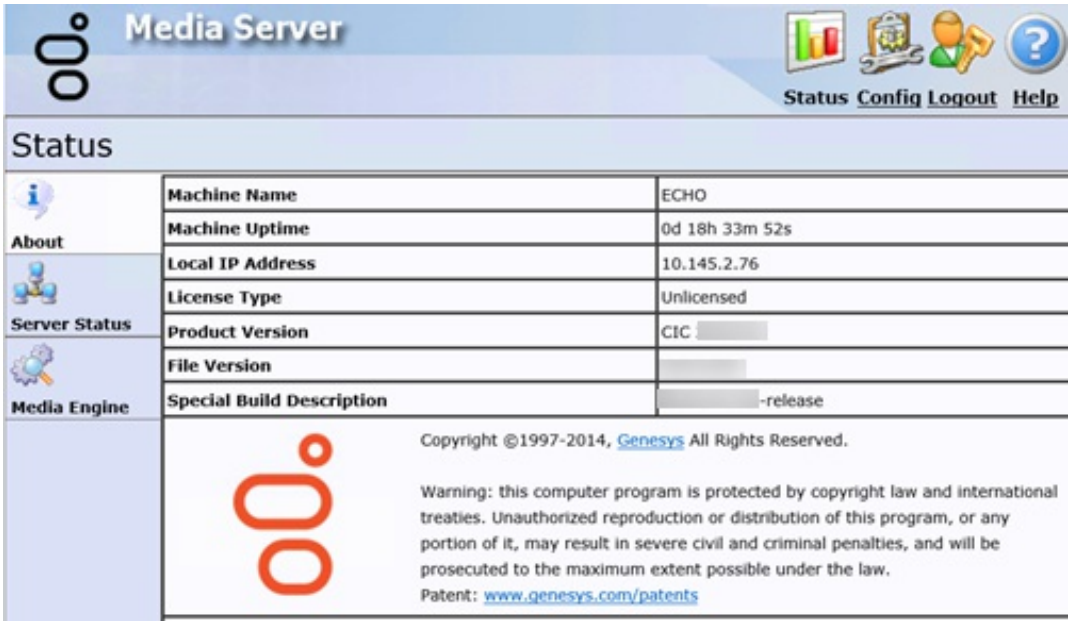
> **Note:**
> If Interaction Media Server detects different DSCP values between received and transmitted RTP packets, it writes a warning in the Event Log of the host Windows server. This feature is available only if Interaction Media Server uses the PureConnect QoS driver, which is installed by default. This feature is not available with Windows Policy-based QoS.

To change the DSCP value of an IP packet for Interaction Media Server

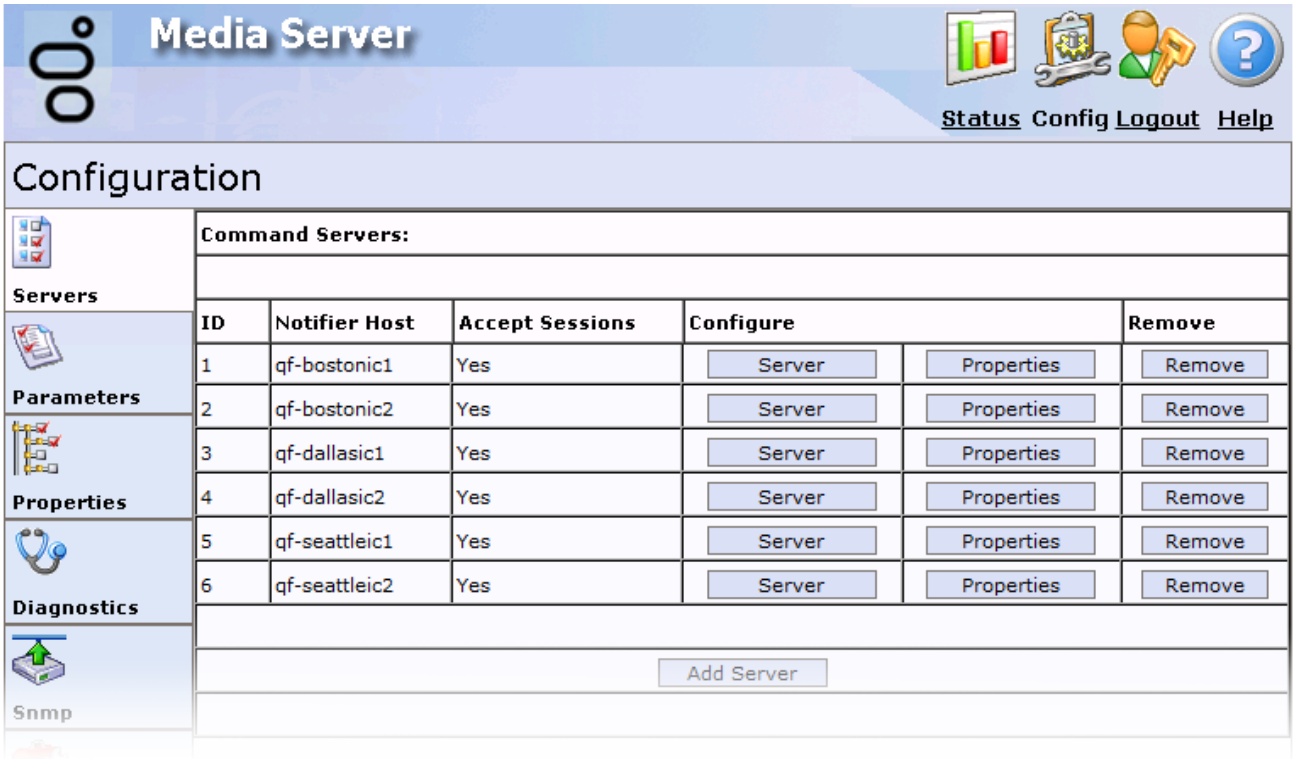
1. On a personal computer or the Interaction Media Server itself, open a web browser and navigate to the URL address and port number of the Interaction Media Server web interface. See the following example for the format of specifying this URL address: `http://mediaserver1:8084/`

   > **Note:**
   > Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.

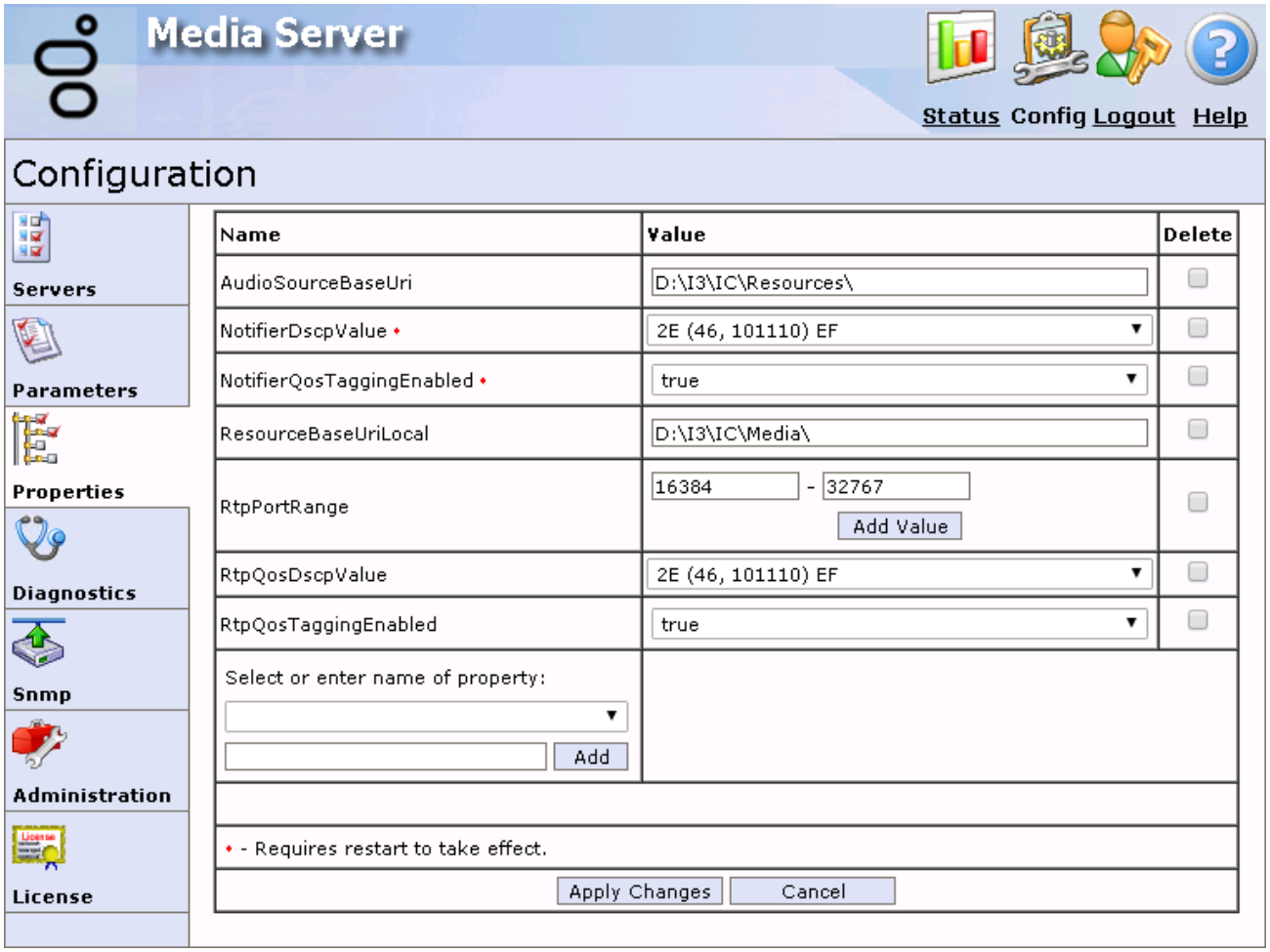
2. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password. The **Status-About** page appears.



3. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.



4. On the left side of the page, click the **Properties** tab. The **Properties** page appears.



5. In the list on the right side of the page, locate the **RtpQosDscpValue** property.
6. In the associated list box, click the DSCP value to use for marking IP packets that contain RTP data. The default value for this property is **2E (46, 101110) EF**.

> **Caution!**
> Changing this value can cause audio quality problems. Genesys does not recommend changing this value unless you are certain of the QoS configuration changes that you want to make in your network.

7. At the bottom of the page, click **Apply Changes**.

> **Note:**
> You can also change which Interaction Media Server communications use QoS. For more information about the **NotifierQosTaggingEnabled**, **RtpQosTaggingEnabled** and **UdptlQosTaggingEnabled** properties, see Interaction Media Server Config-Properties Page.

Configure Layer 3 Switches to Trust the DSCP Values From Interaction Media Server

Some layer 3 switches remove the DSCP value in marked outbound IP packets and replace it with a 0 (zero). When you configure QoS tagging on your Interaction Media Server, ensure that you configure the layer 3 switches in your network to trust the DSCP value that Interaction Media Server adds. For example, for a Cisco switch, you would type the following command for each interface that handles RTP traffic from an Interaction Media Server:

```
mls qos trust dscp
```

Failure to configure layer 3 switches in your network to trust the DSCP values in IP packets from Interaction Media Server can result in audio quality issues.

Configure SNMP Support on Interaction Media Server

Simple Network Management Protocol (SNMP) is a method for network devices to send errors, warnings, and status messages to a

Network Management System (NMS). It enables administrators to find and correct problems with those network devices quickly. Interaction Media Server can send SNMP messages based on status conditions in the server or when prompted by the NMS.

PureConnect provides its own SNMP service that replaces the Windows **SNMP Service** and serves as an SNMP agent registry. The PureConnect SNMP service is installed by default and it disables Windows **SNMP Service**. The PureConnect SNMP service uses the following network protocols and ports:

Transport layer protocols	UDP
Network port numbers	• 161 - General SNMP messages • 162 - SNMP trap messages

The PureConnect SNMP service supports SNMPv1, SNMPv2c, and SNMPv3.

> **Important!**
> To configure SNMPv3 settings, you must use a command-line utility that installs with the **ININ SNMP** service. For more information about usage and syntax for this command line utility, see the *CIC and SNMP Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/snmp_tr.pdf.

To configure SNMP support on Interaction Media Server to send SNMPv1 or SNMPv2c messages to an NMS

1. Open the Windows Services application (located in the **Administrative Tools** folder).
2. In the **Services** window, locate the **SNMP Service** item and double-click it. The **SNMP Service Properties (Local Computer)** dialog box appears.

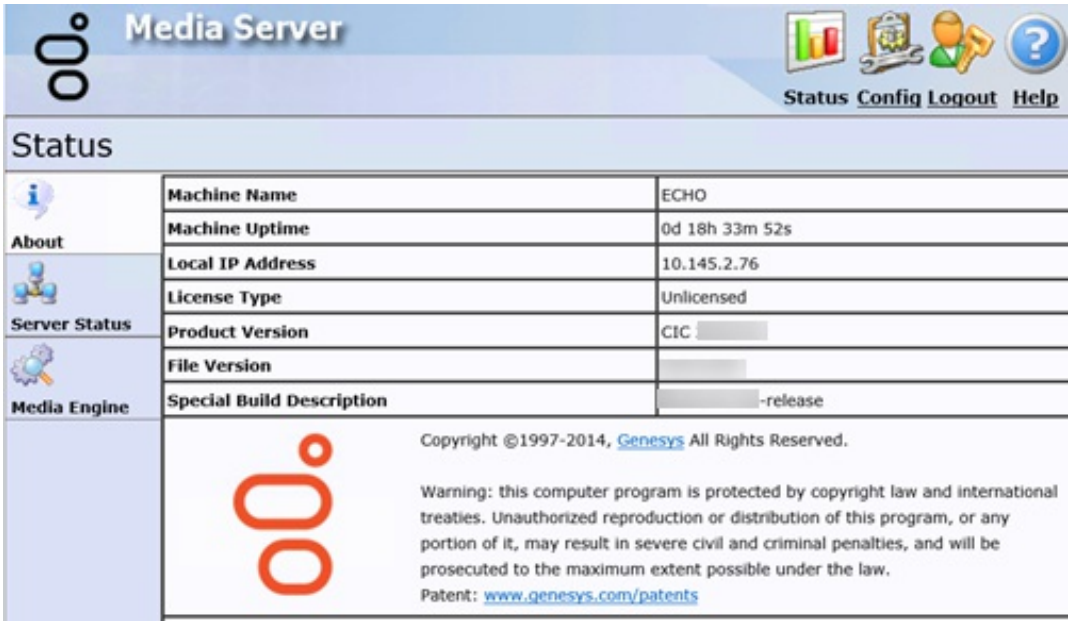
   > **Important!**
   > The PureConnect SNMP service (**ININ SNMP**) uses the same configuration that the Windows **SNMP Service** used when disabled. Therefore, you can use the **SNMP Service Properties** dialog box to configure the SNMPv1 or SNMPv2c settings that **ININ SNMP** uses.

3. Click the **Security** tab.
4. Select the **Send authentication trap** check box.
5. In the **Community Name** box, type a group name for all Interaction Media Servers.
   a. In the **Accepted community names** box, click **Add**.
   b. In the **Community Rights** list box, click **READ ONLY**.
6. Click **OK**.
7. Click the **Accept SNMP packets from these hosts** option and then click **Add**.
8. Type `localhost` in the box and then click **OK**.
9. Click **OK**. The **SNMP Service Properties (Local Computer)** dialog box closes.
10. Open a web browser and navigate to the URL address and port number of the Interaction Media Server web interface. See the following example for the format of specifying this URL address:

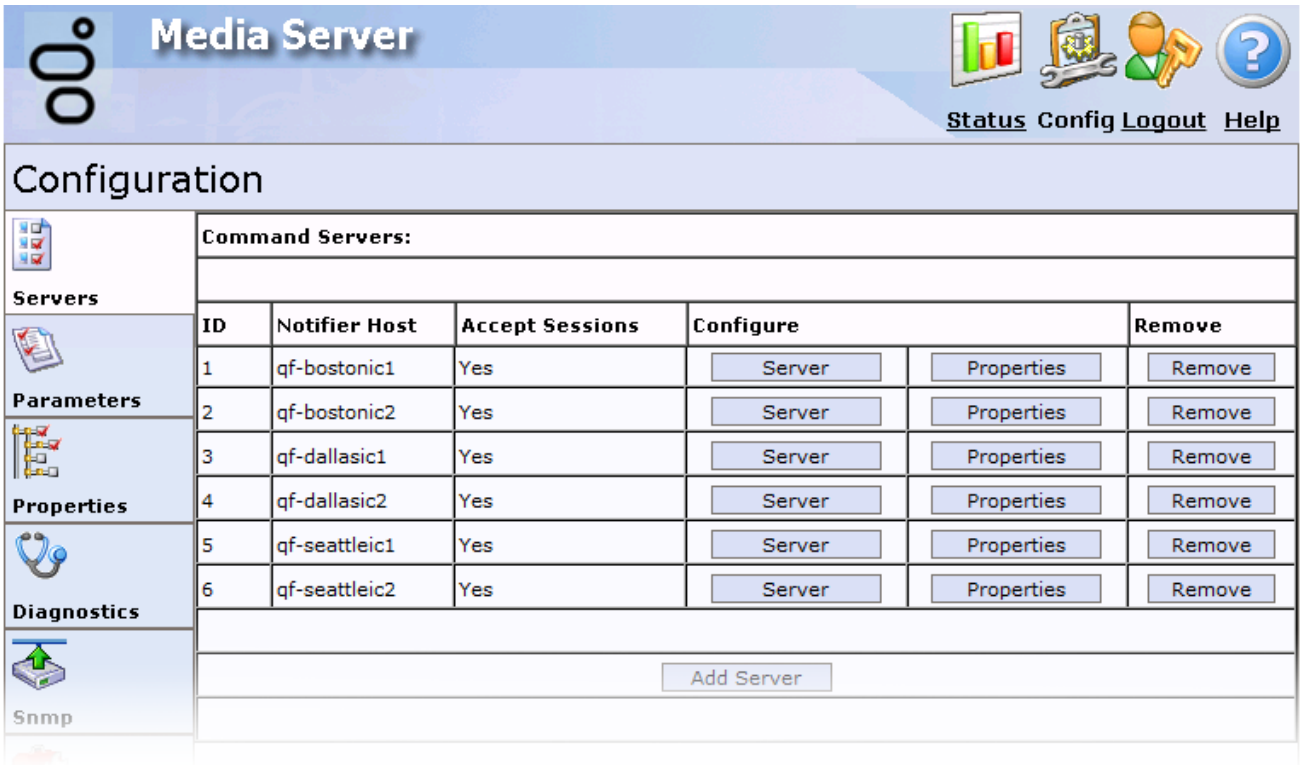
    `http://mediaserver1:8084/`

    > **Note:**
    > Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.

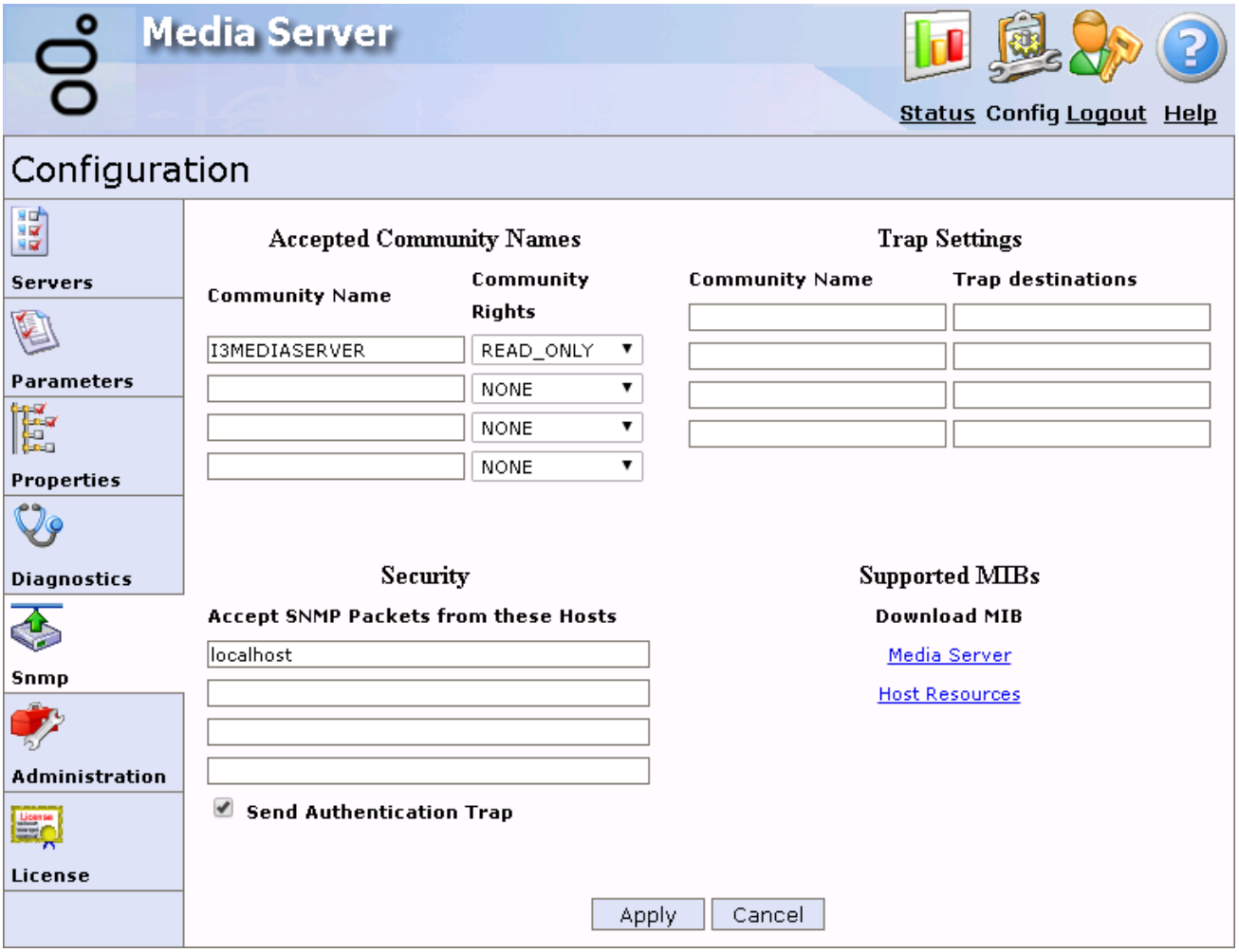
11. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password. The **Status-About** page appears.



12. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.



13. On the left side of the page, click the **Snmp** tab. The **Snmp** page appears.



14. Under the **Accepted Community Names** label, in the first **Community Name** box, tyep a name for an SNMP group of resources with which to associate all Interaction Media Servers. The name that you provide must be compatible with the network management system (NMS).
15. In the **Community Rights** list box to the right, Click **READ ONLY**.
16. Under the **Trap Settings** label, in the first **Community Name** box, type the name that you specified in step 14.
17. In the **Trap destinations** box, type the address of the NMS to which this Interaction Media Server sends SNMP messages. Depending on your network configuration you can specify a fully qualified domain name (FQDN), short host name, or IP address.

> **Tip:**
> You can configure Interaction Media Server to send SNMP messages to multiple destinations by specifying the same community name and the additional destination address in the next row.

18. Click **Apply**. The system saves your SNMP configuration.

> **Note:**
> For more information about the MIB files that you can download from this page, see Interaction Media Server Config-Snmp Page.

> **Important!**
> If the server hosts both Interaction Media Server and Interaction SIP Proxy, uninstalling one of the products removes the PureConnect SNMP service, which both products share. This action results in removal of the service and disables SNMP processing for the other product. You can correct the problem by repairing the installation of the remaining product. The Windows installation repair feature is available through the **Programs and Features** object in the Windows **Control Panel**.

Interaction Media Server Web Interface Reference

Following are the Interaction Media Server configuration pages, which describe the available configuration options.

- Interaction Media Server Status-About Page
- Interaction Media Server Status-Server Status Page
- Interaction Media Server Status-Media Engine Page
- Interaction Media Server Config-Servers Page
- Interaction Media Server Config-Parameters Page
- Interaction Media Server Config-Properties Page
- Interaction Media Server Config-Diagnostics Page
- Interaction Media Server Config-Snmp Page
- Interaction Media Server Config-Administration Page
- Interaction Media Server Config-License Page

Interaction Media Server Status-About Page

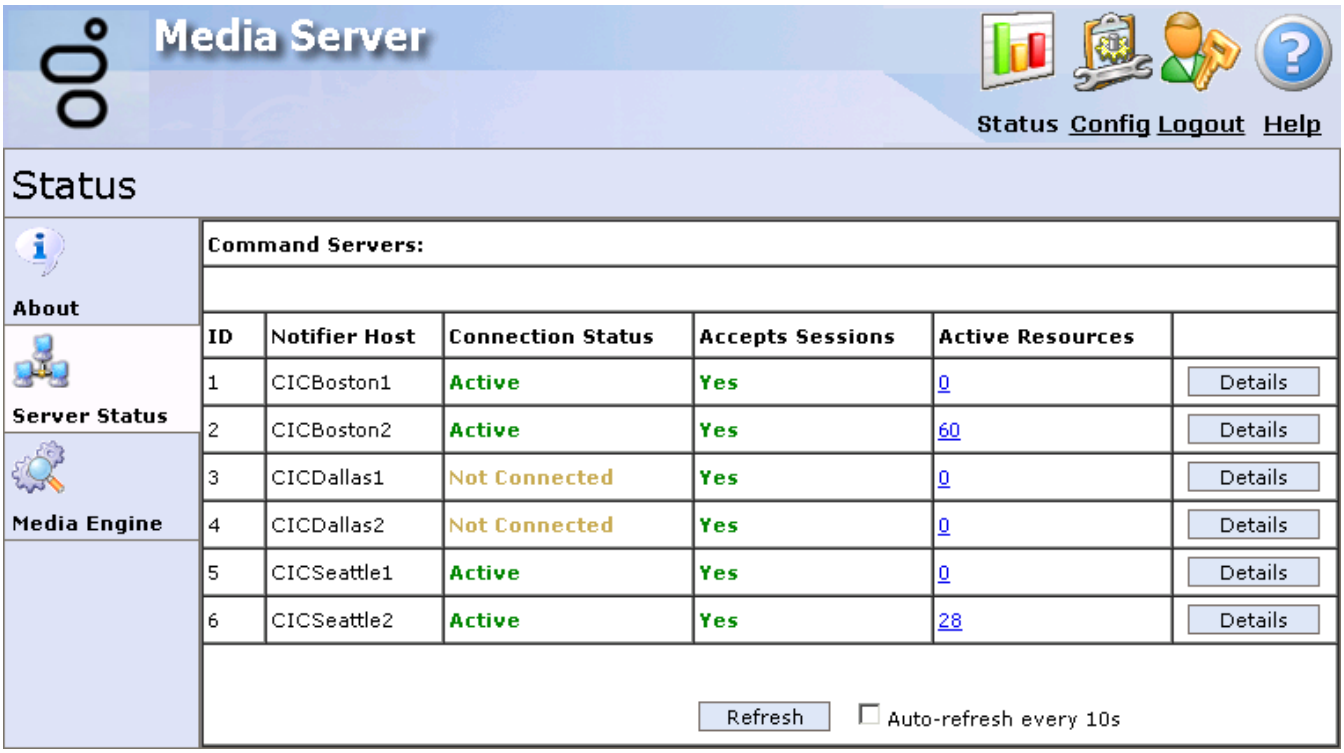
The **About** page lists the current statistics for Interaction Media Server.

Machine Name	Windows name of the computer that is hosting Interaction Media Server.
Machine Uptime	Length of time since Interaction Media Server started.
Local IP Address	IP address of Interaction Media Server.
License Type	Form of license applied to Interaction Media Server.
Product Version	Version number of the Interaction Media Server software.
File Version	Internal build version for the Interaction Media Server files.
Special Build Description	Internal build process identifier that generated the files for Interaction Media Server.
Hotfix	Latest patch applied to this Interaction Media Server.

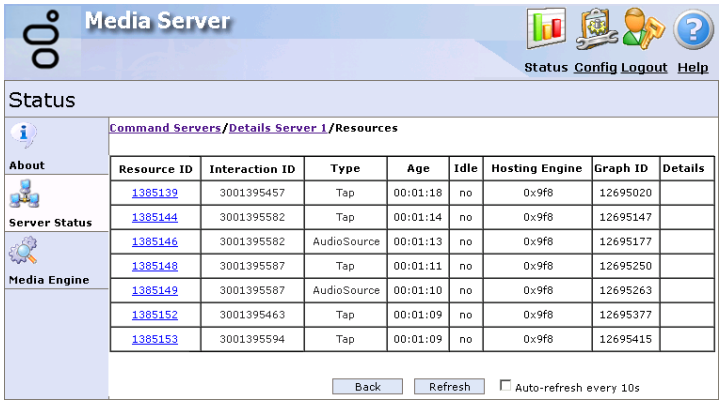
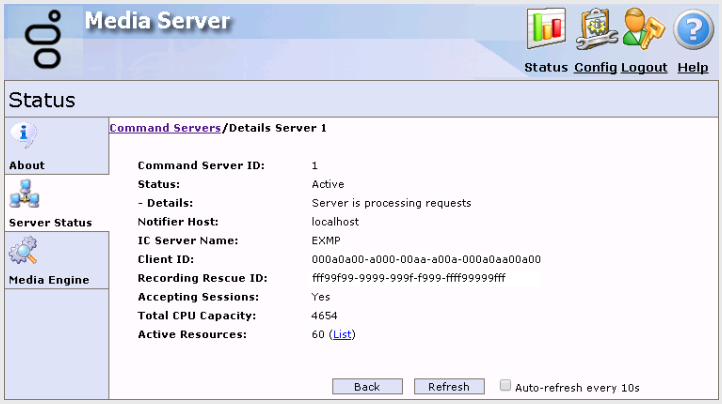
Interaction Media Server Status-Server Status Page

The **Server Status** page lists all CIC servers—also known as command servers—that this Interaction Media Server serves. This page

also displays an overview of the connection status and activity of each CIC server. The **Details** button provides more details about each CIC server and its connection.



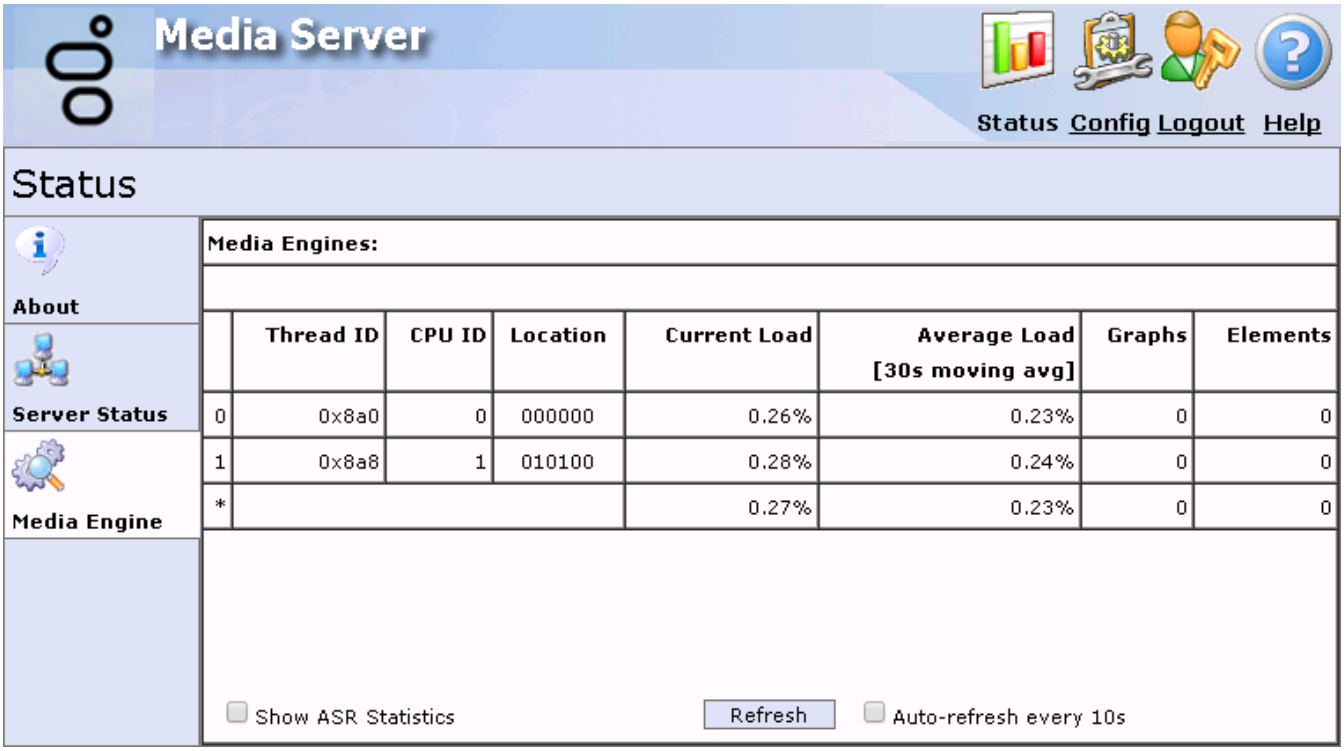
ID	Identifier number for a connection between this Interaction Media Server and a CIC server. The system writes it to trace logs to correlate Notifier connections. **Notifier Host:** CIC server name or IP address in this connection. **Connection Status:** Status of this connection between this Interaction Media Server and the CIC server. Following are the possible values for this column: • **Not Connected** (yellow) - Interaction Media Server is attempting to establish a Notifier connection with the CIC server, but is unable to locate it. In this state, Interaction Media Server attempts to reconnect approximately once every 2 minutes until it is successful. • **Authentication Failure** (red) - Interaction Media Server found the CIC server but failed to establish a Notifier connection. This failure can be due to invalid credentials. This message also displays if you did not configure Interaction Administrator to trust it. • **Notifier Connection Failure** (red) - CIC (Notifier) server is reachable but the logon attempt failed for a reason other than the logon credentials. Point the mouse pointer over the status text to display a tooltip with more detailed information about the failure. • **Waiting for Client** - CIC server connection establishes successfully and Interaction Media Server is waiting for the client (Telephony Services on the CIC server) to start. • **Active** (green) - Interaction Media Server has established a Notifier connection with the CIC server and has successfully logged on to Telephony Services.
Accepts Sessions	Indicates whether Interaction Media Server is ready to accept sessions from the CIC server. For a connection, the following conditions must be true: • Interaction Media Server connects successfully to the CIC server. • Interaction Media Server has a loaded and valid license. • Interaction Media Server accepts sessions from the CIC server.

Active Resources	Number of Interaction Media Server resources hosted currently on behalf of the associated CIC server. Select the **Active Resources** numeric hyperlink to display a table that lists each active resource that is associated with that CIC server. You can see more information by selecting a value from the **Resource ID** column, which displays details about the session using that resource. 
Details	Displays more detailed information about the Interaction Media Server status that is relative to the associated CIC server. 
Auto-refresh every 10s	If selected, reloads the information on this page every 10 seconds.

Interaction Media Server Status-Media Engine Page

The **Media Engine** page displays details about the media engines on Interaction Media Server that are currently active. Typically, there is a media engine for each CPU core on the server.

You can configure the media engines on the **Config** > **Parameters** page.

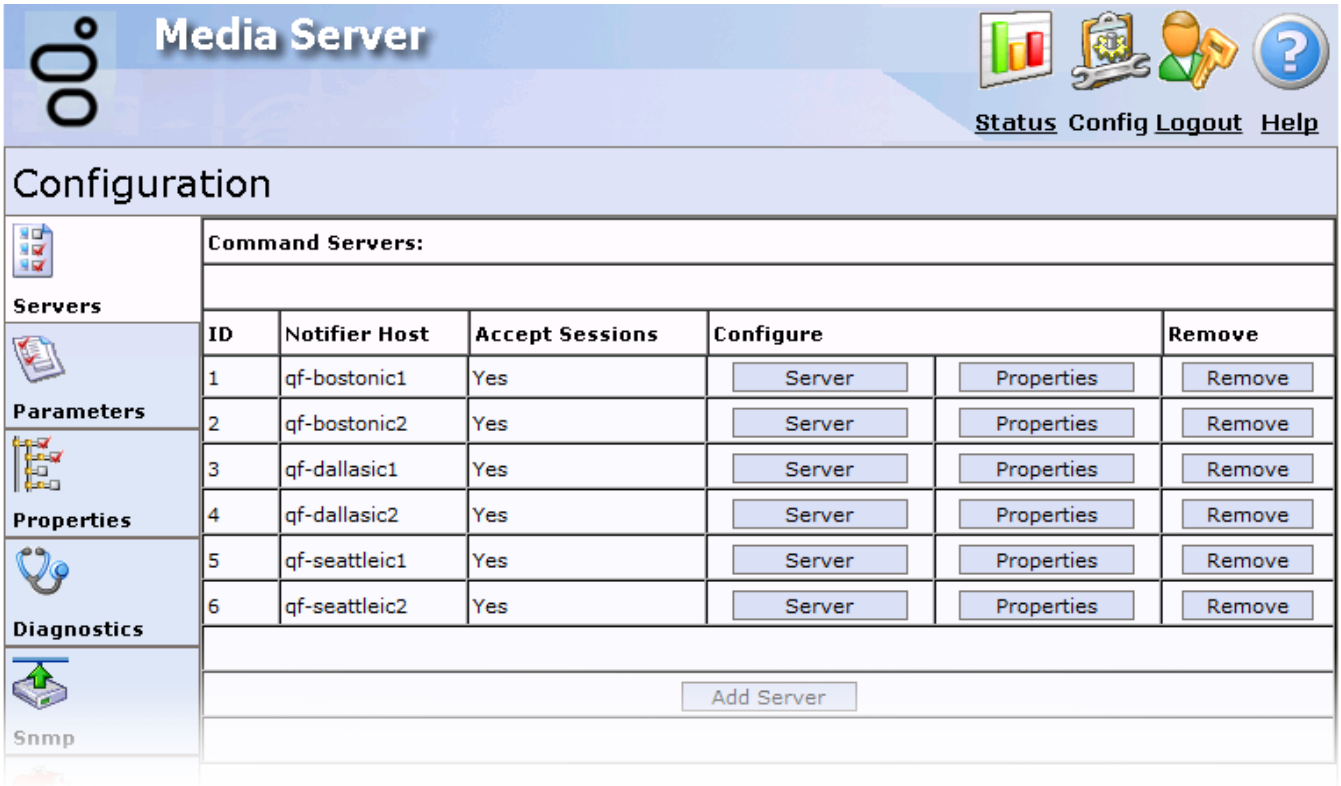


Thread ID	Operating system identifier of the single, high-priority thread currently in use by each CPU (physical and hyper-threaded).
CPU ID	Number of the CPU in use by the associated **Thread ID**.
Locations	Location of the CPU that hosts the media engine.
Current Load	Percentage of CPU that the media engine spent processing audio as opposed to being idle. This value does not mirror the CPU usage that is displayed in **Task Manager** or **Perfmon**. This value could be higher or lower than the CPU usage depending on the features in use on this Interaction Media Server.
Average Load	Moving average of the current load over a 30-second period.
Graphs	Number of audio processing graphs hosted on a specific media engine.
Elements	Number of audio processing elements hosted on a specific media engine.
Refresh	Refresh the data displayed on this page.
Show ASR Statistics	If selected, displays detailed information on ASR processing on this Interaction Media Server. These statistics indicate the resources that this Interaction Media Server is using for ASR activities and can help with diagnostic analyses. **Note:** Speech recognition impacts the resources that Interaction Media Server uses to facilitate interactions. Complex grammars increase this impact.
Maximum ASR Worker Threads	Maximum number of CPU threads dedicated to ASR search operations. The **AsrWorkerThreadsMax** parameter controls this value and it cannot be more than one thread for each logical CPU core.
Current ASR Worker Threads	Current number of CPU threads in the thread pool. This value cannot exceed the value in **Maximum ASR Worker Threads**.

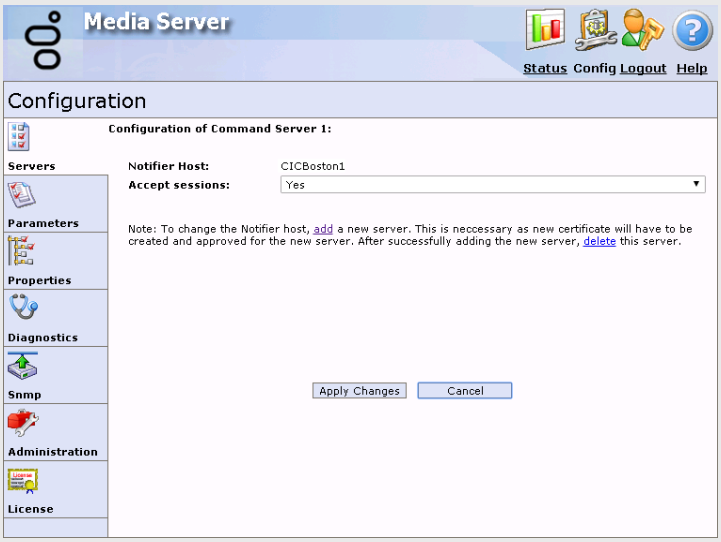
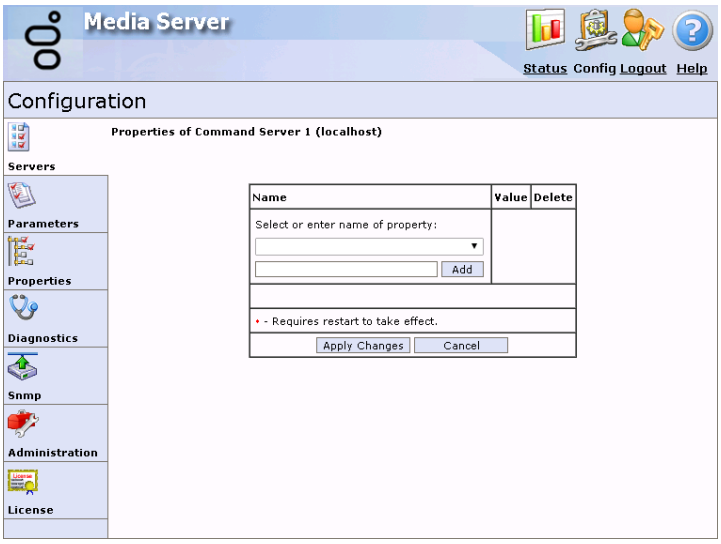
Active Recognition Tasks	Number of current ASR input operations for recognizing and collecting speech.
Active ASR Search Jobs	Number of resources in use for pending and current ASR search operations for collected speech patterns. Each search job represents approximately 0.5 seconds of speech.
Average ASR Search Jobs	Average number of pending ASR search jobs within the last 15 seconds.
Average Work Ratio	Ratio between the average number of ASR search jobs and the maximum number of ASR worker threads. A value of 1 indicates that Interaction Media Server cannot process some ASR search jobs actively and waits for processing resources to become available. If this value consistently remains above the value specified in the **AsrWorkerMaxWorkRatio** parameter, Interaction Media Server rejects new ASR sessions.
Max. Completion Delay	Largest delay in completing any ASR search operations within the last 15 seconds. If this value increases consistently, the system delays ASR operations because sufficient resources are not available.
Average Completion Delay	Average delay in completing ASR search operations within the last 15 seconds.
Min. Search Speed	Approximate complexity of ASR search operations in Interaction Media Server. ASR complexity includes the grammars for speech recognition and the amount of CPU resources that the Interaction Media Server uses to recognize the speech segment. This value can fluctuate significantly as it depends on the grammars and the speech submitted to the ASR system.
Max. Search Speed	Best speed for a completed ASR search operation within the last 15 seconds.
Average Search Speed	Average speed for completed ASR search operations within the last 15 seconds.
Auto-refresh every 10s	If selected, new data displays on this page every 10 seconds. Genesys recommends that you do not leave this check box enabled on a continual basis.

Interaction Media Server Config-Servers Page

The **Servers** page allows you to add and remove CIC server connections for this Interaction Media Server. You can also specify properties that are specific between this Interaction Media Server and the specified CIC server.



ID	Unique identifier number for a connection between Interaction Media Server and a specific CIC server. The system writes this number to trace logs to identify a connection.
Notifier Host	Name or IP address of a CIC (Notifier) server definition to which Interaction Media Server can connect.
Accept Sessions	Indicates whether Interaction Media Server accepts audio processing requests from the associated CIC server. For Interaction Media Server to accept a connection from a CIC server, the following conditions must be true: • Interaction Media Server successfully connected to the associated CIC server. • Interaction Media Server has a valid and loaded license. • You set the Accept Sessions feature to **Yes**. **Tip:** To take an Interaction Media Server out of service for all command servers, select **Deactivate** on the **Config-Administration** page. Interaction Media Server continues to process current media operations until the associated calls have ended.

Server	Displays a page where you can change the **Accept Sessions** feature to either **Yes** or **No**.  When you change the value in the **Accept Sessions** field, click **Apply Changes** to commit this change. Otherwise, to disregard a change, click **Cancel**.
Properties	Displays a page where you can specify properties for this connection between Interaction Media Server and the associated CIC server.  For definitions of the items in the list box, see Interaction Media Server Config-Properties Page.

Interaction Media Server Config-Parameters Page

The **Parameters** page allows you to configure specific aspects of Interaction Media Server.

Important!
Change these parameters only when PureConnect Customer Care instructs you to do so. Arbitrary changes to these parameters can lead to poor performance or problems that are difficult to diagnose.

Note:
In the web interface, a red asterisk next to a parameter name indicates that you must restart Interaction Media Server for any change to take effect.

Media Server

Status Config Logout Help

Configuration

Servers

Parameters

Properties

Diagnostics

Snmp

Administration

License

Name	Value
ASR Worker Max. Work Ratio •	1.5
ASR Worker Thread Priority •	BelowNormal
ASR Worker Max. Threads •	-1
Media Engine CPU Mask •	☑ CPU 0 ☑ CPU 1 ☑ CPU 2 ☑ CPU 3
Media Engine Load Limit	0.8
Media Engine Selection Algorithm	Dynamic
Media Engine Thread Priority •	TimeCritical
Media Engine UDP Sender Loopback	ForceForLocalAddresses
CreateMemoryDumpOnEngineFault	Full
Directory for Cache of HTTP Client	D:\I3\IC\ininmediaserver_http_cache\
Http Trace Log Access	Disabled
Allow Hyper Threaded Media Engines •	true
Max. Concurrently Active Diagnostic Captures	32
Max Number of Media Engines (0: one per CPU) •	0
Min Scheduler Latency [ms] •	4
Process Priority Class •	AboveNormal
Recording Retrieval HTTP Capacity •	100
Recording Retrieval HTTP Interface •	Any
Recording Retrieval HTTP Port •	8102
Recording Retrieval Thread Priority •	BelowNormal
Recording Retrieval Use Mutual Authentication	false
Recording Retrieval HTTPS Required	false

• - Requires restart to take effect.

Apply Changes Cancel

ASR Worker Max. Work Ratio	Threshold that represents the number of ASR search operations compared with the maximum number of ASR worker threads. A value greater than 1.0 indicates that there are more search operations than the ASR worker threads can process, which results in delays of speech recognition tasks. If the ratio remains above this value, Interaction Media Server rejects new ASR processes until the ratio falls below the value.
ASR Worker Thread Priority	Controls how the CPUs process ASR tasks as compared with other processes on the Windows Server. **Important!** ASR tasks do not require the same level of processing as other processes, such as those involved in conversations and recordings. Genesys recommends that you use the **BelowNormal** setting unless PureConnect Customer Care instructs you to do so.
ASR Worker Max. Threads	Controls the maximum number of threads that Interaction Media Server can use to process ASR operations. A value of **-1** indicates that this Interaction Media Server uses one thread per available CPU core to process ASR operations. This value also limits the minimum number of threads across all CPU resources to process ASR operations to two. There is no maximum value for this parameter, which enables you to create more threads than there are CPU resources. Genesys strongly recommends that you do not create more threads to process ASR than there are CPU resources in the computer. If you require more resources for other media tasks, such as recording, transcoding, or speech analytics, specify a lower number than the number of enabled CPU resources so that those time-sensitive operations receive prioritization for CPU resources over ASR operations.
CreateMemoryDumpOnEngineFault	Controls if and what type of memory dump that Interaction Media Server creates if there is a terminating error for one of the media engines. Following are the values for this parameter: • **Default** • **Disabled** • **Full (default)** • **Mini** **Important!** Genesys recommends that you use the **Full** value for the **CreateMemoryDumpOnEngineFault** parameter. If a media engine terminates unexpectedly, the **Full** value provides the most information for Genesys to determine the cause.
Media Engine CPU Mask	Allows you to specify which CPUs can host media engines. By default, the system enables all CPUs.
Media Engine Load Limit	The system creates media engine sessions only when the current and average loads are below the stated value. The default value for this field is **0.8**. Valid values are **0.1** to **1.0**. This value equates to the percentage of time that the media engines are not idle. It is a measure of the load in relation to the capacity of Interaction Media Server. **Important!** Genesys recommends that you do not change the setting for this server parameter unless PureConnect Customer Care instructs you to do so.

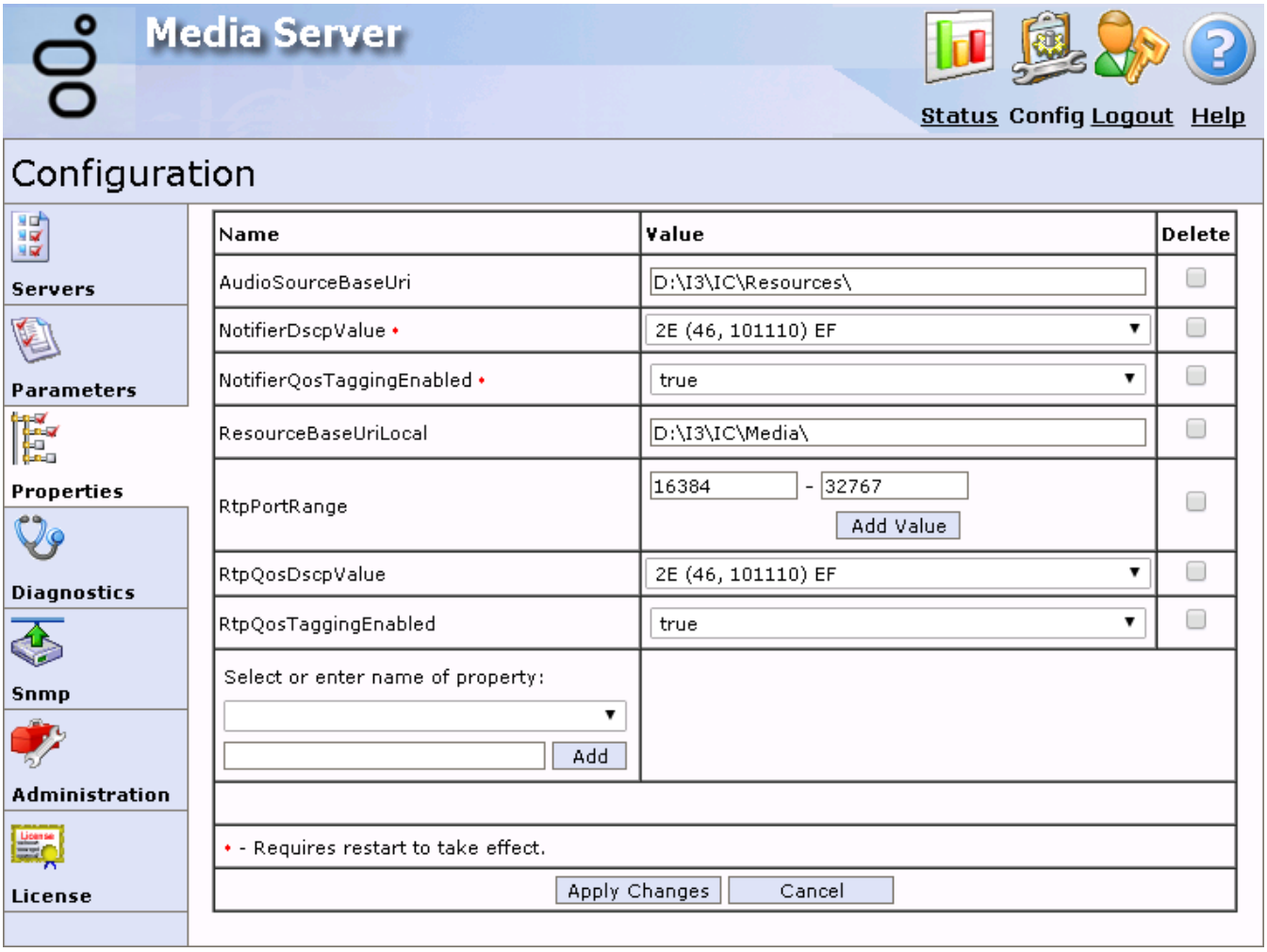
Media Engine Selection Algorithm	Method for selecting media engines for processing audio operations, including conferencing. Following are the values for this list box: • **FewestElements** - If you have less than eight logical CPU cores in your Interaction Media Server computer, use this setting. • **Load Weighted Stochastic** - If you have eight or more logical CPU cores in your Interaction Media Server computer, use this setting. **Important!** Genesys recommends that you do not change the setting for this server parameter unless PureConnect Customer Care instructs you to do so.
Media Engine Thread Priority	Priority of the media engine threads. The default value is **TimeCritical**. **Important!** Genesys recommends that you do not change the setting for this server parameter unless PureConnect Customer Care instructs you to do so.
Media Engine UDP Sender Loopback	Indicates whether local loopback between resources uses the network adapter or a more efficient dedicated messaging mechanism. Typically, you set the value for this parameter to **ForceForLocalAddresses**, which is the default setting, unless PureConnect Customer Care instructs you to change it. **Important!** Set this parameter to the **AdaptiveForLocalAddresses** value when this server also hosts Interaction SIP Proxy with the Media Recording feature enabled.
Directory for Cache of HTTP Client	Local directory on Interaction Media Server where prompts or voice mail cache after playing from their original location on the CIC server. The default drive is based on the drive specified during the installation process. This directory caches many unique files (`.wav` or `.au`) and must have at least 5 gigabytes of free disk space available. If you configure Interaction Media Server to store prompts, voice mail, and trace logs on the same drive, the system requires a minimum of 150 gigabytes of free storage space. The system can require More or less space based on the volume of calls in your system and the level of tracing data in the log files. Also, determine the location of recordings and adjust the path to match it. **Note:** To avoid a performance problem, if your system uses antivirus software, exclude this cache directory from scanning when Interaction Media Server reads these files.
Http Trace Log Access	Indicates whether you can retrieve trace logs through an HTTP connection. The trace logs involve certificates and the movement of diagnostic recordings. The default value for this parameter is **Disabled**. **Note:** If you enabled the **Fetch Diagnostic Recordings from Media Server** feature on the CIC server in Interaction Administrator, set this parameter value to **AnyConnection**.
Allow Hyper Threaded Media Engines	Indicates whether media engines can share a physical core that already has one or more hyper-threaded logical CPUs. If you set this value to **False**, the system limits each core to one media engine for each CPU and can lead reduced performance.
Max Concurrently Active Diagnostic Captures	Interaction Media Server can create capture files of all RTP, RTCP, and UDPTL packets that a specific resource processes. These files are useful for diagnosing network and audio problems. This parameter controls the maximum number of concurrent diagnostic capture files created to avoid excessive load on Interaction Media Server. The default value is **32**.

Max Number of Media Engines	Maximum number of media engines that Interaction Media Server can create, even if there are more CPU resources available. Interaction Media Server never creates more media engines than the number of CPU cores available, regardless of the value of this parameter. The default value for this field is **0**, which specifies that each CPU core has one media engine.
Min Scheduler Latency [ms]	The default value is **4**. **Important!** Do not modify this parameter unless PureConnect Customer Care instructs you to do so.
Process Priority Class	Priority of the main Interaction Media Server process. The default value is **AboveNormal**.
Recording Retrieval HTTP Capacity	Maximum number of concurrent recording retrieval requests served on Interaction Media Server. The default value is **100**.
Recording Retrieval HTTP Interface	Network interface on which Interaction Media Server listens for CIC servers to retrieve recordings. This parameter defaults to **Any**, which causes Interaction Media Server to accept connections from HTTP clients (CIC servers) on any of the network interfaces. To restrict recording retrieval, select another named network connection. If you set this parameter to a value other than **Any**, and multiple network interfaces in the system share the fully qualified domain name, set the **RecordingAuthorityFormat** property to **IPAddress**. Otherwise, CIC servers can connect to the incorrect interface and fail to retrieve recordings.
Recording Retrieval HTTP Port	Computer port that the HTTP recording retrieval process monitors for requests. The default port is 8102.
Recording Retrieval Thread Priority	Priority of the HTTP Recording Retrieval thread on Interaction Media Server. Set this parameter to **Below Normal** unless PureConnect Customer Care instructs you to do so.
Recording Retrieval Use Mutual Authentication	Indicates whether any remote connection that attempts to retrieve recordings from Interaction Media Server must exchange certificates with Interaction Media Server before downloading the recordings. The default value for this parameter is **false**.
Recording Retrieval HTTPS Required	Indicates whether CIC or any remote connection must use the HTTPS protocol to retrieve recordings. The default value for this parameter is **false**.
Apply Changes	Saves your changes on this page.
Cancel	Disregards your changes on this page and returns to the **Configuration-Servers** page.

Interaction Media Server Config-Properties Page

The **Properties** page enables you to configure settings for this Interaction Media Server and its connections to one or more CIC servers. Interaction Media Server properties are name-value pairs that control Interaction Media Server operations. To add a property, select it from the **Select or enter name of property** list box. After you have added one or more properties, select **Apply Changes** to save this configuration.

Note:
A red asterisk next to a property name in the web interface indicates that changes to the associated value require you to restart Interaction Media Server for those changes to take effect.



AnalyzerDiagnosticRecording	Indicates whether Interaction Media Server can make diagnostic recordings through any form of analysis, such as by Interaction Analyzer or through call analysis on this Interaction Media Server. The default value for this parameter is **false**. **Important!** Set this property to **true** only if PureConnect Customer Care instructs you to do so. **Tip:** The preferred method of enabling diagnostic recordings is through the **Telephony Parameters** interface in Interaction Administrator.

AsrDiagnosticRecording	Indicates whether Interaction Media Server can create diagnostic recordings for ASR input echo cancellation. Set this property to **true** only when you detect echo in the diagnostic recordings that the **RecognizerDiagnosticRecording** property creates (in the case of Interaction Speech Recognition) or the **ASRDebugWav** property (in the case of a third-party ASR server). **Caution!** Diagnostic recordings for Interaction Speech Recognition that Interaction Media Server creates while this property is enabled consist of three recordings for each session. Because of the number and size of files created for these diagnostic recordings, do not leave this property enabled for an extended period as it could exhaust local storage space. Also, the amount of processing resources that Interaction Media Server uses when you set this property to **true** significantly impacts performance. Genesys recommends that you enable this property only when call volume and CPU usage are low for this Interaction Media Server. Do not enable this property unless PureConnect Customer Care instructs you to do so.
AudioSourceBaseUri	Set the local path on Interaction Media Server to the directory that contains all audio `.WAV` files used for ring back, music on hold, and in-queue audio. Ensure that the path ends with a backslash (`\`). The default value is `C:\ProgramFiles\InteractiveIntelligence\Resources\`. **Note:** This property is for backward compatibility with CIC 3.0. It has no effect when you use Interaction Media Server in a CIC of the same version.
AudioSourceFallbackUri	Name of the specific `.WAV` file name that Interaction Media Server uses when it cannot find any of the primary audio files specified in Interaction Administrator. Interaction Media Server uses this `.WAV` file as a fallback regardless of which `.WAV` file fails, such as for ring back, in-queue audio, and music on hold. The default value is **SystemDefaultAudioOnHold.wav.** **Note:** This property is for backward compatibility with CIC 3.0. It has no effect when you use Interaction Media Server in a CIC of the same version.
EnableCallRecovery	To keep audio sources alive when it loses the Notifier connection to the CIC server, add this property and set the value to **true**.
MaxResourceIdle	If an Interaction Media Server resource does not receive audio for more than the specified number of seconds, the system flags the RTP stream as idle. This value is approximate as Interaction Media Server polls for idle calls every 30 seconds. The minimum value is **15**. **Notes:** • To disable disconnection of calls when Interaction Media Server does not receive any RTP packets for the specified period, use Interaction Administrator to set the **Broken RTP Disconnect Time** TS server parameter to **0** (zero). • By default, CIC disconnects a call when both endpoints are in the *idle* state (no RTP packets). If you want CIC to disconnect calls where only one endpoint has entered the idle state, use Interaction Administrator to set the **TreatEndpointIdleAsFullIdle** TS server parameter to **on**.

NotifierDscpValue	If you set the **NotifierQosTaggingEngabled** property to **True**, this parameter changes the DSCP value of the QoS tags on Notifer network traffic. **Note:** If you change this property, restart Interaction Media Server for this change to take effect. **Important!** You cannot override this value by specifying it through Interaction Administrator or the **Command Servers** web interface of Interaction Media Server.
NotifierQosTaggingEnabled	To specify the DSCP value of QoS tags in network traffic, set this property to **True**. **Note:** If you change this property, restart Interaction Media Server for this change to take effect. **Important!** You cannot override this value by specifying it in Interaction Administrator or the **Command Servers** web interface of Interaction Media Server.
RecognizerDiagnosticRecording	This property causes Interaction Media Server to create both `.WAV` and `.XML` files containing audio data along with the corresponding events for diagnostic recordings on all Interaction Media Servers connected to the CIC server. The CIC server fetches and moves those files from Interaction Media Server to the CIC server's media storage location. You can only set this property through the **ASR Engine Configuration** dialog box in Interaction Administrator. You can send these diagnostic recordings to PureConnect Customer Care for analysis to resolve issues. **Important!** If Interaction Media Server connects to CIC through WAN or other network connections with reduced bandwidth, Genesys recommends that you do not set this property in Interaction Administrator as the transfer of files could impact network connections that are servicing calls and could result in audio issues. **Caution!** If you enable this property in Interaction Administrator, ensure that you have sufficient free storage space on the CIC server as the system creates Interaction Speech Recognition diagnostic recordings on all Interaction Media Servers and moves them to the CIC server.
RecognizerDiagnosticRecording	This property causes Interaction Media Server to create diagnostic recordings as `.wav` files for each interaction. These files are only available on Interaction Media Server—the CIC server does not fetch them. You can only set this property through the Interaction Media Server web interface. If you are experiencing audio issues with Interaction Speech Recognition, select this property in the list box, set the value to **true**, and click **Apply** at the bottom of the page.

RecordingAuthorityFormat	This property specifies how Interaction Media Server defines its server address in an HTTP URL when CIC attempts to download recordings. For example, http://<server>:<port>. This property supports the following formats: • **FQDN** - Fully qualified domain name, such as myserver.com • **IPAddress** - The IPv4 address of the server, such as 123.123.123.123 • **HostName** - The name of the server, such as mediaserver1 • **Custom** - A custom authority as specified in the **RecordingCustomAuthority** property • **IPv6Address** - The IPv6 address of the server (reserved for future use) **Caution!** Do not use the **IPv6Address** value as it is a precursor of a future feature and could cause communication problems between different systems in your CIC environment.
RecordingCustomAuthority	If you set the **RecordingAuthorityFormat** property to **Custom**, this property specifies the text (server address) that Interaction Media Server sends to CIC.
RecordingMimeTypeDefault	Audio codec to associate with a recording when you configured Interaction Recorder to use **None** as its compression format or when custom handlers override a recording and do not specify a **Mime Type** parameter. The system supports the following values: • **audio/G726-32** - ADPCM 32-bit encoding; use this codec with VPIM-based messaging systems • **audio/GSM** - Compressed with GSM FR 06.10 fixed-rate codec • **audio/L16** - Linear 16-bit PCM • **audio/opus** - Opus: dynamically adjustable bitrate, audio bandwidth, and frame size • **audio/PCMA** - G.711 A-Law • **audio/PCMU** - G.711 µ-Law • **audio/x-truespeech** - The TrueSpeech codec Typically, you specify the audio codec for the recordings on Interaction Media Server in **Interaction Recorder** > **Configuration** > **Recording Processing** or **System Configuration** > **Mail** > **Configuration** > **Prefixes and Voice Mail** in Interaction Administrator.
ResourceBaseUriLocal	Local path where Interaction Media Server stores recording files as it records them. The default value is `<drive:>\<install_dir>\Media`.
RtcpQosDscpValue	If you set the **RtcpQosTaggingEnabled** property to **true**, this property specifies the DSCP value to tag to each RTCP packet for Quality of Service (QoS). The associated list box presents the possible values for this property as hexadecimal, decimal, binary, and per-hop-behavior (PHB) values. The default value is **46** (decimal). **Important!** If you set this property value in Interaction Administrator, only use decimal notation.
RtcpQosTaggingEnabled	To specify the DSCP value to tag to each RTCP packet for Quality of Service (QoS), set this property to **true**. If you do not define this property, the system tags RTCP packets in the same manner as RTP packets. If you set this property to **false**, the system disables DSCP tagging.
RtpAddressLocal	If your Interaction Media Server has multiple Network Interface Cards (NICs), use this property to specify the IP address that it uses for RTP audio processing. If you are using DHCP for IP address assignments, you can specify the beginning address for a range when used with the **RtpAddressLocalMask** property. For example, if you use IPv4, specify 172.123.0.0 for this property, and 255.255.0.0 for the **RtpAddressLocalMask** property, you can assign an address to the NIC in the range from 172.123.0.0 to 172.123.255.255. **Note:** If the value for this parameter is blank, Interaction Media Server sends RTP packets through only the first NIC configured to reach the destination IP address in the Windows Server routing table.

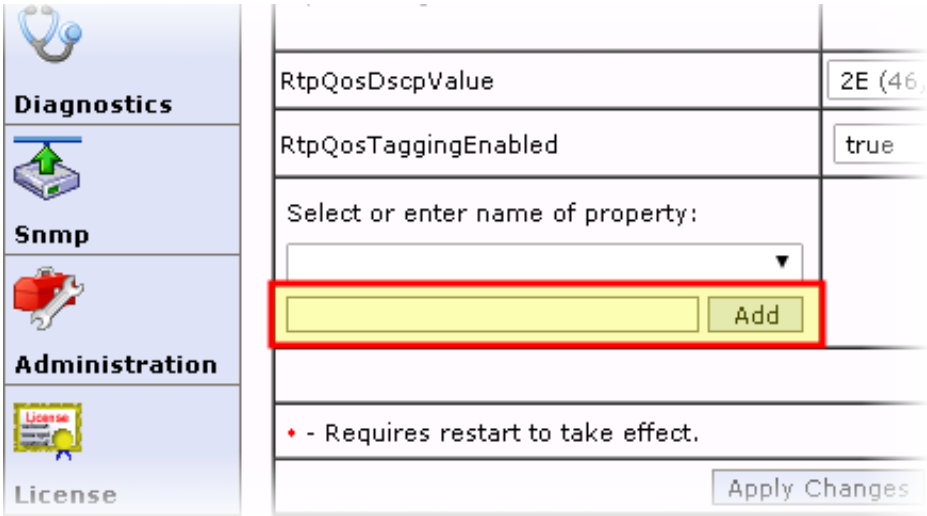
RtpAddressLocalMask	Subnet mask for the IP address that you specified in the **RtpAddressLocal** property. This value is advantageous if you use DHCP to assign IP addresses and you want Interaction Media Server to use a specific range of addresses. **Note:** If the host computer has multiple network interface cards (NICs), Interaction Media Server balances RTP network communications by randomly selecting a socket from a NIC that matches an IP address within the **RtpAddressLocal** and **RtpAddressLocalMask** values.
RtpAddressLocalType	Versions of Internet Protocol (IP) that this system uses for Real-time Transport Protocol (RTP) communications. Specify a value from the following list: • **IP4** - This value indicates that Interaction Media Server supports only IPv4 addresses. • **IP6** - This value indicates that Interaction Media Server supports only IPv6 addresses. • **IP4IP6** - This value indicates that Interaction Media Server uses both IPv4 and IPv6 addresses. **Note:** For the **IP4IP6** value, Interaction Media Server must supply acceptable IPv4 and IPv6 addresses or the system places it on probation. For more information about probation, see Probation status in Windows Event Log. • **All** - This value indicates that Interaction Media Server supports an IPv4 address, an IPv6 address, or both addresses, depending on which protocols you have installed currently and are available on this host server.
RtpDiagnosticCaptureCipherSuite	Encryption type that Interaction Media Server uses for diagnostic capture files. The following list presents the possible values: • AES128_HMACSHA1 • AES256_HMACSHA1 • NULL_HMACSHA1 • NULL_NULL (default) The diagnostic capture files that Interaction Media Server creates contain RTP packets along with metadata about the audio streams. This metadata aids in the analysis of the call and reconstructing the audio stream. The first part of the cipher suite specifies the encryption algorithm and key strength. The second part of the algorithm specifies the authentication method. The **NULL** value indicates that the system does not use encryption or authentication. **Important!** If you enable the Secure Input feature on the CIC server, any diagnostic captures on Interaction Media Server do not use this property to determine the encryption algorithm. Instead, The Secure Input feature uses the AES256_HMACSHA1 encryption algorithm to encrypt and authenticate the DTMF digits in the diagnostic capture.

RtpDiagnosticCaptureEnabled	When you set this property to **true**, Interaction Media Server logs all RTP and RTCP packets, both sent and received, in a diagnostic capture file with extra metadata. This feature enables PureConnect Customer Care to reconstruct and analyze the audio. The **Max Concurrently Active Diagnostic Captures** parameter sets the maximum number of concurrent diagnostic captures that Interaction Media Server can run. Interaction Media Server stores each diagnostic capture file in the log directory of the current day, as shown in the following format: `<number called>_<resource ID>_<random digits>.hpaacap` **Important!** If you enable this property, the system writes a large amount of data to the hard drive; 40 KB for each call for each second with the G.711 codec. If you enable encryption and authentication, there is an extra load on the CPU. Because of these conditions, enable diagnostic captures only when needed, or when PureConnect Customer Care instructs you to do so. **Note:** If you do not enable the Secure Input feature on the CIC server, you can encrypt and authenticate these capture files by specifying a value for the **RtpDiagnosticCaptureCipherSuite** property. **Important!** If you enable the Secure Input feature on the CIC server, Interaction Media Server does not record diagnostic captures unless you specify a log encryption key in the **Trace Log Encryption Key for Secure Input Mode** page of the **Diagnostics** section of the web interface.
RtpPortRange	Range of ports that Interaction Media Server uses for receiving RTP communications. The default value of 16384-32767 accommodates most installations. Genesys recommends a range that does not conflict with any other applications on the network. For example, some antivirus programs block certain ports, so be sure to change this property value to avoid conflicts. Specify a port range large enough to support the maximum number of sessions on Interaction Media Server. Each recording session uses four ports—two for RTP and two reserved for RTCP. For example, a port range of 20000-40000 supports a maximum of 5000 simultaneous sessions. You can add multiple ranges of ports by selecting **Add Value**.
RtpQosDscpValue	If you set the **RtpQosTaggingEnabled** property to **true**, this property specifies the DSCP value to tag to each RTP packet for Quality of Service (QoS). The associated list box presents the possible values for this property as hexadecimal, decimal, binary, and per-hop-behavior (PHB) values. The default value is **46** (decimal). **Note:** In Interaction Administrator, add values for this property only in decimal notation.
RtpQosTaggingEnabled	To specify the DSCP value to tag to each RTP packet for Quality of Service (QoS), set this property to **true**. If you set this property to **false**, the system disables DSCP tagging.
SecureInputModeEnabled	If your CIC license includes the Secure Input feature and you enable the feature in the **Server Configuration** dialog box in Interaction Administrator, CIC automatically sets the value for this property to **true** when it connects to this Interaction Media Server. As each Customer Interaction Center server sets this property according to its Secure Input feature settings, changes to this property value do not affect the functionality of the Secure Input feature.
UdptlAddressLocal	Use this optional property to specify the UDPTL (T.38 or T.30 fax) socket in the same way that the **RtpAddressLocal** property specifies the network interface for communications containing RTP packets.
UdptlAddressLocalMask	Use this optional property to specify the UDPTL (T.38 or T.30 fax) socket in the same way that the **RtpAddressLocalMask** property specifies the network interface for communications containing RTP packets.

UdptlAddressLocalType	Use this property to specify the versions of Internet Protocol (IP) that this system uses for UDPTL (T.38 or T.30 fax) communications. Specify a value from the following list: • **IP4** - This value indicates that Interaction Media Server supports only IPv4 addresses. • **IP6** - This value indicates that Interaction Media Server supports only IPv6 addresses. • **IP4IP6** - This value indicates that Interaction Media Server uses both IPv4 and IPv6 addresses. **Note:** For the **IP4IP6** value, Interaction Media Server must supply acceptable IPv4 and IPv6 addresses or the system places it on probation. For more information about probation, see Probation status in Windows Event Log. • **All** - This value indicates that Interaction Media Server supports an IPv4 address, an IPv6 address, or both addresses, depending on which protocols you have installed currently and are available on this host server.
UdptlPortRange	Use this optional property to specify the UDPTL (T.38 or T.30 fax) socket in the same way that **RtpPortRange** configures voice ports.
UdptlQosDscpValue	Use this property to specify the UDPTL (T.38 or T.30 fax) socket in the same way that **RtpQosTaggingEnabled** configures voice ports. If you do not define this property, UDPTL traffic follows the same QoS tagging rules configured for RTP traffic.
UdptlQosTaggingEnabled	Use this property to specify the UDPTL (T.38 or T.30 fax) socket in the same way that **RtpQosDscpValue** configures voice ports. If you do not define this property, UDPTL traffic follows the same QoS tagging rules configured for RTP traffic.

Add Custom Properties to Interaction Media Server

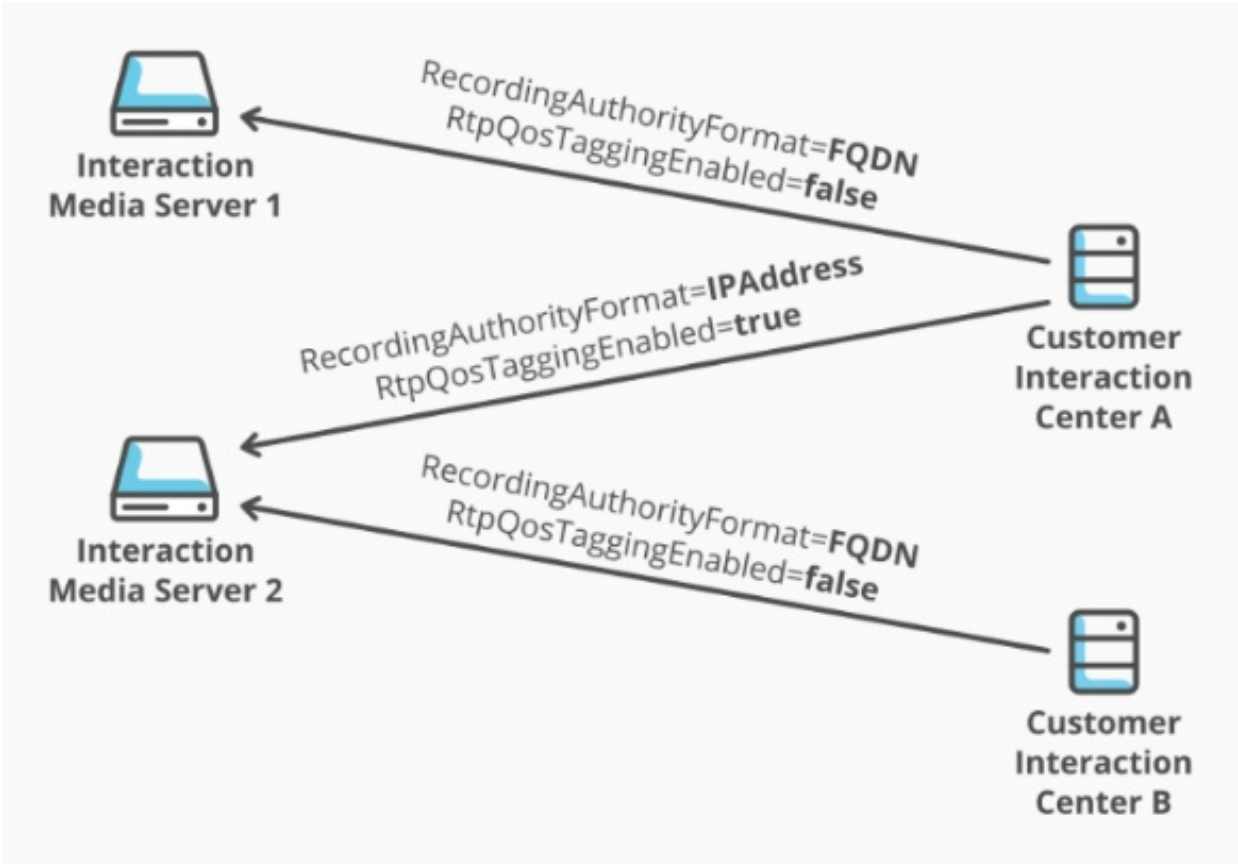
Depending on your configuration or network environment, PureConnect Customer Care may direct you to add a custom property. To add a custom property, use the unlabeled box as shown in the following image:



For more information about this page, see Interaction Media Server Config-Properties Page.

Property Override Hierarchy for Interaction Media Server

If you have multiple CIC servers, you can configure each CIC server to use specific values for the properties of a single Interaction Media Server when it processes audio communications. You can also specify that a CIC server uses a specific property value for all Interaction Media Servers, regardless of the value that the Interaction Media Server uses by default.

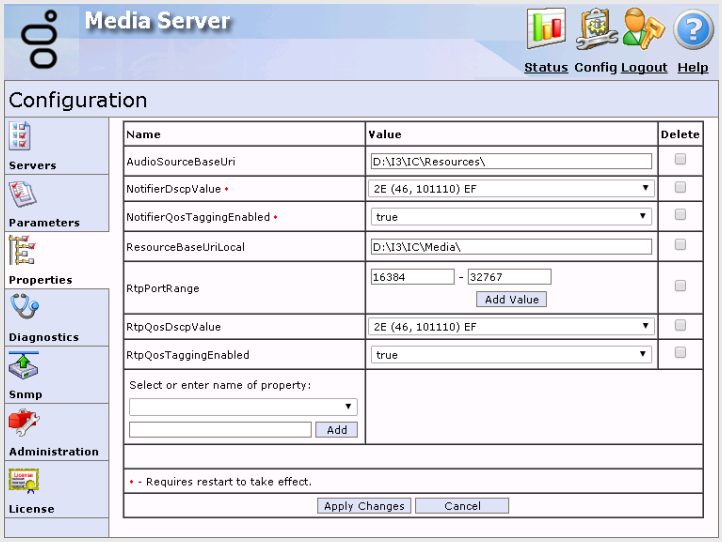
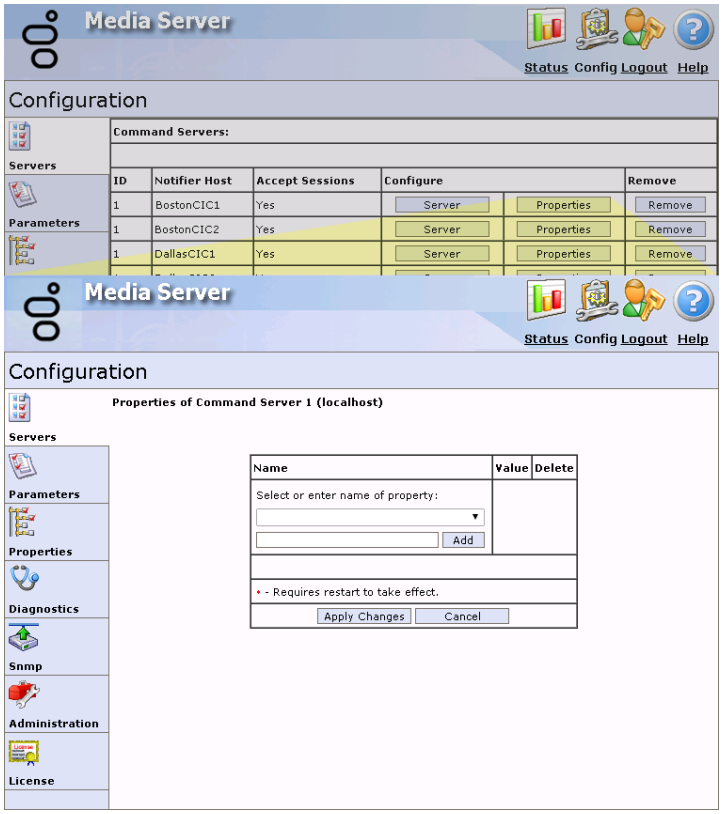


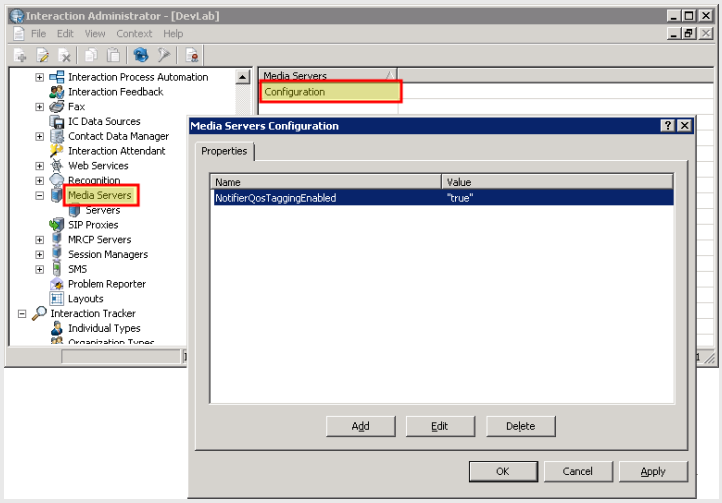
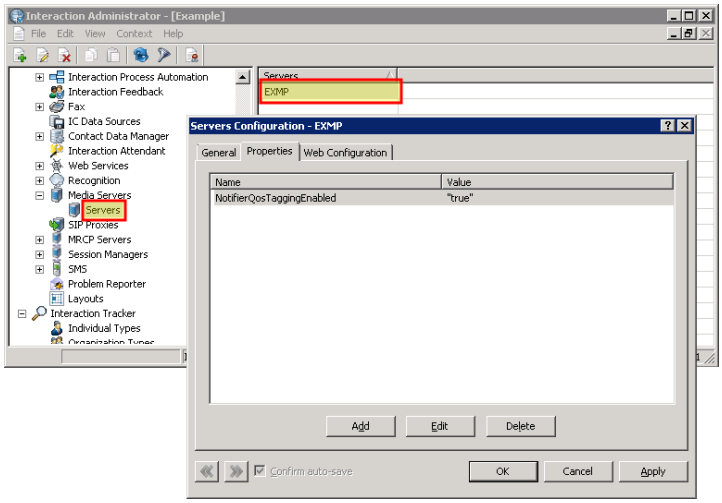
Interaction Media Server property override hierarchy

Interaction Media Server provides for this special requirement through a hierarchy of overriding values for Interaction Media Server properties. You can define Interaction Media Server properties in two interfaces: the Interaction Media Server web interface and Interaction Administrator. Both the Interaction Media Server web interface and Interaction Administrator support two values: Global and server-specific. Any property values that you define in Interaction Administrator override the property values you define in the Interaction Media Server web interface.

The following table contains the different levels in the Interaction Media Server property override hierarchy, the interfaces in which you define the property-value combinations, and descriptions of the resulting behavior.

Override priority	Application and interface	Description

Lowest	Interaction Media Server web interface **Config** > **Properties**	 Property values that you specify in other interfaces override the value that you specify in this interface. Interaction Media Server uses this property-value combination when it processes audio for interactions from *any* CIC server.
Low	Interaction Media Server web interface **Config** > **Servers** > **Properties**	 This Interaction Media Server property definition overrides the property defined in the **Config**- **Properties** page of the Interaction Media Server web interface. Interaction Media Server uses this property-value combination when it processes audio for interactions from *this specific* CIC server.

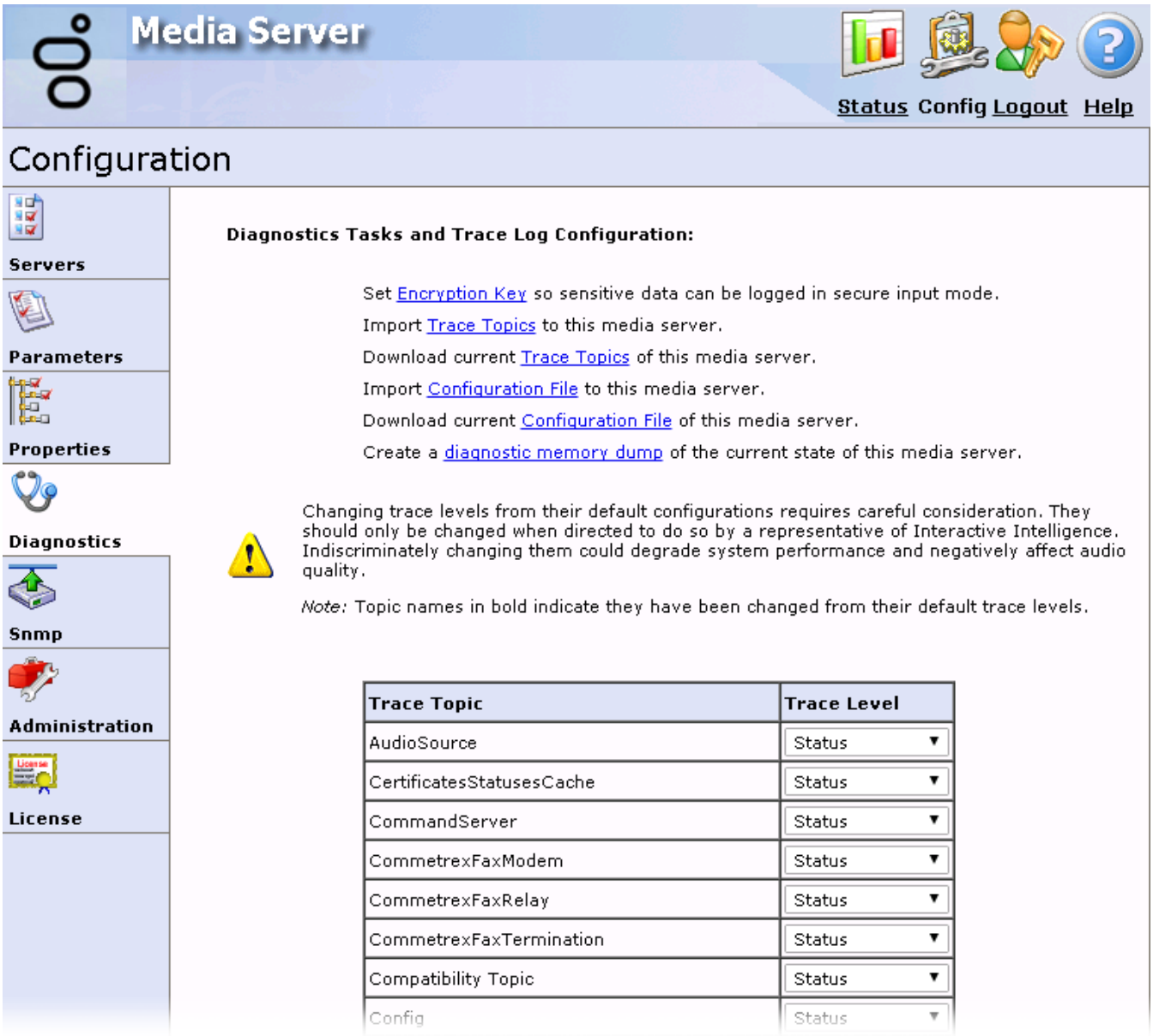
High	Interaction Administrator **MediaServer> Configuration**	 This Interaction Media Server property definition overrides all properties defined through the Interaction Media Server web interface. CIC assigns this property-value combination to *any* Interaction Media Server when CIC uses it to process audio for its interactions.
Highest	Interaction Administrator **MediaServers>** *servername* > **Configuration**	 This Interaction Media Server property definition overrides all other Interaction Media Server property definitions. CIC assigns this property-value combination to *this specific* Interaction Media Server when CIC uses it to process audio for its interactions.

Notes:

- If you define property values in one interface, those values are not displayed in the other interfaces. For example, if you define property values in the Interaction Media Server web interface, those properties and values are not displayed in Interaction Administrator. This behavior is a result of the override hierarchy as property values that you set in Interaction Administrator override the values you set in the Interaction Media Server web interface.
- If Interaction Media Server exhibits unexpected behavior while processing the audio for interactions, verify that the property definitions are correct in all four interfaces listed in the previous table.

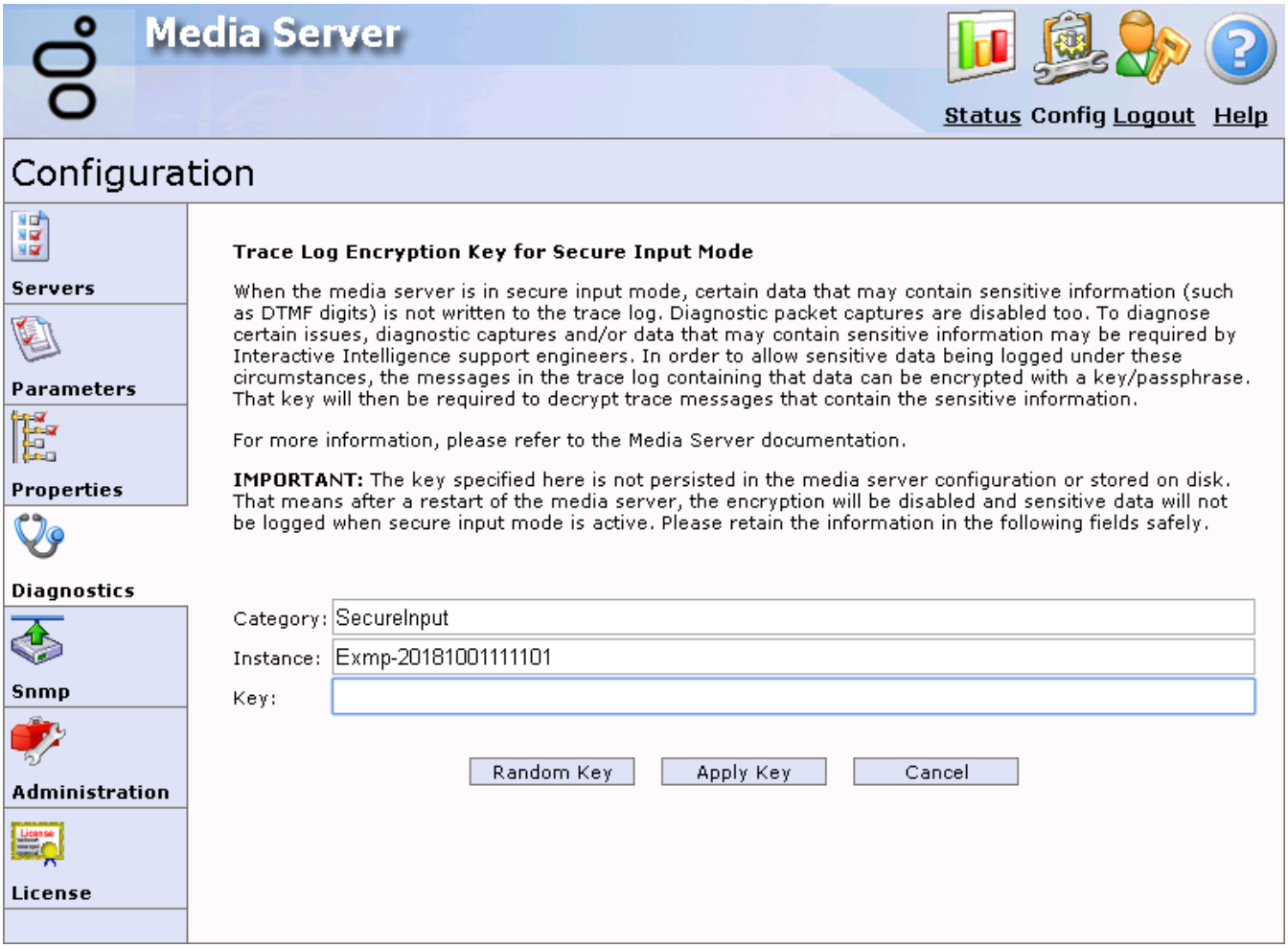
Interaction Media Server Config-Diagnostics Page

The **Diagnostics** page allows you to do administrative configuration tasks and set tracing levels for the different components of Interaction Media Server.



Set encryption key

The **Set Encryption Key so sensitive data can be logged in secure input mode** hyperlink displays a page that allows you to specify a key. Interaction Media Server uses that key to encrypt and decrypt Dual-Tone Multi-Frequency (DTMF) digits in the log file and diagnostic captures. If you do not set this key when you enable the Secure Input feature, Interaction Media Server does not record DTMF digits in the log file or diagnostic captures.



Category	Name of the feature that uses this encryption key.
Instance	Dynamically-generated string consisting of the name of the Interaction Media Server, the domain, and numeric data representing date and time.
Key	Key that the encryption algorithm uses to encrypt DTMF digits in diagnostic captures.
Random Key	Generates an encryption key. The encryption key replaces any key entered in the **Key** box.
Apply Key	Sets the encryption key for DTMF digits in subsequent diagnostic captures.
Cancel	Disregards any changes to the controls on this page and returns to the **Diagnostics** page. **Important!** If you click **Cancel** after clicking **Apply Key**, the system does not remove the encryption key and applies it to DTMF digits in subsequent diagnostic captures. When you set an encryption key for the Secure Input feature on this page, Interaction Media Server does not use the encryption algorithm specified in the **RtpDiagnosticCaptureCipherSuite** property. Instead, Interaction Media Server uses the AES256_HMACSHA1 cipher suite. **Important!** If you restart Interaction Media Server, it discards the entered encryption key and returns to the default behavior of excluding DTMF digits in log files and diagnostic captures.

Import trace topics

The **Import Trace Topics to this media server** hyperlink allows you to import a file that contains trace level settings and apply them to this Interaction Media Server.

Download current trace topics

The **Download current Trace Topics of this media server** hyperlink allows you to export the current trace level settings of this Interaction Media Server to a file.

Import configuration file

The **Import Configuration File** hyperlink allows you to import a configuration file that you earlier exported from this Interaction Media Server.

> **Note:**
> Starting with Interaction Media Server 2015 R2, any upgrade from an earlier version of Interaction Media Server adds a `<Version>` element to the configuration file.
> You can also import configuration files that you previously exported from an earlier version of Interaction Media Server. The **Import Configuration File** feature in the **Config** > **Diagnostics** section of the web interface automatically adds the new `<Version>` element.
> By default, the configuration file is at the following path: `D:\I3\IC\Resources\MediaServerConfig.xml`

Download current configuration

The **Download current Configuration File of this media server** hyperlink allows you to export all current configuration settings of this Interaction Media Server to a file.

Create a diagnostic memory dump

If your Interaction Media Server develops issues and is not performing as expected, you can use the **Create a diagnostic memory dump of the current state of this media server** hyperlink to export the Random Access Memory (RAM) associated with the Interaction Media Server process to one or more files. You can send these files to PureConnect Customer Care for troubleshooting.

For more information about creating memory dumps, see Interaction Media Server Memory Dump.

Set tracing levels

Tracing levels control the types of messages that Interaction Media Server writes to the log file, which retains data for seven days.

> **Caution!**
> Do not change the default tracing levels without instruction from PureConnect Customer Care. Usually, the default tracing levels provide enough information for PureConnect Customer Care to troubleshoot any problem. If you increase tracing levels, Interaction Media Server can become overloaded and fail to handle simple interaction loads. Also, if you allow Interaction Media Server to run in that state for an extended time, the resulting log files can surpass the storage capacity of the system.

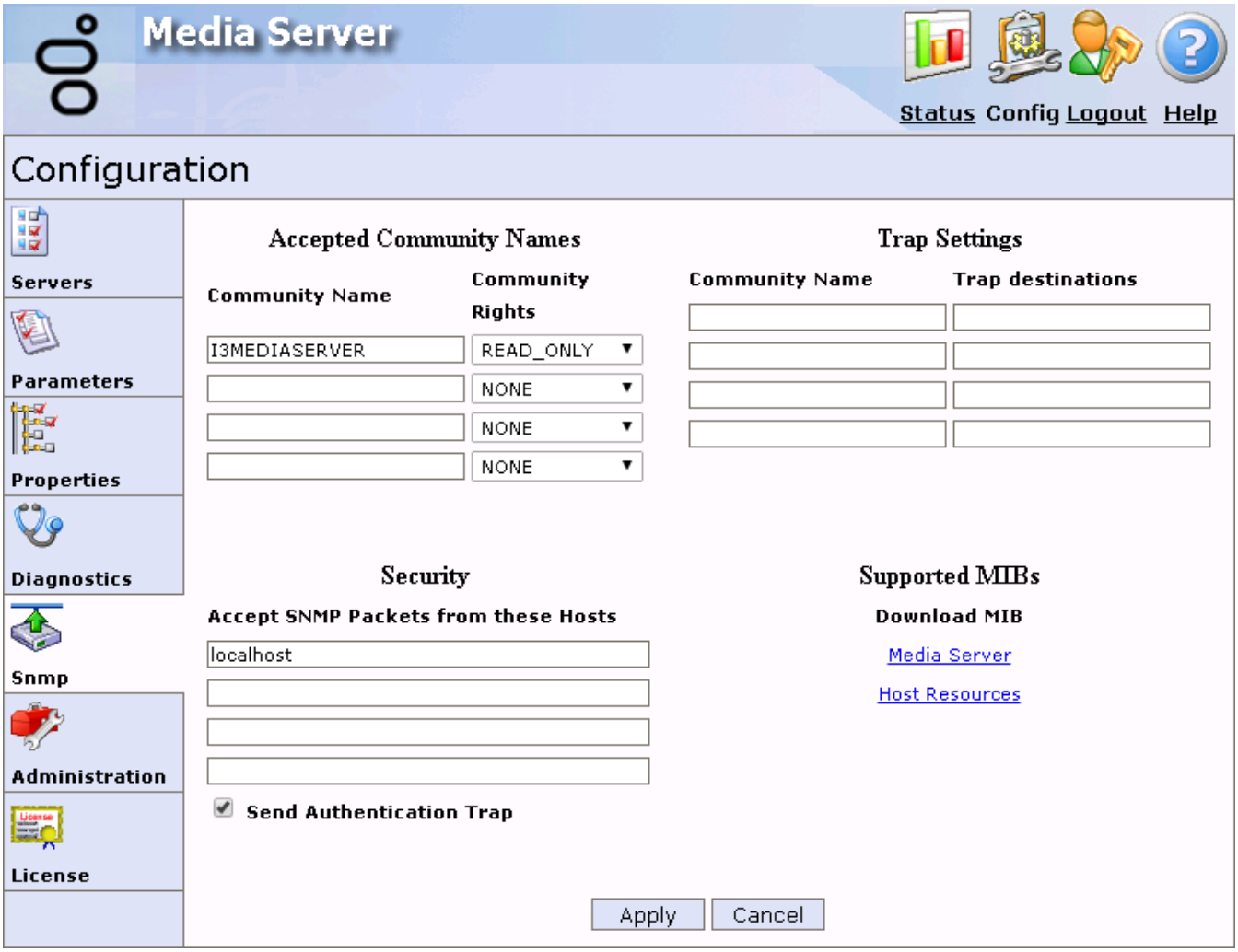
The following table provides the trace level settings and associated descriptions:

Tracing Level	Description
None	Interaction Media Server does not write any information to the log file.
Critical Error	Records severe failures that Interaction Media Server cannot correct.
Error	Records data for the previous setting and minor failures that Interaction Media Server cannot correct.
Warning	Records data for the previous setting and conditions that impair Interaction Media Server without corrective action.
Status	Use this setting to record data for the previous setting and for the following information: • Configuration changes • Performance metrics • Resource usage
Notes	Records data for the previous setting and for the following information: • Expected failures • Minor errors
Verbose Notes	Records data for the previous setting and for select programmatic values.
Ultra Verbose	Records events for the previous setting and for most programmatic values.
All	Records all data from Interaction Media Server operations.

Interaction Media Server Config-Snmp Page

The **Snmp** page allows you to configure Simple Network Management Protocol (SNMPv2c) settings for network management systems.

> **Tip:**
> Interaction Media Server uses the PureConnect SNMP service, which supports SNMPv1, SNMPv2c, and SNMPv3. The **Snmp** page allows you to configure settings for only SNMPv1 and SNMPv2c. To configure the settings for SNMPv3, including user definitions and encryption, use the command-line utility installed with the service. For more information about usage and syntax for this command-line utility, see the *CIC and SNMP Technical Reference* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/snmp_tr.pdf.


Media Server
Status
Config
Logout
Help
Configuration
Servers
Parameters
Properties
Diagnostics
Snmp
Administration
License
Accepted Community Names
Community Name
Community Rights
I3MEDIASERVER
READ_ONLY
NONE
NONE
NONE
Trap Settings
Community Name
Trap destinations
Security
Accept SNMP Packets from these Hosts
localhost
Send Authentication Trap
Supported MIBs
Download MIB
Media Server
Host Resources
Apply
Cancel

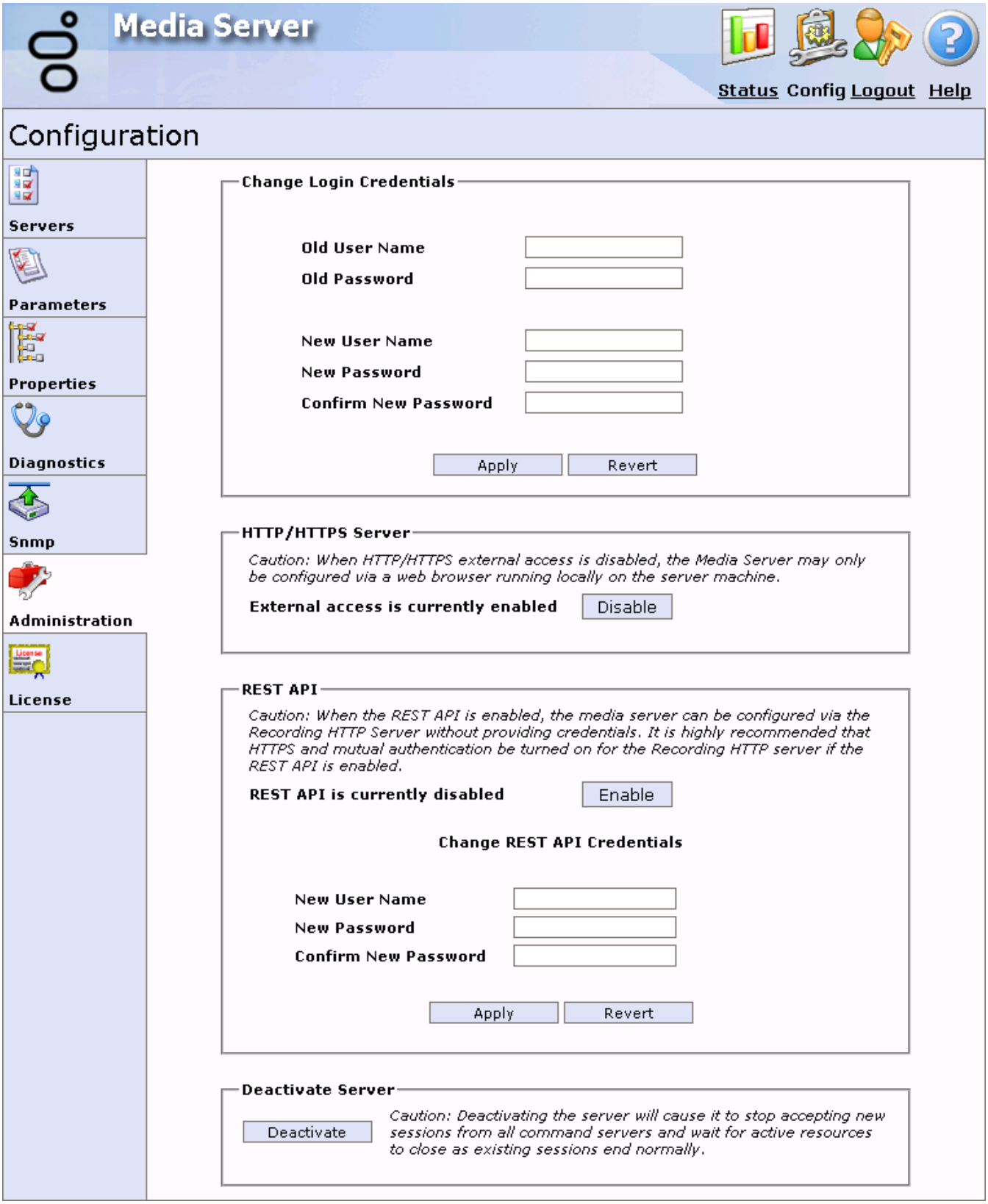
Field		Description
Accepted Community Names	**Community Name**	Group name under which Interaction Media Server receives SNMP requests. The default value is **I3MEDIASERVER**.
	Community Rights	Permissions that an external SNMP system has for the Management Information Base (MIB) files on this system. Genesys recommends that you use the default value of **READ ONLY**.
Trap Settings	**Community Name**	Group name under which Interaction Media Server sends SNMP trap messages to the specified destination address.
	Trap Destinations	List of IP addresses or host names to receive SNMP trap messages from this Interaction Media Server.
Security	**Accept SNMP Packets from these Hosts**	Addresses of the network management systems (NMS) for which Interaction Media Server accepts SNMP requests. **Important!** If you do not specify any hosts, Interaction Media Server accepts SNMP requests from any host.
	Send Authentication Trap	If enabled, requires the NMS specified in the **Security** section to provide authentication with SNMP requests.
Supported MIBs	**Media Server**	Downloads the MIB file that contains the SNMP message definitions and conditions for Interaction Media Server.
	Host Resources	Downloads the MIB file that contains the SNMP message definitions and conditions for the computer hosting Interaction Media Server.
Apply	Applies your changes to controls in the **Snmp** page.	
Cancel	Reverts to the settings that were active on this Interaction Media Server before you changed them. **Note:** If you click **Apply**, you cannot revert to the SNMP configuration by selecting **Cancel**.	

Note:
Genesys provides the MIB files in this interface for your reference so that you can be aware of the SNMP trap messages that Interaction Media Server can send.

After you change settings on this page, click **Apply**.

Interaction Media Server Config-Administration Page

The **Administration** page allows you to change the administrator user name and password for Interaction Media Server, and to control remote access to the Interaction Media Server web-based user interface.



Change Login Credentials

Old User Name	Existing user name that you use to log on to Interaction Media Server as an administrator.
Old Password	Existing password for the administrator account specified in the **Old User Name** field.
New User Name	New user name to use for the administrative account.
New Password	New password for the new user name.
Confirm New Password	New password for the new user name to ensure that there are no typographical errors.
Apply	Saves your credential changes and applies them to Interaction Media Server.
Revert	Discards your *unapplied* changes. **Note:** Genesys strongly recommends that you change the default user name and password for the Interaction Media Server administrator credentials. You can use any characters for the user name and password.

HTTP/HTTPS Server

Disable/Enable	Controls the ability for remote computers to access the web-based user interface for Interaction Media Server. If you disable HTTP/HTTPS access, you can access Interaction Media Server only through a web browser locally on the system.

REST API

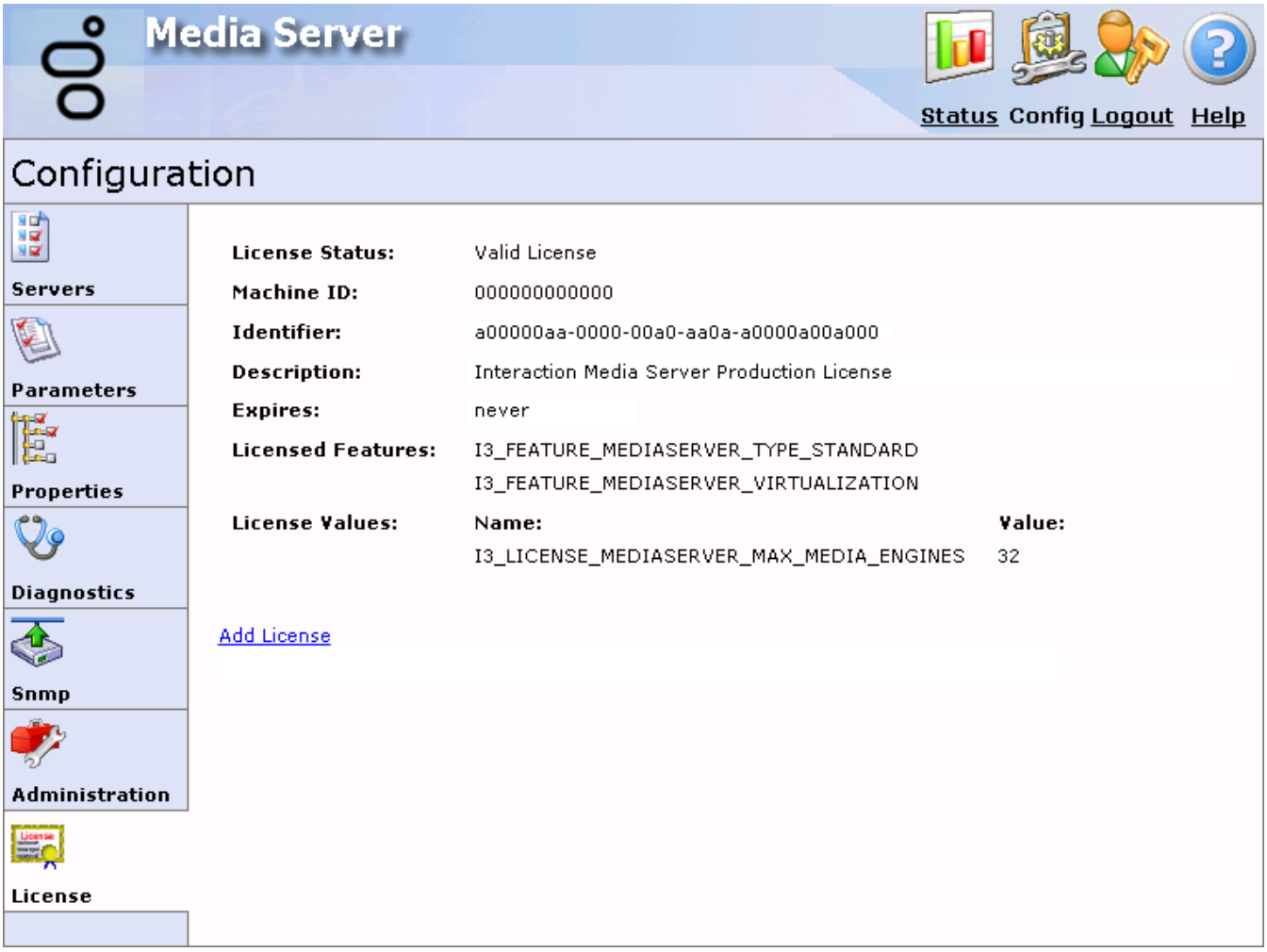
Enable/Disable	Controls whether this Interaction Media Server accepts REST API transactions.
New User Name	New user name to use for authenticating REST API transactions.
New Password	New password for the new user name.
Confirm New Password	New password for the new user name. Providing it twice ensures that there are no typographical errors.
Apply	Saves your credential changes and applies them to this Interaction Media Server.
Revert	Discards your *unapplied* changes.

Deactivate Server

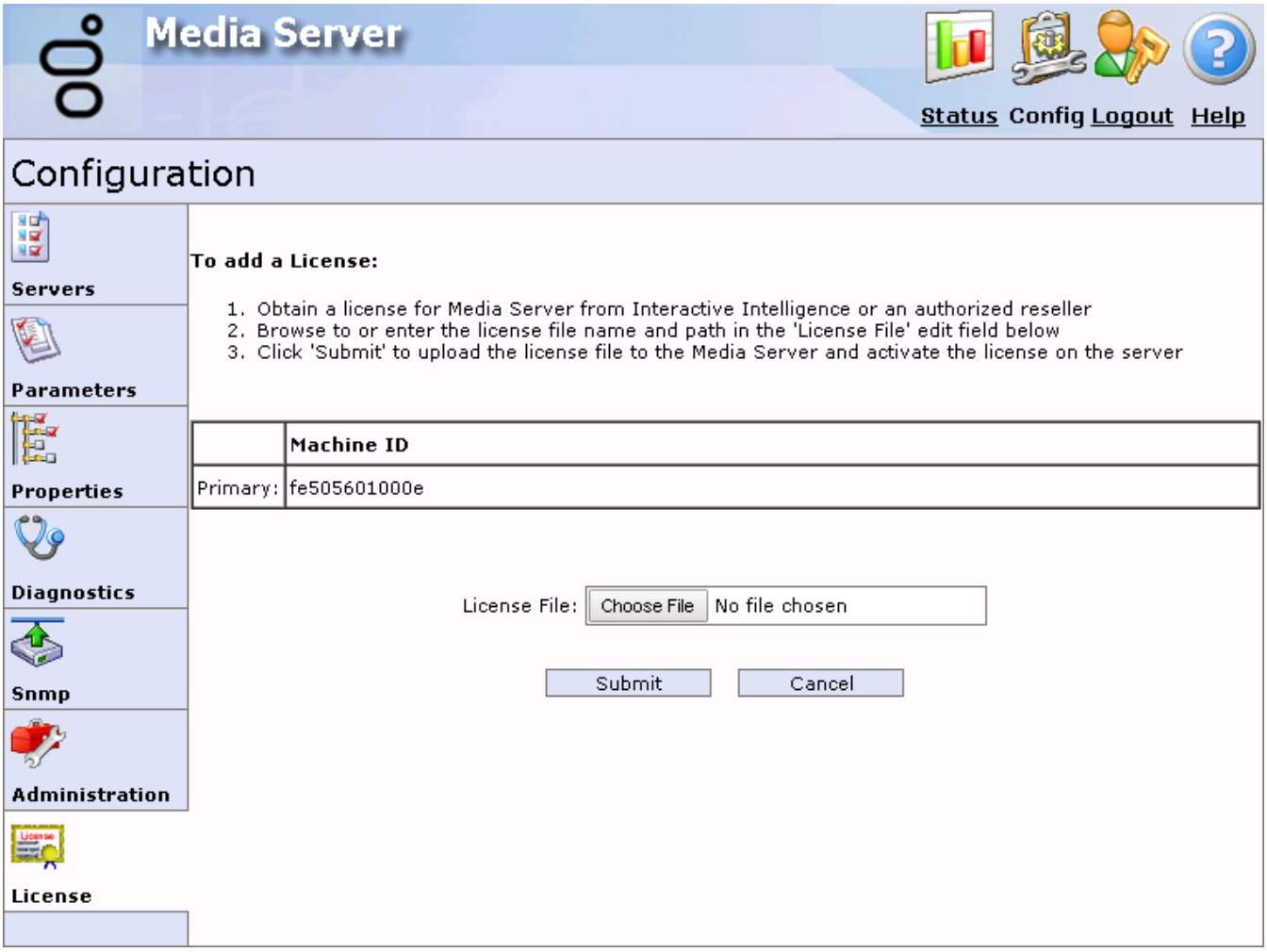
Deactivate	Stops this Interaction Media Server from receiving new media processing requests from all connected CIC servers. Interaction Media Server continues to process current media operations until their associated calls have ended. This feature is useful for taking an Interaction Media Server out of service for upgrades or other maintenance tasks.

Interaction Media Server Config-License Page

The **License** page displays the current license information for Interaction Media Server.



When you click the **Add License** hyperlink, the **Add License** page appears. This page allows you to specify the location of a new license file from Genesys by selecting **Choose File** and populating the **License File** box. After you specify the license file, click **Submit** to copy this license to Interaction Media Server and enable it. The system returns you to the page listing the license details.


Media Server
Status
Config
Logout
Help
Configuration
Servers
Parameters
Properties
Diagnostics
Snmp
Administration
License
To add a License:
1. Obtain a license for Media Server from Interactive Intelligence or an authorized reseller
2. Browse to or enter the license file name and path in the 'License File' edit field below
3. Click 'Submit' to upload the license file to the Media Server and activate the license on the server
Machine ID
Primary:
fe505601000e
License File:
Choose File
No file chosen
Submit
Cancel

Interaction Media Server REST API

Interaction Media Server provides a Representational State Transfer (REST) Application Programming Interface (API) that is accessible through HyperText Transfer Protocol (HTTP).

Using the REST API enables you to retrieve information from an Interaction Media Server instance, change its operating state, or to modify its configuration. All message bodies associated with the REST API use JavaScript Object Notation (JSON).

The Interaction Media Server REST API uses digest authentication to ensure that only users with a configured user name and password can use it. You can optionally set specific parameters to require certificates and the TLS protocol, and mutual authentication.

- REST API Configuration
- REST API Usage
- REST API Methods

REST API Configuration

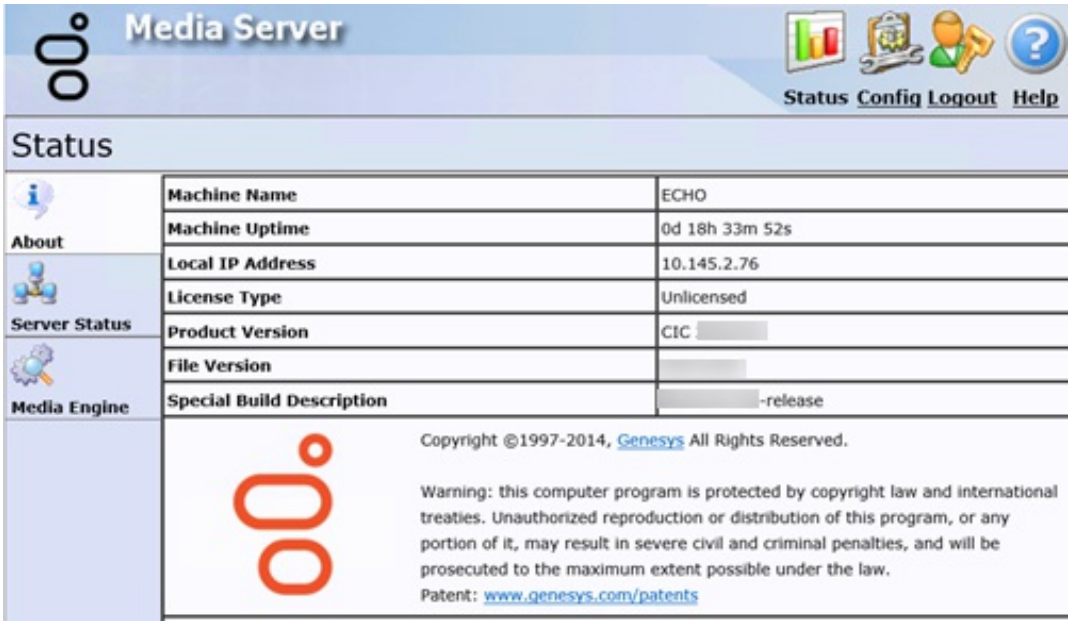
The Interaction Media Server REST API is unavailable by default. To enable and use the REST API, you must first provide a user name and password.

To enable REST API on an Interaction Media Server

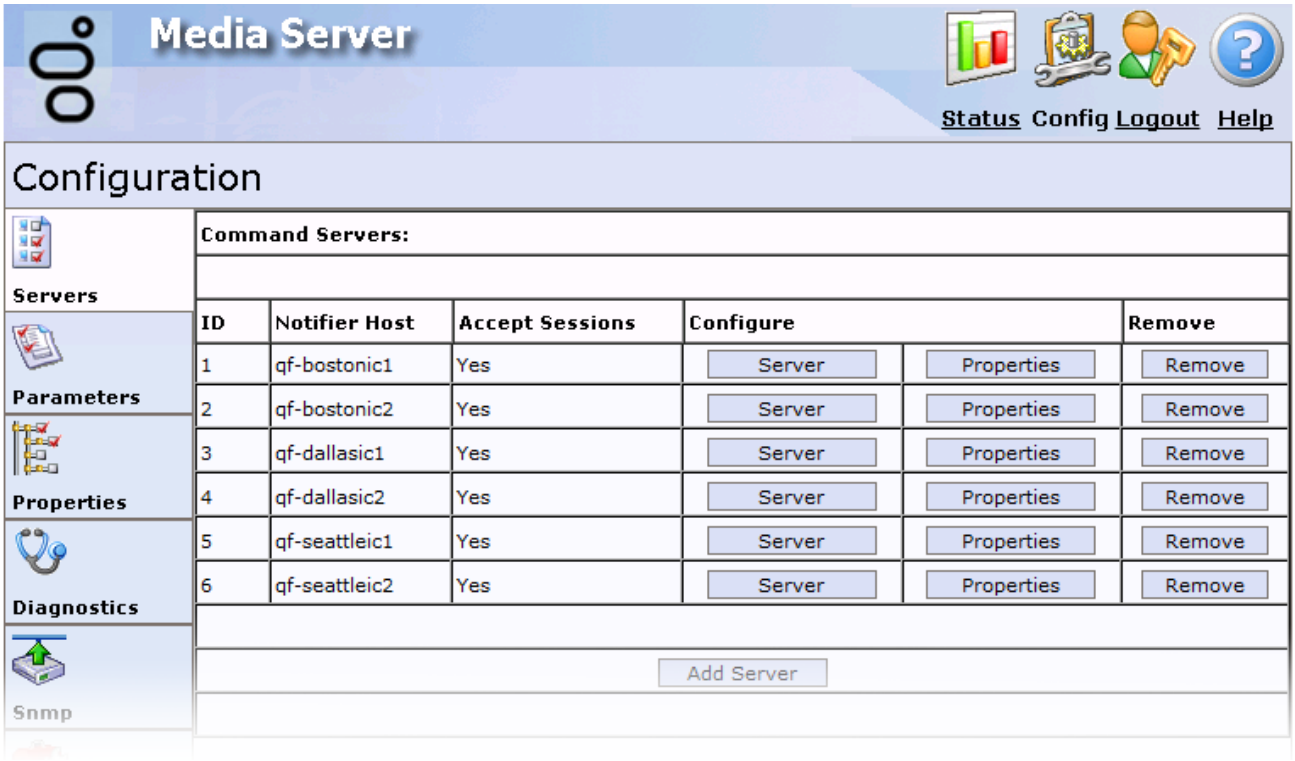
1. From a personal computer or the Interaction Media Server itself, open a web browser and navigate to the URL address and port number of the Interaction Media Server web interface. See the following example for the format of specifying this URL address: `http://mediaserver1.mydomain.com:8084/`

   > **Note:**
   > Packaged Interaction Media Servers use HTTP port 8083. Software-only installations of Interaction Media Server default to HTTP port 8084.

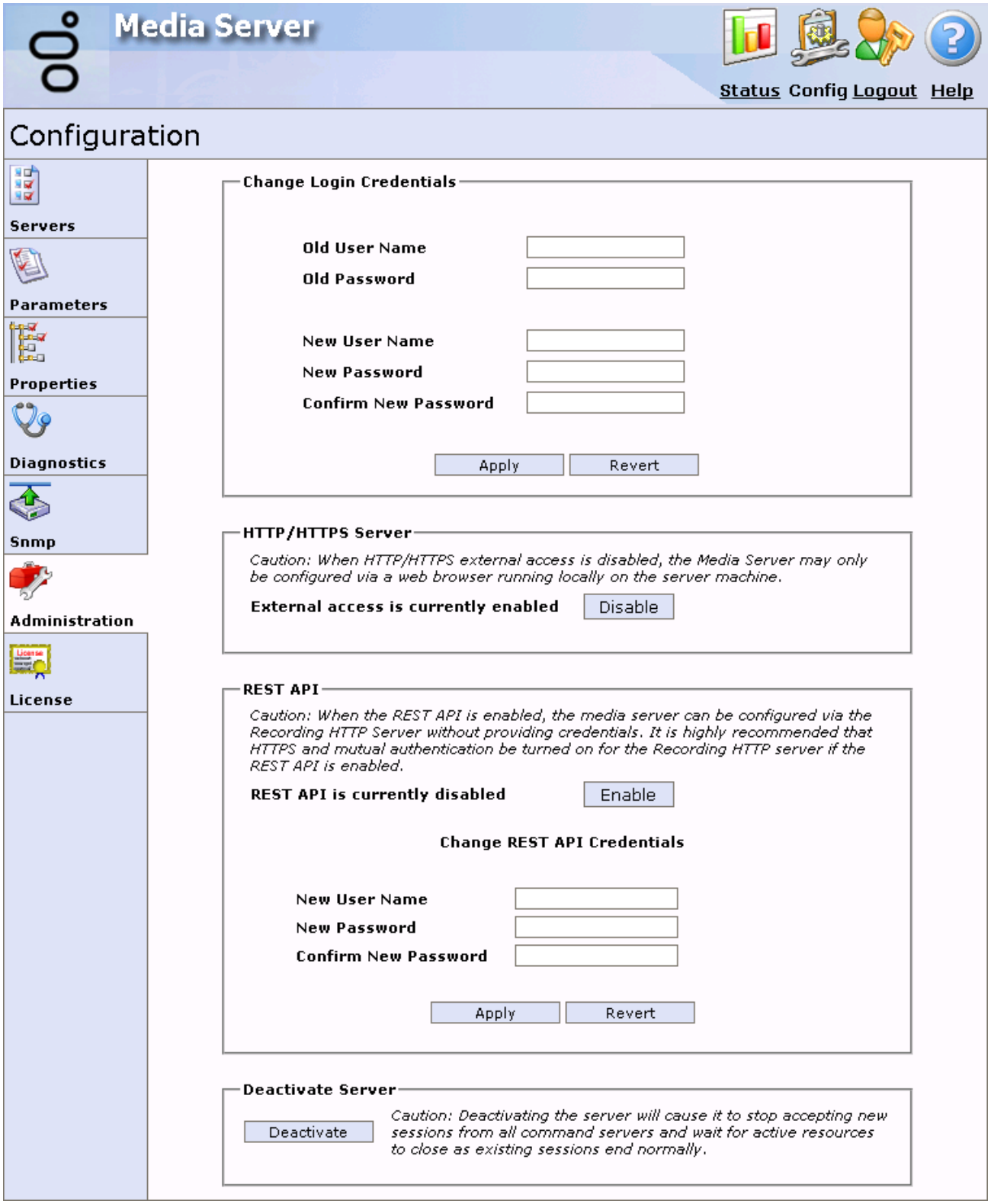
2. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password. The **Status-About** page appears.



3. In the upper right corner, click the **Config** icon. The **Config-Servers** page appears.



4. On the left side of the page, click the **Administration** tab. The **Config-Administration** page appears.



5. Using the following boxes in the **Change REST API Credentials** area of the page, to supply credentials that this Interaction Media Server requires for all REST API actions:
   - **New User Name**
   - **New Password**
   - **Confirm New Password**

> **Note:**
> You can define only one set of credentials for the REST API. The credentials do not expire.

6. Click **Apply**. Interaction Media Server securely stores the credentials in the Windows Registry of the host computer.
7. In the **REST API** area of the page, click **Enable**.

8. To use the secure HTTPS protocol for the REST API, set the following parameters on the **Config-Parameters** page of the Interaction Media Server web interface to a value of **true**:
   - **Recording Retrieval Use Mutual Authentication**
   - **Recording Retrieval HTTPS Required**

> **Note:**
> Genesys recommends that you use all available security features in your CIC environment. However, you are responsible for generating and installing HTTPS certificates, and configuring your network to ensure successful TLS protocol communications between the Interaction Media Server REST API and any entities that attempt to interact with it. Genesys does not provide technical support for connectivity or authentication issues with the Interaction Media Server REST API.

REST API Usage

- REST API Commands
- REST API Value Types
- REST API Restrictions
- REST API and HTTP Status Codes
- REST API Tools

REST API Commands

The REST API for Interaction Media Server uses the following commands:

`GET`	Retrieves information.
`PUT`	Submits information as a simple command.
`POST`	Submits data to configure Interaction Media Server by replacing existing data or creating data when it does not exist.
`PATCH`	Modifies a portion of an existing data set or file.
`DELETE`	Removes a portion of an existing data set or file.

REST API Value Types

Type	Example values
String	Valid JSON-format string, numbers, true, false, or null
Boolean	• true • false • "true" • "false" • 0 • 1
Integer	• 123 • "123" **Note:** Range restrictions may apply.
Number	• 1.5 • "1.5" **Note:** Range restrictions may apply.
OneOf	String that matches one of the multiple acceptable values for an Interaction Media Server configuration setting.
Directory	String containing a directory path or the friendly name of a network interface on the server.
Network interface	• "Any" (matches any network interface on the Interaction Media Server host. • IP address of a network interface on the Interaction Media Server host. • Friendly name, such as "Local Area Connection". For example, the Interaction Media Server property, **Recording Retrieval HTTP Interface**, can accept "Any" or a friendly name of a network interface card (NIC) on the Interaction Media Server host.
Port range	• "16384-32767" • "16384,32767"
DSCP value	An integer from 0 to 63
IP address	• "127.0.0.1" • "2001:db8:a0b:12f0::1"
IP address type	• "all" • "IP4" • "IP6" • "IP4IP6"
CPU mask	An array of Boolean values where the first position represents CPU 0

REST API Restrictions

The Interaction Media Server REST API has the following restrictions:

- The body component of a REST API request must specify the `Content-Type` header as `application/json`. If the body component of the REST API request is empty, you can exclude the `Content-Type` header. Failure to set the `Content-Type` header as `application/json` for a non-empty body component returns a `400 Bad Request` status code.
- Uniform Resource Identifiers (URIs) are case-sensitive.
- The REST API allows only the following characters in Interaction Media Server property names:

```
:.$-_
0123456789
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
```

- Names for Interaction Media Server parameters and properties are case-sensitive. Ensure that you use the necessary case when specifying parameter and property names. For example, a REST API request for the `notifierdscpvalue` property does not match the `NotifierDscpValue` property.
- Interaction Media Server parameters require a value. If you do not specify a value when adding a parameter through a `PUT` request, the REST API uses the default value. You cannot create custom Interaction Media Server parameters.
- Interaction Media Server properties do not require a value. If you do not specify a value when adding a parameter through a `PUT` request, the REST API does not create a value. Interaction Media Server disregards any property that does not have a value. You can create custom Interaction Media Server properties.
- The system restricts some values for Interaction Media Server parameters and properties in their length, range, and formats. Failure to specify valid parameter and property values in REST API request returns an error. For more information about REST API values and formats, see REST API Value Types. For more information about valid values for Interaction Media Server parameters and properties, see Interaction Media Server Config-Parameters Page and Interaction Media Server Config-Properties Page.
- The Interaction Media Server REST API uses the same port as the Recording Retrieval process on Interaction Media Server. The default value is 8102. You cannot define separate network ports for the Recording Retrieval process and the REST API. To change this port number, edit the value for the **Recording Retrieval HTTP Port** parameter on the **Config-Parameters** page of the Interaction Media Server web interface.

REST API and HTTP Status Codes

The REST API returns one of the following HTTP status codes for any received request:

Status code	Disposition	Description
`200 OK`	Success	The REST API response message contains a body.
`201 Created`	Success	The REST API created the requested POST action. The response message may include a `Location` header.
`204 No Content`	Success	The REST API completed the request but the response message does not contain a body. This status code is common for POST, PUT, and DELETE actions.
`400 Bad Request`	Failure	The REST API could not process the content in the body of the request message. An example of this error is an invalid parameter value.
`401 Unauthorized`	Failure	The REST API could not authenticate the supplied credentials.
`404 Not Found`	Failure	The resource specified in the REST API request does not exist. An example of this error is an invalid command server ID.
`405 Method Not Allowed`	Failure	The HTTP method (REST API commands), such as POST, PUT, and DELETE, is not valid for the specified resource.
`409 Conflict`	Failure	The REST API could not complete the DELETE request of a command server.
`500 Internal Server Error`	Failure	There is a significant problem on the host computer that prevents the REST API from executing the request.

Note:
Error messages for the 400 and 404 status codes return in the body of the response.
Example:

```
404 Not Found
{
"status": 404,
"message": "No Command Server with

the ID '8' exists",
"messageWithParams": "No Command

Server with the ID '{@segment}' exists",
"messageParams": {
"segment": "8"
},
"code": "error.restresourcelib.resource.invalid"
}
```

REST API Tools

As REST API uses standardized commands over a network connection using HTTP, there are many different tools you can use.

As with any feature in a CIC environment, Genesys recommends that you do adequate testing in a development instance to ensure that your implementation and method of using the REST API cover all necessary use cases.

Web browser extensions and plug-ins

Most modern web browsers have extensions or plug-ins that enable you to use REST APIs. Some of these items may not provide enough features, such as Digest Authentication or setting header content types, to be useful with Interaction Media Server REST API.

Search the repositories or stores of your specific web browser for available REST API client extensions or plug-ins.

Most web browser REST API tools prompt you for the REST API credentials when you send the request. As such, you do not have to generate an encrypted credentials token in the header of the request.

cURL command-line tool and library

The cURL command-line tool and library is an open-source project that enables you to transfer data using URL syntax. cURL is available for a wide variety of operating systems.

For more information about cURL and to download it, use the following website: http://curl.haxx.se/.

Windows PowerShell

Microsoft Windows PowerShell is an advanced terminal that uses the .NET Framework to provide advanced capabilities and functionality compared to the Command Prompt. You can create scripts and run commands from the terminal.

Important!
The `Invoke-RestMethod` command requires Windows PowerShell 3.0 or later. You can download the latest version of Windows PowerShell as part of the Windows Management Framework from http://www.microsoft.com.

Important!
In the following Windows PowerShell examples, you must substitute the text instances in bold italic font (***username***, ***password***, ***uri***) with information specific for your Interaction Media Server implementation and configuration, such as the configured REST API user name/password and the Fully Qualified Domain Name (FQDN) or IP address of the Interaction Media Server.

Sample GET script for Windows PowerShell

```
$cred = New-Object System.Management.Automation.PSCredential ("username",




(ConvertToSecureString "password"

 -AsPlainText -Force)) Invoke-RestMethod

 http://uri:8102/api/v1/server/about -Method

 Get -Credential $cred
```

Sample POST script for Windows PowerShell

```
$body = ConvertTo-Json @{ "TestProperty" = "TestValue"

 }
$cred = New-Object System.Management.Automation.PSCredential ("username",
(ConvertToSecureString "password"

 -AsPlainText -Force)) Invoke-RestMethod

 http://uri:8102/api/v1/server/properties
 -Method
 Patch -
ContentType "application/json" -Credential $cred -Body $body
```

Programming languages

- You can use compiled programming languages like C, C++, C#, Java, and others to create programs that communicate with the Interaction Media Server REST API.

- You can use interpreted programming languages such as JavaScript, Python, and Ruby to create programs that communicate with the Interaction Media Server REST API.
- You can integrate communication with the Interaction Media Server REST API in existing applications for which you have source code.

Python version 3.4 example for various GET requests

```
# Python 3.4
# ms-get.py
# This Python example uses the Requests HTTP library, which is documentedat
# http://docs.python-requests.org
# To install the Requests HTTP library for Python, execute
# 'pip install requests'
# Note: You must have an Internet connection to download and install the
# Requests library for Python.
import requests
from requests.auth import HTTPDigestAuth
import json
# This example uses the Colorama library to provide colors in the terminal,
# which is documented at https://pypi.python.org/pypi/colorama. To install


the
# Colorama library for Python, execute 'pip install colorama'
from colorama import init, Fore, Back, Style
init()
# GET REST API URIs for Interaction Media Server
about = "/api/v1/server/about"
engstat = "/api/v1/server/enginestatus"
props = "/api/v1/server/properties"
parms = "/api/v1/server/parameters"
cmdservs = "/api/v1/commandservers"
deact = "/api/v1/server/deactivationstatus"
print(Style.BRIGHT + Fore.YELLOW + "---------------")
print("Enter the FQDN or IP address of the Interaction Media Server


to query:")
url = input("Interaction Media Server address: ")
print("")
print("---------------")
print("Enter the port number to use for the REST API call")
print("Entering no value will use the default port 8102")
port = input("Port: ")
if ( port == "" ):
port = "8102"
url = "http://" + url + ":" + port
print("---------------")
print("Enter the number of the GET request that you want to execute:


")
print ("")
print("1 - About")
print("2 - Media engine statuses")
print("3 - All properties")
print("4 - All parameters")
print("5 - Defined command (CIC) servers")
print("6 - Deactivation status")
print("")
gettype = input("GET request: ")
list = ["1","2","3","4","5","6"]
if (gettype not in list):
print(Fore.RED + "ERROR: You must enter a valid

selection number!")
quit()
else:
if ( gettype == "1" ):
```

```
url = url + about
if (gettype == "2"):
url = url + engstat
if (gettype == "3"):
url = url + props
if (gettype == "4"):
url = url + parms
if (gettype == "5"):
url = url + cmdservs
if (gettype == "6"):
url = url + deactprint("---------------")
# Prompt user to supply REST API user name and password
myResponse = requests.get(url,auth=HTTPDigestAuth(input("Enter the


REST API user name:
"), input("Enter the REST API password: ")), verify=True)
# For a successful Interaction Media Server REST API call, the response


code
# will be 200 (OK).
if(myResponse.ok):
print(Fore.GREEN + "---------------")
print("Received information:")
print("")
print(json.dumps(myResponse.json(), indent=4))else:
# If response code is not ok (200), print the resulting http

error code with description
myResponse.raise_for_status()
# Reset colors and style of output terminal
print('\033[30m')
```

REST API Methods

- REST API Activation and Deactivation
- REST API Command Servers
- REST API Configuration and Statistics

REST API Activation and Deactivation

/api/v1/server/activate (PUT)

The `activate` PUT method starts the activation process of a deactivated Interaction Media server or cancels an unfinished deactivation process. If you activated the Interaction Media Server or you are in the process of activating, no change occurs.

Request body

None

Response

`200 OK` status code with the following content in the body of the response:

```
{
"deactivationStatus" : "activated"
}
```

Field Name	Type	Responses
`deactivationStatus`	string	activated

/api/v1/server/deactivate (PUT)

The `deactivate` PUT method starts the deactivation process of an Interaction Media server. If you deactivated the Interaction Media Server or you are in the process of deactivating, no change occurs.

Request body

None

Response

`200 OK` status code with the following content in the body of the response:

```
{
"deactivationStatus" : "deactivating"
}
```

Field Name	Type	Responses
`deactivationStatus`	string	• deactivating • deactivated

/api/v1/server/deactivationstatus (GET)

The `deactivationstatus` GET method retrieves the current activation status for an Interaction Media Server.

Request body

None

Response

`200 OK` status code with the following content in the body of the response:

```
{
"deactivationStatus" : "deactivating",
"commandServers" :
[
{
"id" : 1,
"notifierHost" : "host1",
"icServerName" : "HOST1",
"activeResources" : 2,
"status" : "active",
"details" : "Server is processing requests",
"clientId" : "dfba5ca4-ff1b-4db9-90ea-f3ee360d9573",
"recordingRescueId" : "935892e1-c2cd-4732-b236-b3e51f22dbd3",
"acceptingSessions" : true,
"cpuCapacity" : "2532"
},
{
"id" : 2,
"notifierHost" : "host2",
"icServerName" : "HOST2",
"activeResources" : 5,
"status" : "active",
"details" : "Server is processing requests",
"clientId" : "28431a29-d7fb-4ebc-a9a6-04391063a581",
"recordingRescueId" : "a11daf33-f5c4-4031-a2ba-b70afcba15c1",
"acceptingSessions" : true,
"cpuCapacity" : "Not Applicable"
}
]
}
```

Field Name	Type	Responses
`deactivationStatus`	string	• deactivating • deactivated • activated
`commandServers`	An array of `CommandServerInfo` objects, as displayed in the above example	This field is present in the response only when the status of the Interaction Media Server is `deactivating`. The response body also contains the number of remaining active resources that must conclude before deactivation can complete.

REST API Command Servers

/api/v1/commandservers (GET)

/api/v1/commandservers (POST)

/api/v1/commandservers/{id} (GET)

/api/v1/commandservers/{id} (PATCH)

/api/v1/commandservers/{id} (DELETE)

/api/v1/commandservers/{id}/certificate (GET)

/api/v1/commandservers/{id}/properties (GET)

/api/v1/commandservers/{id}/properties (PATCH)

/api/v1/commandservers/{id}/properties (PUT)

/api/v1/commandservers/{id}/properties/{property-name} (GET)

/api/v1/commandservers/{id}/properties/{property-name} (PUT)

/api/v1/commandservers/{id}/properties/{property-name} (DELETE)

/api/v1/commandservers (GET)

The `commandservers` GET method retrieves a listing of configured Customer Interaction Center servers for an Interaction Media Server.

Request body

None

Response

`200 OK` status code with the following content in the body of the response:

```
{
"commandServers" :
[
{
"id" : 1,
"notifierHost" : "host1",
"icServerName" : "HOST1",
"activeResources" : 0,
"status" : "active",
"details" : "Server is processing requests",
"clientId" : "dfba5ca4-ff1b-4db9-90ea-f3ee360d9573",
"recordingRescueId" : "935892e1-c2cd-4732-b236-b3e51f22dbd3",
"acceptSessionsStatus": true,
"acceptSessions": true,
"cpuCapacity" : "2532"
},
{
"id" : 2,
"notifierHost" : "host2",
"icServerName" : "HOST2",
"activeResources" : 5,
"status" : "active",
"details" : "Server is processing requests",
"clientId" : "28431a29-d7fb-4ebc-a9a6-04391063a581",
"recordingRescueId" : "a11daf33-f5c4-4031-a2ba-b70afcba15c1",
"acceptSessionsStatus": true,
"acceptSessions": true,
"cpuCapacity" : "Not Applicable"
}
]
}
```

Field Name	Type	Responses
`commandServers`	array of `CommandServerInfo` objects	Array of command servers and related information for each.

/api/v1/commandservers (POST)

The commandservers POST method adds a Customer Interaction Center server instance to the configuration of an Interaction Media Server.

> **Note:**
> After adding a CIC server to an Interaction Media Server with this command, you must use Interaction Administrator to trust the new connection for the specified CIC server.

Request body

Field Name	Type	Description
`notifierHost`	string	Host name of the CIC server on which the Notifier service runs. This field is optional. You can omit this field for connections to a CIC server on the same host as the Interaction Media Server. **Note:** Genesys does not recommend running the CIC server and an Interaction Media Server on the same host in a production environment.
`icUserId`	string	User name to use for authentication into the CIC server
`icPassword`	string	Password for the supplied CIC user name.
`acceptSessions`	bool	If you set the value for this field to `True`, the Interaction Media Server accepts sessions from the specific command server. This field is optional. The default value is True.
`copyPropertiesFromId`	int	If you want to copy the properties already configured for another command (CIC) server defined on this Interaction Media Server, provide the numeric identifier of that command server as the value for this field. This field is optional.

Responses

Status Code	Response Body Examples

201 Created
Location: *uri and numeric identifier*
	{
	"id" : 3,
	"notifierHost" : "host3",
	"icServerName" : "HOST3",
	"activeResources" : 0,
	"status" : "active",
	"details" : "Server is processing requests",
	"clientId" : "ce699a67-5df5-49ce-9c57-562b657bc7a4",
	"recordingRescueId" : "e31a15f0-ca3c-4cbf-a720-03c877217037",
	"acceptSessionsStatus": true,
	"acceptSessions": true,
	"cpuCapacity" : "Not Applicable",
	"certificate": {
	"certSerialNumber": "1234567890",
	"issuer": {
	"organization": "Servers",
	"organizationalUnit": "IC Certificate Authority
	(3065270705)",
	"commonName": "EXAMPLE"
	},
	"subject": {
	"organization": "Servers",
	"organizationalUnit": "EXAMPLE- IC Certificates API
	Library (0987654321)",
	"commonName": "1234567890
	}
	}
	}

400 Bad Request	{
	status: 400
	message: "Unable to establish Notifier connection for certificate
	request. NotifierHost=localhost, UserId=example_user,
	Notifier Error: Access is denied. Please check your
	username and password. If the problem persists, contact
	your administrator."
	messageWithParams: "Unable to establish Notifier connection for
	certificate request.
	NotifierHost={@notifierHost},
	UserId={@userId}, Notifier Error: {@error}"
	messageParams: {
	error: "Access is denied. Please check your username and
	password. If the problem persists, contact your
	administrator."
	notifierHost: "localhost"
	userId: "devlab_user"
	}
	code: "error.restresourcelib.request.invalid"
	}

/api/v1/commandservers/*{id}* (GET)

The `commandservers/{id}` GET method retrieves the configured definition of a specified CIC server on an Interaction Media Server.

The *{id}* variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

> **Note:**
> A common CIC server may have different numeric IDs on separate Interaction Media Servers.

Request body

None

Responses

Status Code	Response Body Examples

200 OK	`{`
	`"id" : 1,`
	`"notifierHost" : "host1",`
	`"icServerName" : "HOST1",`
	`"activeResources" : 5,`
	`"status" : "active",`
	`"details" : "Server is processing requests",`
	`"clientId" : "dfba5ca4-ff1b-4db9-90ea-f3ee360d9573",`
	`"recordingRescueId" : "935892e1-c2cd-4732-b236-b3e51f22dbd3",`
	`"acceptSessionsStatus": true,`
	`"acceptSessions": true,`
	`"cpuCapacity" : "2532",`
	`}`

404 Not Found	`{`
	`"status": 404,`
	`"message": "No Command Server with the ID '{id}'exists",`
	`"messageWithParams": "No Command Server with`
	` the ID '{@segment}' exists",`
	`"messageParams": {"segment": "{id}"},`
	`"code": "error.restresourcelib.resource.invalid"`
	`}`

/api/v1/commandservers/ *{id}* (PATCH)

The `commandservers/{id}` PATCH method modifies the configured definition of a specified CIC server on an Interaction Media Server.

The *{id}* variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

Request body

Field Name	Type	Description
`acceptSessions`	bool	If you set the value for this field to `True`, the Interaction Media Server accepts sessions from the specific command server. This field is optional. The default value is True.

Responses

Status Code	Response Body Examples

`200 OK`	`{`
	`"id" : 1,`
	`"notifierHost" : "host1",`
	`"icServerName" : "HOST1",`
	`"activeResources" : 5,`
	`"status" : "active",`
	`"details" : "Server is processing requests",`
	`"clientId" : "dfba5ca4-ff1b-4db9-90ea-f3ee360d9573",`
	`"recordingRescueId" : "935892e1-c2cd-4732-b236-b3e51f22dbd3",`
	`"acceptSessionsStatus": true,`
	`"acceptSessions": true,`
	`"cpuCapacity" : "2532",`
	`}`

`400 Bad Request`	`{`
	`"status": 400,`
	`"message": "Invalid acceptSessions value: Value`
	` is of type String",`
	`"messageWithParams": "Invalid {@fieldName} value:`
	` Value is of type {@fieldValueType}",`
	`"messageParams": {`
	`"fieldname": "acceptSessions",`
	`"fieldValueType": "String"`
	`},`
	`"code": "error.restresourcelib.request.field.invalidValue"`
	`}`

`404 Not Found`	`{`
	`"status": 404,`
	`"message": "No Command Server with the ID '{id}'exists",`
	`"messageWithParams": "No Command Server with`
	` the ID '{@segment}' exists",`
	`"messageParams": {`
	`"segment": "{id}"`
	`},`
	`"code": "error.restresourcelib.resource.invalid"`
	`}`

/api/v1/commandservers/*{id}* (DELETE)

The `commandservers/{id}` DELETE method removes the configured definition of a specified CIC server from an Interaction Media Server.

The *{id}* variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

Parameters

This method supports the use of an optional `force` query parameter. The `force` parameter enables you to specify whether to have the REST API delete a command server definition from an Interaction Media Server when that command server still has active sessions that the Interaction Media Server is processing. The default value for the `force` parameter is `false`.

To specify the `force` query parameter, append a question mark (`?`) to the end of the URI address followed by `force=` and a Boolean value, such as `1` or `true`.

Example:

```
http://192.168.1.100:8102/api/v1/commandservers/1?force=true
```

The `force` query parameter accepts the following values:

- `false` or `0`
  The REST API does not delete the specified command server definition when it is still processing active sessions on this Interaction Media Server.
  `false` is the default value used when you have not specified this `force` query parameter.
- `true` or `1`
  The REST API deletes the specified command server definition from this Interaction Media Server even if it has active sessions processing.

Request body

None

Responses

Status Code	Response Body Examples
`204 No Content`	None
`404 Not Found`	`{ "status": 404, "message": "No Command Server with the ID '{id}' exists", "messageWithParams": "No Command Server with the ID '{@segment}' exists", "messageParams": { "segment": "{id}" }, "code": "error.restresourcelib.resource.invalid" }`
`409 Conflict`	This status code indicates that the `force` query parameter is false or missing while the specified command server still has active sessions on this Interaction Media Server.

/api/v1/commandservers/*{id}*/certificate (GET)

The `commandserver/{id}/certificate` GET method retrieves certificate information for a specific CIC server defined on an Interaction Media Server.

The *`{id}`* variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

Request body

None

Responses

Status Code	Response Body Examples

200 OK	{
	"id": 1
	"notifierHost": "localhost"
	"certificate": {
	"certSerialNumber": "0123456789",
	"issuer": {
	"organization": "Servers",
	"organizationalUnit": "IC
	 Certificate Authority (3032158907)",
	"commonName": "EXAMPLE"
	}
	"subject": {
	"organization": "Servers",
	"organizationalUnit": "CLAY
	 - IC Certificates API Library (1919191919)",
	"commonName": "0123456789"
	}
	}
	}

404 Not Found	{
	"status": 404,
	"message": "No Command Server with the ID '{id}'
	 exists",
	"messageWithParams": "No Command Server with
	 the ID '{@segment}' exists",
	"messageParams": {
	"segment": "{id}"
	},
	"code": "error.restresourcelib.resource.invalid"
	}

/api/v1/commandservers/*{id}*/properties (GET)

The `commandservers/{id}/properties` GET method retrieves any Interaction Media Server properties defined specifically for a specified command (CIC) server.

The `{id}` variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

If you did not define any properties on the Interaction Media Server for the specified command server, the body of the response is empty.

> **Note:**
> This method does not retrieve general Interaction Media Server properties applied to all command servers or Interaction Media Server properties that you set on the CIC server in Interaction Administrator. For more information about the various levels at which you can apply Interaction Media Server properties, see Property Override Hierarchy for Interaction Media Server.

Request body

None

Responses

Status Code	Response Body Examples
200 OK	`{ "MaxResourceIdle":"20" }`
404 Not Found	`{ "status": 404, "message": "No Command Server with the ID '{id}' exists", "messageWithParams": "No Command Server with the ID '{@segment}' exists", "messageParams": { "segment": "{id}" }, "code": "error.restresourcelib.resource.invalid" }`

/api/v1/commandservers/*{id}*/properties (PATCH)

The `commandservers/{id}/properties` PATCH method modifies the value of an existing property defined through this Interaction Media Server for a specified command (CIC) server. You can also delete existing properties for a specified command server on this Interaction Media Server by supplying a null value.

The `{id}` variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

> **Note:**
> This method does not apply to general Interaction Media Server properties applied to all command servers or Interaction Media Server properties that you set on the CIC server in Interaction Administrator. For more information about the various levels at which you can apply Interaction Media Server properties, see Property Override Hierarchy for Interaction Media Server.

Request body

The body of the REST API request for this method is a JSON-formatted list of properties and values, as shown in the following example:

```
{
"NotifierDscpValue": "46",
"NotifierQosTaggingEnabled": "true",
"RtpPortRange": "16384-32767",
"RtpQosDscpValue": "46",
"RtpQosTaggingEnabled": "true"
}
```

Any properties that exist for the specified command server but are not in the body of the REST API request are unchanged.

To delete a property for the specified command server, provide a null value for the property in the body of the REST API request, as shown in the following example:

```
{
"MaxResourceIdle": null
}
```

Responses

Status Code	Response Body Examples

`200 OK`	`{`
	`"NotifierDscpValue": "46",`
	`"NotifierQosTaggingEnabled": "true",`
	`"RtpPortRange": "16384-32767",`
	`"RtpQosDscpValue": "46",`
	`"RtpQosTaggingEnabled": "true"`
	`}`
	
	If the command server definition has no properties, the REST API returns an empty object:
	
	`{}`

`400 Bad Request`	There is an error in the body of the REST API request, due to invalid JSON syntax, an invalid property name, or an invalid value.

`404 Not Found`	`{`
	`"status": 404,`
	`"message": "No Command Server with the ID '{id}'`
	` exists",`
	`"messageWithParams": "No Command Server with`
	` the ID '{@segment}' exists",`
	`"messageParams": {`
	`"segment": "{id}"`
	`},`
	`"code": "error.restresourcelib.resource.invalid"`
	`}`

/api/v1/commandservers/*{id}*/properties (PUT)

The `commandservers/{id}/properties` PUT method adds a new set of properties or overwrites an existing set of properties for a defined command (CIC) server on this Interaction Media Server.

The *{id}* variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

> **Note:**
> This method does not apply to general Interaction Media Server properties applied to all command servers or Interaction Media Server properties that you set on the CIC server in Interaction Administrator. For more information about the various levels at which you can apply Interaction Media Server properties, see Property Override Hierarchy for Interaction Media Server.

Request body

The body of the REST API request for this method is a JSON-formatted list of properties and values, as shown in the following example:

```
{
"NotifierDscpValue": "46",
"NotifierQosTaggingEnabled": "true",
"RtpPortRange": "16384-32767",
"RtpQosDscpValue": "46",
"RtpQosTaggingEnabled": "true"
}
```

> **Caution!**
> This method deletes any properties that exist for the specified command server that are not in the body of the REST API request. To modify one property value among several property values for the specified command server, use the PATCH method.

Responses

Status Code	Response Body Examples
`200 OK`	`{ "NotifierDscpValue": "46", "NotifierQosTaggingEnabled": "true", "RtpPortRange": "16384-32767", "RtpQosDscpValue": "46", "RtpQosTaggingEnabled": "true" }` **Important!** The system does not notify you of any existing properties that the system deletes as a result of this PUT method.
`400 Bad Request`	There is an error in the body of the REST API request, due to invalid JSON syntax, an invalid property name, or an invalid value.
`404 Not Found`	`{ "status": 404, "message": "No Command Server with the ID '{id}' exists", "messageWithParams": "No Command Server with the ID '{@segment}' exists", "messageParams": { "segment": "{id}" }, "code": "error.restresourcelib.resource.invalid" }`

/api/v1/commandservers/*{id}*/properties/*{property-name}* (GET)

The `commandservers/{id}/properties/{property-name}` GET method retrieves a single property and its value for a command (CIC) server definition on the Interaction Media Server.

The *`{id}`* variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

The *`{property-name}`* variable represents the name of the Interaction Media Server property defined for this command server. This character string is case-sensitive. Failure to match case in the name of the property results in a `404 Not Found` status code.

Request body

None

Responses

Status Code	Response Body Examples
`200 OK`	`{ "value": "20", }`
`404 Not Found`	`{ "status":404, "message":"No Property with the ID 'maxresourceidle' exists", "messageWithParams":"No Property with the ID '{@segment}' exists", "messageParams": { "segment":"maxresourceidle" }, "code":"error.restresourcelib.resource.invalid" }`

/api/v1/commandservers/*{id}*/properties/*{property-name}* (PUT)

The `commandservers/{id}/properties/{property-name}` PUT method creates or overwrites an Interaction Media Server property and its value for a command (CIC) server defined on the Interaction Media Server.

The *`{id}`* variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

The *`{property-name}`* variable represents the name of the Interaction Media Server property defined for this command server. This character string is case-sensitive. Failure to match case in the name of the property when attempting to replace an existing property value results in a `404 Not Found` status code.

Request body

Field Name	Type	Value

`value`	string	Provide a value to set for the specified property. Enclose the value in quotation marks.
		`{`
		`"value":"40"`
		`}`

Responses

Status Code	Response Body Examples

`200 OK`	Returns this status code for modifications of existing properties of a command server defined on the Interaction Media Server.
	`{`
	`"value": "40"`
	`}`

`201 Created`	Returns this status code for newly created properties in a command server definition on the Interaction Media Server.
	`{`
	`"value": "40"`
	`}`

`404 Not Found`	`{`
	`"status":404,`
	`"message":"No Property with the ID 'maxresourceidle'`
	` exists",`
	`"messageWithParams":"No Property with the ID`
	
	`'{@segment}' exists",`
	`"messageParams":`
	`{`
	`"segment":"maxresourceidle"`
	`},`
	`"code":"error.restresourcelib.resource.invalid"`
	`}`

/api/v1/commandservers/*{id}*/properties/*{property-name}* (DELETE)

The `commandservers/{id}/properties/{property-name}` DELETE method removes an Interaction Media Server property from the command (CIC) server definition on an Interaction Media Server.

The `{id}` variable represents an integer that uniquely identifies the CIC server on an Interaction Media Server. The identifier is, commonly, a single digit, such as `1` or `2`.

The `{property-name}` variable represents the name of the Interaction Media Server property defined for this command server. This character string is case-sensitive. Failure to match case in the name of the property when attempting to delete an existing property value results in a `404 Not Found` status code.

Request body

Field Name	Type	Value

`value`	string	Provide a value to set for the specified property. Enclose the value in quotation marks.
		`{`
		`"value":"40"`
		`}`

Responses

Status Code	Response Body Examples
`204 No Content`	Does not include a response body with this status code, which indicates that the system deleted the property successfully.

`404 Not Found`	`{`
	`"status":404,`
	`"message":"No Property with the ID 'maxresourceidle'exists",`
	`"messageWithParams":"No Property with the ID`
	
	`'{@segment}' exists",`
	`"messageParams":`
	`{`
	`"segment":"maxresourceidle"`
	`},`
	`"code":"error.restresourcelib.resource.invalid"`
	`}`

REST API Configuration and Statistics

- /api/v1/server/parameters (GET)
- /api/v1/server/parameters (PATCH)
- /api/v1/server/parameters (PUT)
- /api/v1/server/parameters/{parameter-name} (GET)
- /api/v1/server/parameters/{parameter-name} (PUT)
- /api/v1/server/properties (GET)
- /api/v1/server/properties (PATCH)
- /api/v1/server/properties (PUT)
- /api/v1/server/properties/{property-name} (GET)
- /api/v1/server/properties/{property-name}/ (PUT)
- /api/v1/server/properties/{property-name} (DELETE)
- /api/v1/server/enginestatus (GET)
- /api/v1/server/about (GET)

/api/v1/server/parameters (GET)

The `server/parameters` GET method retrieves all defined parameters on an Interaction Media Server.

Request body

None

Response

Status Code	Response Body Examples

200 OK	{
	"AsrWorkerMaxWorkRatio": "1.5",
	"AsrWorkerThreadPriority": "BelowNormal",
	"AsrWorkerThreadsMax": "-1",
	"AudioEngineCpuMask": ["true", "true",
	 "false"],
	"AudioEngineLoadLimit": "0.8",
	"AudioEngineSelectionAlgorithm": "Dynamic",
	"AudioEngineThreadPriority": "TimeCritical",
	"AudioEngineUdpSenderLoopback": "ForceForLocalAddresses",
	"CreateMemoryDumpOnEngineFault": "Full",
	"HttpClientCacheDirectory": "D:/I3/IC/ininmediaserver_http_cache/",
	"HttpTraceLogAccess": "Disabled",
	"HyperThreadedAudioEngines": "true",
	"MaxActiveDiagnosticCaptures": "32",
	"MaxAudioEngineCount": "0",
	"MinSchedulerLatency": "4",
	"ProcessPriorityClass": "AboveNormal",
	"RecordingHttpCapacity": "100",
	"RecordingHttpInterface": "Any",
	"RecordingHttpPort": "8102",
	"RecordingHttpThreadPriority": "BelowNormal",
	"RecordingHttpsMutualAuth": "false",
	"RecordingHttpsRequired": "false"
	}

/api/v1/server/parameters (PATCH)

The `server/parameters` PATCH method modifies one or more specified Interaction Media Server parameters. The REST API retains any existing parameters and values not specified in the PATCH request.

Request body

The body of the `server/parameters` PATCH request requires a list of Interaction Media Server parameters and values in JSON format as displayed in the following example:

```
{
"RecordingHttpsMutualAuth": true,
"RecordingHttpsRequired": true
}
```

Responses

Status Code	Response Body Examples
200 OK	A successful `server/parameters` PATCH request returns all Interaction Media Server parameters and values. `{ "AsrWorkerMaxWorkRatio": "1.5", "AsrWorkerThreadPriority": "BelowNormal", "AsrWorkerThreadsMax": "-1", "AudioEngineCpuMask": ["true", "true", "false"], "AudioEngineLoadLimit": "0.8", "AudioEngineSelectionAlgorithm": "Dynamic", "AudioEngineThreadPriority": "TimeCritical", "AudioEngineUdpSenderLoopback": "ForceForLocalAddresses", "CreateMemoryDumpOnEngineFault": "Full", "HttpClientCacheDirectory": "D:/I3/IC/ininmediaserver_http_cache/", "HttpTraceLogAccess": "Disabled", "HyperThreadedAudioEngines": "true", "MaxActiveDiagnosticCaptures": "32", "MaxAudioEngineCount": "0", "MinSchedulerLatency": "4", "ProcessPriorityClass": "AboveNormal", "RecordingHttpCapacity": "100", "RecordingHttpInterface": "Any", "RecordingHttpPort": "8102", "RecordingHttpThreadPriority": "BelowNormal", "RecordingHttpsMutualAuth": "true", "RecordingHttpsRequired": "true" }`
400 Bad Request	For a failed `server/parameters` PATCH request, the response body contains information as to the problem, such as invalid syntax, an invalid parameter name, or an invalid value. `{ status: 400 message: "The ID 'MaxResourceIdle' is not a valid Parameter ID" messageWithParams: "The ID '{@name}' is not a valid Parameter ID" messageParams: { name: "MaxResourceIdle" } code: "error.restresourcelib.request.field.notRecognized" }`

/api/v1/server/parameters (PUT)

The `server/parameters` PUT method replaces the entire set of parameters for an Interaction Media Server.

Request body

If you do not include required parameters in the body of the `server/parameters` PUT request, the REST API adds the required parameters with default values automatically.


```
{
"AsrWorkerMaxWorkRatio": "1.5",
"AsrWorkerThreadPriority": "BelowNormal",
"AsrWorkerThreadsMax": "-1",
"AudioEngineCpuMask": ["true", "true",

"false"],
"AudioEngineLoadLimit": "0.8",
"AudioEngineSelectionAlgorithm": "Dynamic",
"AudioEngineThreadPriority": "TimeCritical",
"AudioEngineUdpSenderLoopback": "ForceForLocalAddresses",
"CreateMemoryDumpOnEngineFault": "Full",
"HttpClientCacheDirectory": "D:/I3/IC/ininmediaserver_http_cache/",
"HttpTraceLogAccess": "Disabled",
"HyperThreadedAudioEngines": "true",
"MaxActiveDiagnosticCaptures": "32",
"MaxAudioEngineCount": "0",
"MinSchedulerLatency": "4",
"ProcessPriorityClass": "AboveNormal",
"RecordingHttpCapacity": "100",
"RecordingHttpInterface": "Any",
"RecordingHttpPort": "8102",
"RecordingHttpThreadPriority": "BelowNormal",
"RecordingHttpsMutualAuth": "false",
"RecordingHttpsRequired": "false"
}
```


Responses

Status Code	Response Body Examples

200 OK	A successful `server/parameters` PUT request returns all Interaction Media Server parameters and values.
	{
	"AsrWorkerMaxWorkRatio": "1.5",
	"AsrWorkerThreadPriority": "BelowNormal",
	"AsrWorkerThreadsMax": "-1",
	"AudioEngineCpuMask": ["true", "true",
	 "false"],
	"AudioEngineLoadLimit": "0.8",
	"AudioEngineSelectionAlgorithm": "Dynamic",
	"AudioEngineThreadPriority": "TimeCritical",
	"AudioEngineUdpSenderLoopback": "ForceForLocalAddresses",
	"CreateMemoryDumpOnEngineFault": "Full",
	"HttpClientCacheDirectory": "D:/I3/IC/ininmediaserver_http_cache/",
	"HttpTraceLogAccess": "Disabled",
	"HyperThreadedAudioEngines": "true",
	"MaxActiveDiagnosticCaptures": "32",
	"MaxAudioEngineCount": "0",
	"MinSchedulerLatency": "4",
	"ProcessPriorityClass": "AboveNormal",
	"RecordingHttpCapacity": "100",
	"RecordingHttpInterface": "Any",
	"RecordingHttpPort": "8102",
	"RecordingHttpThreadPriority": "BelowNormal",
	"RecordingHttpsMutualAuth": "true",
	"RecordingHttpsRequired": "true"
	}

400 Bad Request	For a failed `server/parameters` PUT request, the response body contains information as to the problem, such as invalid syntax, an invalid parameter name, or an invalid value.
	A failure prevents the REST API from applying any parameters and values specified in the body of the request.
	{
	"status":400,
	"message":"The ID 'AsrworkerMaxWorkRatio'
	 is not a valid Parameter ID",
	"messageWithParams":"The ID '{@name}'
	 is not a valid Parameter ID",
	"messageParams":
	{
	"name":"AsrworkerMaxWorkRatio"
	},
	"code":"error.restresourcelib.request.field.notRecognized"
	}

/api/v1/server/parameters/*{parameter-name}* (GET)

The `server/parameters/{parameter-name}` GET method retrieves a specified parameter and its value from an Interaction Media Server.

The *`{parameter-name}`* variable represents an existing Interaction Media Server parameter name. This character string is case-sensitive. Failure to match case in the name of the parameter results in a `404 Not Found` status code.

Request body

None

Responses

Status Code	Response Body Examples

`200 OK`	`{`
	`"value": "{parameter value}"`
	`}`

`404 Not Found`	For a failed `server/parameters/{parameter-name}` GET request, the response body contains information as to the problem, such as invalid syntax, an invalid parameter name, or an invalid value.
	`{`
	`"status":404,`
	`"message":"No Parameter with the ID 'MaxResourceIdle'`
	` exists",`
	`"messageWithParams":"No Parameter withthe`
	` ID '{@segment}' exists",`
	`"messageParams":`
	`{`
	`"segment":"MaxResourceIdle"`
	`},`
	`"code":"error.restresourcelib.resource.invalid"`
	`}`

/api/v1/server/parameters/*{parameter-name}* (PUT)

The `server/parameters/{parameter-name}` PUT method replaces a single Interaction Media Server parameter and its value.

The *`{parameter-name}`* variable represents an existing Interaction Media Server parameter name. This character string is case-sensitive. Failure to match case in the name of the parameter results in a `400 Bad Request` status code.

Request body

```
{
"value":"{value-string}"
}
```

Responses

Status Code	Response Body Examples

`200 OK`	`{`
	`"AsrWorkerThreadPriority": "Normal",`
	`}`

`400 Bad Request`	For a failed `server/parameters/{parameter-name}` PUT request, the response body contains information as to the problem, such as invalid syntax, an invalid parameter name, or an invalid value.
	`{`
	`"status":400,`
	`"message":"The ID 'AsrworkerMaxWorkRatio' is`
	` not a valid Parameter ID",`
	`"messageWithParams":"The ID '{@name}' is not`
	` a valid Parameter ID",`
	`"messageParams":`
	`{`
	`"name":"AsrworkerMaxWorkRatio"`
	`},`
	`"code":"error.restresourcelib.request.field.notRecognized"`
	`}`

/api/v1/server/properties (GET)

The `server/properties` GET method retrieves all properties configured for an Interaction Media Server.

> **Note:**
> You set these properties through the **Config-Properties** page of the Interaction Media Server web interface. These properties do not include properties set for a specific command server through the web interface or properties set for this Interaction Media Server in Interaction Administrator and stored on the CIC server.

Request body

None

Response

Status Code	Response Body Examples

`200 OK`	`{`
	`"AudioSourceBaseUri":"D:\\I3\\IC\\Resources\\",`
	`"NotifierDscpValue":"46",`
	`"NotifierQosTaggingEnabled":"true",`
	`"ResourceBaseUriLocal":"D:\\I3\\IC\\Media\\",`
	`"RtpPortRange":"16384-32767",`
	`"RtpQosDscpValue":"46",`
	`"RtpQosTaggingEnabled":"true",`
	`"CustomProperty1": "CustomValue1",`
	`"CustomProperty2": "CustomValue2"`
	`}`

/api/v1/server/properties (PATCH)

The `server/properties` PATCH method replaces specified Interaction Media Server properties and values for an Interaction Media Server. The REST API does not modify or delete any other existing properties or values that you do not specify in the body of the PATCH request.

> **Note:**
> These properties are those set through the **Config-Properties** page of the Interaction Media Server web interface. These properties do not include properties set for a specific command server through the web interface or properties set for this Interaction Media Server through Interaction Administrator and stored on the CIC server.

Request body

```
{
"NotifierQosTaggingEnabled": "false",
"CustomProperty1": "CustomValue1",
"CustomProperty2": "CustomValue2"
}
```

Responses

Status Code	Response Body Examples
200 OK	`{ "AudioSourceBaseUri":"D:\\I3\\IC\\Resources\\", "NotifierDscpValue":"46", "NotifierQosTaggingEnabled":"true", "ResourceBaseUriLocal":"D:\\I3\\IC\\Media\\", "RtpPortRange":"16384-32767", "RtpQosDscpValue":"46", "RtpQosTaggingEnabled":"true", "CustomProperty1": "CustomValue1", "CustomProperty2": "CustomValue2" }`
400 Bad Request	For a failed `server/properties` PATCH request, the response body contains information as to the problem, such as invalid syntax, an invalid parameter name, or an invalid value. `{ "status":400, "message":"Parse error occurred within JSON request at line 1, pos 1: Unexpected token", "messageWithParams":"Parse error occurred within JSON request at line {@line}, pos {@pos}: {@message}", "messageParams": { "line":"1", "message":"Unexpected token", "pos":"1" }, "code":"error.restresourcelib.request.invalid" }`

/api/v1/server/properties (PUT)

The `server/properties` PUT method replaces the entire set of properties for an Interaction Media Server.

Request body

> **Caution!**
> The REST API deletes any existing properties that you do not specify in the body of the PUT request.

```
{
"AudioSourceBaseUri":"D:\\I3\\IC\\Resources\\",
"NotifierDscpValue":"46",
"NotifierQosTaggingEnabled":"true",
"ResourceBaseUriLocal":"D:\\I3\\IC\\Media\\",
"RtpPortRange":"16384-32767",
"RtpQosDscpValue":"46",
"RtpQosTaggingEnabled":"true"
}
```

Responses

Status Code	Response Body Examples
`200 OK`	`{ "AudioSourceBaseUri":"D:\\I3\\IC\\Resources\\", "NotifierDscpValue":"46", "NotifierQosTaggingEnabled":"true", "ResourceBaseUriLocal":"D:\\I3\\IC\\Media\\", "RtpPortRange":"16384-32767", "RtpQosDscpValue":"46", "RtpQosTaggingEnabled":"true" }`
`400 Bad Request`	For a failed `server/properties` PUT request, the response body contains information as to the problem, such as invalid syntax, an invalid parameter name, or an invalid value. `{ "status":400, "message":"Parse error occurred within JSON request at line 1, pos 1: Unexpected token", "messageWithParams":"Parse error occurred within JSON request at line {@line}, pos {@pos}: {@message}", "messageParams": { "line":"1", "message":"Unexpected token", "pos":"1" }, "code":"error.restresourcelib.request.invalid" }`

/api/v1/server/properties/*{property-name}* (GET)

The `server/properties/{property-name}` GET method retrieves a specified Interaction Media Server property and its value.

The *`{property-name}`* variable represents the name of a property on an Interaction Media Server. This character string is case-sensitive. Failure to match case in the name of the property when attempting to retrieve an existing property and its value results in a `404 Not Found` status code.

Request body

None

Responses

Status Code	Response Body Examples

`200 OK`	`{`
	`"value":"{property-value}",`
	`}`

`404 Not Found`	`{`
	`"status":404,`
	`"message":"No Property with the ID 'ExampleProperty' exists",`
	`"messageWithParams":"No Property with the ID '{@segment}' exists",`
	`"messageParams":`
	`{`
	`"segment":"ExampleProperty"`
	`},`
	`"code":"error.restresourcelib.resource.invalid"`
	`}`

/api/v1/server/properties/*{property-name}* (PUT)

The `server/properties/{property-name}` PUT method replaces or creates a property on an Interaction Media Server.

The *`{property-name}`* variable represents the name of a property on an Interaction Media Server. Property names are case-sensitive.

> **Note:**
> Failure to match the case of the property name when attempting to replace an existing property creates a property on the Interaction Media Server with the incorrect name. Ensure that you validate that the property created correctly by examining the body of the result message.

Request body

```
{
"value": "{property-value}"
}
```

Responses

Status Code	Response Body Examples

`200 OK`	This status code indicates that the specified property updated successfully.
	`{`
	`"value":"{property-value}",`
	`}`

`201 Created`	This status code indicates that the specified property created successfully.
	`{`
	`"value":"{property-value}",`
	`}`

`400 Bad Request`	For a failed `server/properties/{property-name}` PUT request, the response body contains information as to the problem, such as invalid syntax or an invalid property name.
	`{`
	`"status":400,`
	`"message":"Parse error occurred within JSON`
	
	`request at line 1, pos 1: Unexpected token",`
	`"messageWithParams":"Parse error occurred within`
	
	`JSON request at line {@line}, pos {@pos}: {@message}",`
	`"messageParams":`
	`{`
	`"line":"1",`
	`"message":"Unexpected token",`
	`"pos":"1"`
	`},`
	`"code":"error.restresourcelib.request.invalid"`
	`}`

/api/v1/server/properties/*{property-name}* (DELETE)

The `server/properties/{property-name}` DELETE method removes an Interaction Media Server property.

Request body

None

Responses

Status Code	Response Body Examples
`204 No Content`	An empty body in the response indicates that the property deleted successfully.

`404 Not Found`	This status code indicates that the specified property does not exist on the Interaction Media Server.
	`{`
	`"status":404,`
	`"message":"No Property with the ID 'ExampleProperty'`
	` exists",`
	`"messageWithParams":"No Property with the ID`
	
	`'{@segment}' exists",`
	`"messageParams":`
	`{`
	`"segment":"ExampleProperty"`
	`},`
	`"code":"error.restresourcelib.resource.invalid"`
	`}`

/api/v1/server/enginestatus (GET)

The `server/enginestatus` GET method retrieves statistics of each media engine, and average and totals for all media engines on an Interaction Media Server.

Parameters

This method supports the use of an optional `includeasr` query parameter. The `includeasr` parameter enables you to specify whether to have the REST API include ASR statistics. The default value for this query parameter is `false`.

To specify the `includeasr` query parameter, append a question mark (`?`) to the end of the URI address followed by `includeasr=` and a Boolean value, such as `1` or `true`.

Example:

`http://192.168.1.100:8102/api/v1/server/enginestatus?includeasr=1`

The `includeasr` query parameter accepts the following values:

- `false` or `0`
  The REST API does not include ASR statistics in the response.
  `false` is the default used when you do not specify this query parameter.
- `true` or `1`
  The REST API includes ASR statistics in the response.

Request body

None

Response

Status Code	Response Body Example

200 OK	The number of media engine instances returned in the response can vary according to the number of media engines on the specified Interaction Media Server.


```
{
"audioEngines":
[
{
"index":0,
"threadId":"0xb48",
"cpuId":0,
"location":"000000",
"currentLoad":0.22,
"averageLoad":0.34,
"graphs":0,
"elements":0
},
{
"index":1,
"threadId":"0x2770",
"cpuId":1,
"location":"010100",
"currentLoad":0.21,
"averageLoad":0.36,
"graphs":0,
"elements":0
}
],
"avgCurrentLoad":0.21,
"avgAverageLoad":0.35,
"totalGraphs":0,
"totalElements":0
}
```

With the `includeasr` query parameter, the body of the response resembles the following example:

```
{
"audioEngines":[
{
"index":0,
"threadId":"0xb48",
"cpuId":0,
"location":"000000",
"currentLoad":0.30,
"averageLoad":0.34,
"graphs":0,
"elements":0
},
{
"index":1,
"threadId":"0x2770",
"cpuId":1,
"location":"010100",
"currentLoad":0.29,
"averageLoad":0.35,
"graphs":0,
"elements":0
}
],
"avgCurrentLoad":0.29,
"avgAverageLoad":0.34,
"totalGraphs":0,
"totalElements":0,
"asrStatistics":
{
"currentAsrWorkerThreads":2,
"maxAsrWorkerThreads":4,
"activeRecoTasks":0,
"activeAsrSearchJobs":0,
"avgAsrSearchJobs":0.000,
"avgWorkRatio":0.000,
"maxCompletionDelay":0,
"avgCompletionDelay":0,
"minSearchSpeed":0.000,
"maxSearchSpeed":0.000,
"avgSearchSpeed":0.000
}
}
```

/api/v1/server/about (GET)

The `server/about GET` method retrieves general information for an Interaction Media Server.

Request body

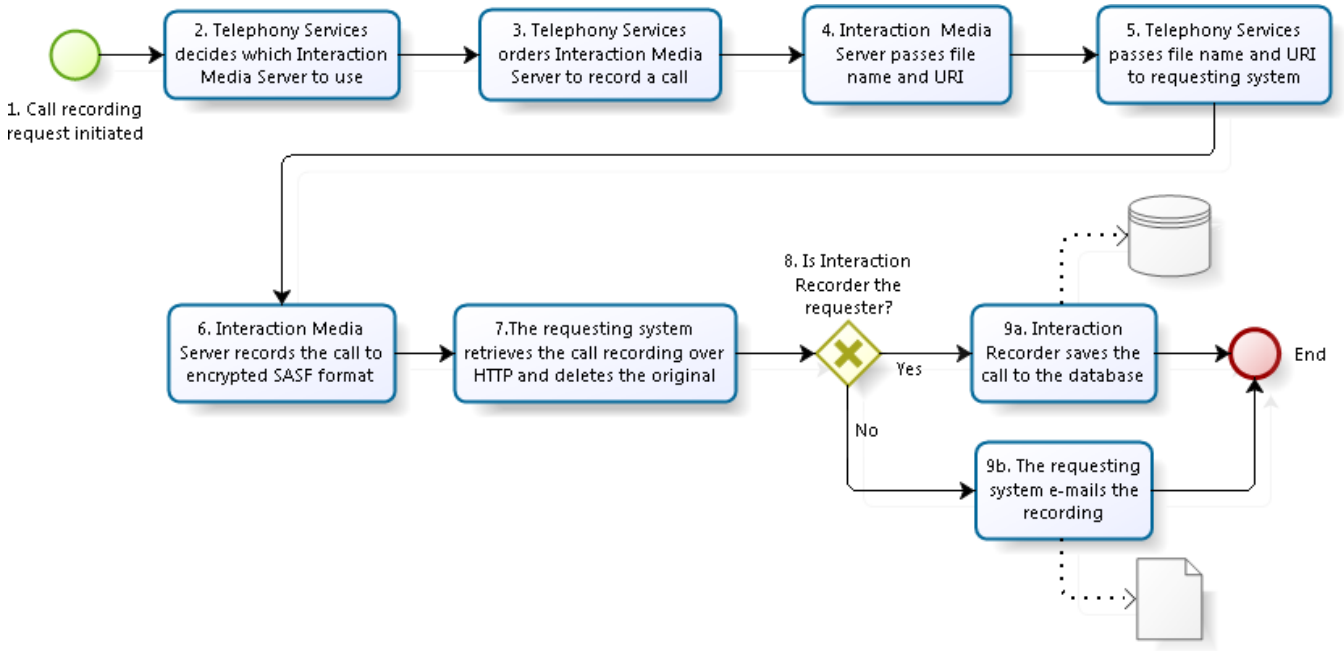
None

Response

Status Code	Response Body Example
200 OK	`{ "machineName":"EXAMPLE", "machineUptime":"9d 05h 06m 59s", "ipAddressLocal":"192.168.1.100", "licenseType":"Production", "productVersion":"CIC 2016 R2", "FileVersion":"16.2.0.261", "SpecialBuild":"2016 R2 " }`

Interaction Media Server Call Recordings and Failover

The following flowchart and table describe how Customer Interaction Center uses Interaction Media Server for call recording:



Item	Description
1	Customer Interaction Center receives a request to record a call from Interaction Recorder, an Interaction Recorder policy, a workgroup that records all calls, CIC client software, or a custom handler.
2	The Telephony Services component of Customer Interaction Center determines, using Media Server Selection Rules, which available Interaction Media Server records the call.For more information about Media Server Selection Rules, see Interaction Media Server Selection Rules for Audio Processing.
3	If you are using the *always-in* audio path method of handling call audio, Telephony Services instructs the selected Interaction Media Server, which is handling the call, to record the call. If you are using the *dynamic* audio path method of handling call audio, Telephony Services notifies Customer Interaction Center of an available Interaction Media Server to handle the call audio.Customer Interaction Center then invites that Interaction Media Server into the RTP audio stream to do the requested operation, which could include recording the call. For more information, see Configure "Always-in" or "Dynamic" Audio Path for Interaction Media Server.
4	When Interaction Media Server is instructed to record a call, it starts recording and passes a file name and Uniform Resource Identifier (URI) back to Telephony Services.
5	Telephony Services passes the file name and URI to the requesting system, so that it can download the recording from Interaction Media Server once it completes the recording.
6	If you configure Interaction Media Server to encrypt the call and Interaction Recorder requests a recording, Interaction Media Server creates the recording in the SASF secure audio format.Interaction Media Server creates this file with a unique prefix and an .sasf extension.Adhoc recordings use unencrypted .wav files. If you configure the **Interaction Recorder** object in Interaction Administrator to compress the call recording, Interaction Media Server can compress the recording using the Opus, GSM, or TrueSpeech codec.If you don't configure the call recording for compression, Interaction Media Server uses the Opus, G.711, or PCM codec.If the Interaction Recorder object has compression set to **NONE**, the **RecordingMimeTypeDefault** property of Interaction Media Server sets the compression codec.
7	When Interaction Media Server completes the call recording operation, the requesting system retrieves the call recording over HTTP and deletes the call recording from its location on Interaction Media Server.The requesting system can be Interaction Recorder, Interaction Recorder Remote Content Service, a workgroup recording all calls, CIC client software, custom handlers, or others.
8	If Interaction Recorder or Interaction Recorder Remote Content Service requests the call recording, it processes the recording differently than if the requester was CIC client software, a custom handler, or a workgroup set to record all calls.
9a	Interaction Recorder saves the call recording to the database. If you are using Interaction Recorder Remote Content Service, the call recording is stored on the selected Interaction Recorder Remote Content Service server and informs Interaction Recorder of the location for the recording.For more information about Interaction Recorder Remote Content Service, see the *Interaction Recorder Remote Content Service Installation and Configuration Guide* at https://help.genesys.com/cic/mergedProjects/wh_tr/desktop/pdfs/recorder_remote_content_service_icg.pdf.
9b	The requesting system, other than Interaction Recorder or Interaction Recorder Remote Content Service, sends the call recording as an email attachment to the address configured for the requesting system.For example, if an agent uses CIC client software to record a call, the requesting system sends the call recording to that agent.

Interaction Media Server Call Recording if CIC or the Network Connection Fails

If a CIC server ever becomes unavailable after Interaction Media Server starts a call recording or if the network connection fails, the following events occur:

1. Since CIC is not in the path of the audio stream, Interaction Media Server continues current recordings. Interaction Media Server finishes the recording when the call disconnects.
2. If you configure Interaction Media Server to log on to multiple servers, including a backup CIC server, it records new calls from the backup CIC server.
3. Since the CIC server became unavailable, requesting systems, such as Interaction Recorder and handlers, lose track of the call recording process. The call recording remains on Interaction Media Server.
4. If a backup CIC server becomes the primary server in a switchover situation, it is not aware of previous call recordings. Therefore, the previous call recording remains on Interaction Media Server. The backup CIC, now acting as the primary server, processes all new call recordings.
5. If Interaction Recorder requested a recording, the system recovers it automatically. You must manually process the ad-hoc call recordings that remain on Interaction Media Server. Then, you can delete the recordings to make room for new call recordings. For more information about rescuing recordings that remain on Interaction Media Server, see the PureConnect Product Information website: https://my.inin.com/products/selfhelp/Recorder/Pages/Default.aspx.

Troubleshoot Interaction Media Server Issues

If you experience problems with your Interaction Media Server, consult the event logs on the CIC server connect to Interaction Media Server. If Interaction Media Server fails an operation or encounters resource problems, it logs these problems in the affected CIC server event logs, if the Notifier connection is still present.

If an Interaction Media Server cannot allocate media resources for an interaction, CIC writes these failures to the Windows Event Log every 15 minutes. There are two types of these events: conferences and taps/players (audio sources).

The Telephony Services component of CIC also writes warnings to the Windows event log. For example, if Telephony Services cannot start a recording because all Interaction Media Servers assigned to this CIC server are unavailable, Telephony Services writes a warning to the event log.

Interaction Media Server Log Files

Interaction Media Server stores operation and transaction data in log files on the local storage media. These files have an extension of `.ininlog` and are in the directory that you specified during installation. If you are unsure of the directory, the **ININ_TRACE_ROOT** Windows system variable on the Interaction Media Server host specifies this location. Interaction Media Server stores data in its log files for seven days. After that time, the system erases log entries from the file that are older than seven days. To change the number of days that Interaction Media Server retains data in the log file, set the **ININ_TRACE_LOG_VARIABLE** Windows system variable on the Interaction Media Server host to the necessary value.

Interaction Media Server Memory Dump

Starting with release 2017 R2, you can create a memory dump of a problematic or unresponsive Interaction Media Server process. A memory dump is the contents of the Random Access Memory (RAM) for one or more processes that the underlying operating system saves into one or more files. PureConnect Customer Care can use these dump files to help determine what caused the Interaction Media Server process to have issues.

Important!

Generally, dump files are large, depending on the amount of RAM in an Interaction Media Server. Ensure that you have enough free hard drive space to facilitate the creation of these files.

Interaction Media Server stores no more than 10 diagnostic memory dumps between server restarts.

You can manually start a memory dump by selecting **Config** > **Diagnostics** in the Interaction Media Server web interface. Then, click **Create a diagnostic memory dump of the current state of this media server**.

Caution!

When you trigger a memory dump of the Interaction Media Server process, that action temporarily locks that process, which causes interruptions to any current calls or actions. The operation takes approximately a minute to complete.

Interaction Media Server Stopped Recording Calls

If the storage media that Interaction Media Server uses to record calls has only 2% of free space remaining, Interaction Media Server stops recording calls. Interaction Media Server sends Simple Network Management Protocol (SNMP) traps when free space reserved for recording calls reduces to 10% and 2%. For Interaction Media Server to resume recording calls, the storage media must have 5% free space available. For more information about free space issues, see Low Storage Free Space.

Audio Quality Issues

If you encounter poor audio quality in VoIP communications, the source of the problem could range among many causes.

Jitter

Jitter is the variance in the intervals when Interaction Media Server receives Real-time Transport Protocol (RTP) packets. For example, if Interaction Media Server constantly receives RTP packets every 20 milliseconds, there is no jitter. If the interval in the reception of RTP packets varies, such as 20 milliseconds, 45 milliseconds, 23 milliseconds, and 50 milliseconds, this variance is

jitter. Many voice over IP (VoIP) solutions use a jitter buffer to collect multiple RTP packets within a time frame so that it can queue, reassemble, and retransmit the packets with a corrected, constant interval.

Interaction Media Server uses a jitter buffer for the following VoIP communications:

- VoIP calls that require transcoding from one codec to another.
- VoIP calls that contain call waiting tones.
- VoIP calls that contain intermittent tones that indicate that a call is recording.
- VoIP calls that contain digits from a dial pad interface in CIC client software.
- VoIP calls on CIC SIP lines with the **Disable Media Server Passthru** feature enabled.

For all other VoIP calls, Interaction Media Server does not use a jitter buffer and transmits the RTP packets as it receives them. For a CIC environment, this method of immediate transmission is known as a pass-through connection.

The jitter buffer for Interaction Media Server is dynamic. If Interaction Media Server detects variances in the receipt interval of RTP packets, it calculates an average receipt interval and then adjusts the jitter buffer to accumulate RTP packets within a time frame before retransmitting them. The maximum time frame for the jitter buffer in Interaction Media Server is 160 milliseconds, which equates to an average jitter of 53.3 milliseconds.

Significant variances in jitter can cause audio issues as the jitter buffer may not receive the expected number of RTP packets, which then causes Interaction Media Server to transmit silence where an RTP packet is missing. You can hear this silence as a brief break in an audio stream. Continual variances of this magnitude can produce ongoing breaks in the audio stream.

If you experience continuous breaks in audio streams, analyze each network node in the audio path and eliminate any bandwidth or processing limitations that cause jitter.

VLAN misconfiguration

If you configured Interaction Media Server to route RTP packets through the VLAN interface for data, other network nodes in the data VLAN remove any QoS DSCP markings. This problem can result in network nodes delaying the transmission of RTP packets. Also, depending on the configuration of the network, RTP packets sent to the VLAN interface for data may not be routable to the VoIP endpoint to which the system sends the packets, resulting in no audio stream for the VoIP endpoint.

Ensure that you set the **RtpAddressLocal** Interaction Media Server property to the correct network interface card (NIC) on the Interaction Media Server computer.

If you did not specify an address for the **RtpAddressLocal** property, Interaction Media Server sends the RTP packets to the first matching route in the Windows routing table.

Some NIC manufacturers include software that provides VLAN capabilities on a single NIC. If you are encountering a complete loss of audio, ensure that you configured the VLAN software for the NIC on the Interaction Media Server computer correctly. Consult the documentation for the NIC card for proper configuration.

Packet loss

When the system loses RTP packets in a network, the system also loses the portion of the audio stream within that packet. Most VoIP systems and devices play silence for that lost portion of the audio stream. The loss of RTP packets in a network can have various causes:

- Packet degradation - If a network node cannot read the information in the IP packet containing the RTP packet, the node discards the packet. This degradation could be the result of interference along the transmission medium, insufficient quality of the transmission medium, overextension of the transmission medium, or intermittent power problems in the transmitter.
- Long delays of single packets - Problems in a network can cause a delay of individual packets so that the system receives them long after subsequent packets. In most VoIP solutions, the system discards these delayed packets because their position in the audio stream passed and the system replaced them with either silence or sound extrapolated from the surrounding packets. Overburdened network switches, improper Quality of Service (QoS) settings in a network node, or a lack of QoS in a network node can cause delays in individual packet transmission.

Data corruption

In some instances, Interaction Media Server receives RTP packets that have corrupted data. There are several possible sources of data corruption. A probable source of data corruption is a previous network node, such as a Session Border Controller (SBC), that uses a jitter buffer and attempts to correct some perceived irregularity in the RTP packets.

Interaction Media Server Stopped Creating or Appending Log Files

If the storage media that Interaction Media Server uses to store log files has less than 100 MB of free space remaining, Interaction Media Server stops writing entries to the log file. Interaction Media Server sends a Simple Network Management Protocol (SNMP) trap when free space reserved for log files is reduces to 100 MB or less. For more information about free space issues, see Low Storage Free Space.

> **Note:**
> Even if you set all trace levels for Interaction Media Server components to **None**, Interaction Media Server still writes some critical Notifier connection data to the log files.

Low Storage Free Space

Low storage free space in Interaction Media Server is an indication of a problem, such as the problems displayed in the following list:

- Interaction Recorder is unable to access, retrieve, and delete recording files from Interaction Media Server for one of the following reasons:
  - Network communication issues
  - CIC or Interaction Recorder is in a non-operational state
  - Improper configuration of Interaction Media Server, such as the **Recording Retrieval HTTP Interface** and **Recording Retrieval HTTP Port** parameters
- You set the trace level for logging the activity of an Interaction Media Server component to **Notes**, **Verbose**, **Ultra Verbose**, or **All**, for an extended time.

When Interaction Media Server encounters low storage free space situations, it does the following actions:

- If you have configured the SNMP feature in the Interaction Media Server web interface, it sends trap messages to the central SNMP monitor.
- Interaction Media Server notifies CIC to write an entry in the Windows Event Log on the CIC server. Genesys recommends that you routinely monitor the Windows Event Log on the CIC server so that you can take pre-emptive action for problematic situations.

Probation Status in Windows Event Log

When CIC processes an interaction, such as a call, it requests resources from Interaction Media Server. If Interaction Media Server does not respond or fails to create the necessary resources for a call, CIC places that Interaction Media Server on probation and writes an entry to the Windows Event Log.

Probation is a condition where CIC recognizes that an Interaction Media Server failed to respond or provide resources for an interaction. When this situation occurs, CIC stops sending requests to that Interaction Media Server for 10 seconds. If subsequent failures occur, CIC increases the time period that it considers Interaction Media Server to be in the probation state, as demonstrated in the following table:

Failure Sequence	Probation Period
First	10 seconds
Second	20 seconds
Third	40 seconds
Fourth	1 minute 20 seconds
Fifth	2 minutes 40 seconds
Sixth	5 minutes 20 seconds
Seventh and any subsequent failures	10 minutes

Interaction Media Server can enter the probation state for the following reasons:

- You configured Interaction Media Server to apply Quality of Service (QoS) to Real-time Transport Protocol (RTP) communications, but you did not install the PureConnect QoS driver.
- The **RtpPortRange** property value on Interaction Media Server is too small and all available ports are currently in use. Use the Interaction Media Server Config-Properties Page to configure the property.
- Another application is using User Datagram Protocol (UDP) ports and no other UDP ports are available for Interaction Media Server to service the interaction.
- If Interaction Media Server uses one network interface card (NIC) for Notifier traffic and one NIC for RTP traffic, Interaction Media Server cannot service the interaction if the RTP NIC fails.
- Interaction Media Server has no available media engines to support the interaction.
- Interaction Media Server does not respond within a 10-second period to a resource creation request from CIC.

For most cases where an Interaction Media Server is on probation, CIC sends the request to process the interaction to another Interaction Media Server, if one is available. If all available Interaction Media Servers are in the probation state or if you have only one Interaction Media Server, CIC disregards the probation state and requests resources to handle the interaction.

Note:
Multiple CIC servers do not share probation state information. Each CIC server separately tracks which Interaction Media Servers are in the probation state.

Disconnected Calls

If a call requires processing by Interaction Media Server and CIC cannot connect that call to an Interaction Media Server within a 10-second period, CIC disconnects the call.

CIC disconnects these calls because it cannot determine the duration of the problem. Otherwise, the caller could remain in the waiting state indefinitely.

The following list presents some reasons why this event occurs:

- The network is heavily congested or experiencing failures.
- No Interaction Media Servers are functioning.
- The Interaction Media Server was restarted improperly, such as a hard reset.
- The Central Processing Unit (CPU) is overloaded to the point where Interaction Media Server cannot respond quickly to requests from CIC.

To determine the cause of the problem, review the following information:

- The Windows Event Log on the Interaction Media Server
- The Windows Event Log on the CIC server
- SNMP traps and alerts from Interaction Media Server to your Network Management System (NMS) entities.
- Any configuration modification events in the Interaction Media Server log files

> **Note:**
> When you make configuration changes through the web interface of Interaction Media Server, it records those changes to the log file only when you set the trace level for the **Config** component to **Status** or higher.

Connection to CIC Server Over a WAN is Failing

Certain network configurations and requirements can affect connectivity between Interaction Media Server and CIC over a wide area network (WAN). The following list provides some examples:

- Interaction Media Server must communicate through a specific Network Interface Card (NIC).
- The CIC server resides on a different subnet.
- Your network uses non-standard topologies.

In these situations, you can use the Windows `route` command to set the appropriate network routing information so that the two systems can communicate. For more information about the `route` command, see Windows help. If you need assistance, contact PureConnect Customer Care.

Lost or Forgotten Credentials for Interaction Media Server REST API

If you lost or forgot the REST API credentials, delete the following keys in the Windows Registry:

- RestApiEnabled
- RestApiLoginName
- RestApiLoinPassword

Deleting these keys causes Interaction Media Server to disable the REST API functionality. You can then define a new set of credentials in the Interaction Media Server web interface and re-enable the REST API functionality.

Interaction Media Server Backward Compatibility With CIC

This version of Interaction Media Server is fully backward compatible with CIC versions 4.0 and 3.0 SU12. However, this version of Interaction Media Server uses fully qualified domain names (FQDN). If you incorporate Interaction Media Server in a CIC 3.0 environment, you must use Interaction Administrator to configure the prompt server in CIC to use FQDN instead of short host names.

To configure the prompt server to use FQDN

1. Start Interaction Administrator.
2. In the pane on the left side of the **Interaction Administrator** window, click the **System Configuration** container.
3. In the right pane of the **Interaction Administrator** window, click the **Configuration** item. The **System Configuration** dialog box appears.
4. In the **System Configuration** dialog box, click the **Prompt Server** tab.
5. On the **Prompt Server** tab, set the **Host format** list box to **FQDN**.
6. In the **System Configuration** dialog box, click **OK**.

For more information about the backward compatibility of Interaction Media Server, see Appendix B: Backward Compatibility With CIC.

Interaction Media Server has Corrupted or Missing Components

If your Interaction Media Server becomes unstable or displays errors about corrupted or missing components, do a repair installation through the **Programs and Features** interface in the Windows **Control Panel**. Selecting to repair Interaction Media Server displays a dialog box that verifies the validity of all installed files. If this action does not resolve your problem, contact PureConnect Customer Care for assistance.

CIC Marks Interaction Media Server Inactive and Creates an Entry in the Windows Event Log

PureConnect include Interaction Speech Recognition as a native ASR product. The processing for Interaction Speech Recognition occurs in Interaction Media Server. When Interaction Media Server starts and you licensed Interaction Speech Recognition for use, CIC transfers the grammars necessary to support Interaction Speech Recognition operations to Interaction Media Server.

If there is a limited network connection between Interaction Media Server and CIC, the transfer of the grammars is slower than expected. CIC reattempts to transfer the grammars to Interaction Media Server. If the problematic network condition persists after multiple attempts, CIC then marks Interaction Media Server as inactive and creates an entry in the Windows Event Log.

Cannot Connect Interaction Media Server to the Secondary Server in a Switchover Pair

In some rare instances, defining an Interaction Media Server connection to the secondary server in a CIC switchover pair can result in Interaction Media Server becoming unresponsive.

To resolve this issue

1. Restart the computer that is hosting Interaction Media Server.
2. Manually cause a switchover of the CIC servers so that the secondary server becomes the primary server.
3. Define the Interaction Media Server connection to that CIC server as described in Add CIC Server to Interaction Media Server.
4. After you successfully connect Interaction Media Server to the CIC server, manually cause another switchover to restore the CIC server to its secondary state.

Distributed Conference Call Considerations

CIC can support conference calls with many participants by creating smaller conference calls on multiple Interaction Media Servers and joining them together.

Following are some of the limitations of this feature:

- **Delays in audio communications:** Distributed conference calls can encounter delays based on the quality of the network connections between regional locations and hub locations, and the number of nodes in each communication path.
- **Restricted communication paths:** It is possible for you to configure CIC locations with restrictions communicating with other CIC locations. These restrictions are compounded with distributed conferencing as regional conference calls in separate locations require hub connections. If you have restricted the number of hub locations and have restricted communication between locations, it is possible that callers in some locations cannot join a distributed conference call.
- **Unnecessary, numerous locations:** The more CIC locations that you create, the more complex your environment is to configure with regards to protocols, hub locations, and Media Server Selection Rules. Ensure that you do not create superfluous locations that do not require features, configurations, or capabilities that are already available through existing locations.
- **Merging existing conferences:** You cannot merge two or more existing CIC conference calls using this feature. CIC can only expand one existing conference call by creating other conference calls on other Interaction Media Servers and joining the audio communications through Interaction Media Servers in hub locations.
- **Coaching sessions:** Each CIC distributed conference call supports only one coach connection.
- **Disconnection:** If an added regional conference call disconnects from the original conference call because of a brief network outage or some other temporary problem, CIC cannot reconnect it to the original conference call.
- **Insufficient resources:** Distributed conference calls rely on the presence and proper configuration of enough Interaction Media Servers to host (regional), process, and connect (hub) all conference call participants. The number of available Interaction Media Servers and their available resources limits the number of participants supported for distributed conference calls. For example, if you configure a single Interaction Media Server that also processes regular calls, records calls, conducts call analysis, and does keyword spotting within the only hub location in your entire CIC network, it can quickly exhaust all available resources. Similarly, if you configure the Selection Rules feature to use Interaction Media Servers in only one location for conference calls, you can quickly consume all available resources.
- **Selection rule changes not obeyed:** When CIC creates a conference call, it reads and stores the existing Interaction Media Server selection rules. All subsequent processing for that conference call uses that stored set of selection rules. If you change the selection rules after a conference call has begun, CIC does not use those changes on that conference call. CIC uses the modified selection rules for the next new conference call it creates.

Interaction Media Server Web Interface Doesn't Accept Administrator Credentials With Japanese Characters

If you install Interaction Media Server and create the name of the administrator account with English characters, changing the name of that account to contain Japanese characters later causes Interaction Media Server to fail authentication.

This issue occurs only with Microsoft Internet Explorer and Mozilla Firefox.

Appendix A: OpenSSL Copyright

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Appendix B: Backward Compatibility With CIC

This version of Interaction Media Server is backward compatible with CIC 4.0 and CIC 3.0 with Service Update 12 or later. If you use one of these combinations or products, note the following statements:

- To ensure complete compatibility with CIC 3.0, apply all available updates to Interaction Media Server.
- This version of Interaction Media Server supports all features that are present in CIC 3.0 SU12 or later.
- This version of Interaction Media Server supports both the **Basic** and **Advanced** feature sets that you select through the Interaction Administrator 3.0 **Media Server** object.
- Interaction Media Server features introduced in this version or version 4.0 are not compatible with CIC 3.0.
- *Interaction Media Server Technical Reference* does not contain any user interfaces or procedures that are related to usage with CIC 3.0. For more information about configuring Interaction Media Server features and behavior, see the *Interaction Administrator version 3.0 Technical Reference*.
- Set the following Interaction Media Server parameters in the **Config-Parameters** page of the web interface for recording and faxing compatibility with CIC 3.0:

Parameter	Value
Recording Retrieval HTTPS Required	False
Recording Retrieval Use Mutual Authentication	False

- The **AsrDiagnosticRecording** property of Interaction Media Server does not affect CIC 3.0.
- For backward compatibility with CIC 3.0, `.WAV` audio files are in the following location:
  `<drive>:\Program Files (x86)\Interactive Intelligence\Resources`

Appendix C: Antivirus Requirements and Best Practices for CIC and Subsystem Servers

This appendix provides the best practices and additional information regarding antivirus software products for CIC and its subsystem servers. These subsystem servers include Interaction Media Server, Interaction Media Streaming Server, Interaction SIP Proxy, and others.

When you install and use an antivirus software product on servers for CIC or its subsystems, do the following tasks to ensure maximum performance and processing capacity:

- Install Supported Antivirus Product Only
- Install Virus Protection Security Feature Only
- Configure Real-time Protection for Write Operations Only
- Exclude Continually Accessed File Types and Directories
- Update Virus Definitions Daily
- Conduct a Full Scan of the File System on a Regular Basis

Genesys has created documentation for configuring the supported antivirus software products for use with CIC servers. You can find this documentation by clicking the **Data and System Protection** hyperlink on the following webpage: http://testlab.genesys.com.

Install Supported Antivirus Product Only

Genesys selects and tests different antivirus software products from multiple vendors based on the popularity of the product in customer environments. Genesys tests each antivirus software product on several criteria, such as performance impact, compatibility, and processing capacity. Genesys then validates specific antivirus software products for use with CIC and its subsystem servers.

To view the supported antivirus software products

1. Open a web browser and navigate to the following URL address: http://testlab.genesys.com.
2. Click the **Data and System Protection** hyperlink. The resulting web page displays the supported antivirus products, the associated versions, and any impacts on performance and capacities for CIC and its subsystem servers.

> **Important!**
> Ensure that you know what antivirus software product and version that you use on your CIC and its subsystem servers before you make purchasing decisions. Some antivirus software products reduce capacities and performance, which require more servers or affect licensing decisions.

Install Virus Protection Security Feature Only

Many software security products and suites include features in addition to virus protection. For performance and capacity considerations, CIC and its subsystem servers do not support any third-party security features other than virus protection. Many of these security features require the installation of drivers that can introduce decreases in performance and capacity, such as resets of network interface adapters.

The following list provides some of the unsupported security features that software security suite products can install:

- Firewall
- Malware protection
- Spyware protection
- Intrusion prevention
- Network monitoring

> **Important!**
> As security suite products typically install all security features by default, Genesys requires that you do not use standard or default installation options. Customize the installation to include only virus protection.

Configure Real-time Protection for Write Operations Only

Most antivirus software products provide a real-time protection feature, which scans for viruses when a program or process attempts a read, write, modify, or execute operation on a file. The terminology for this type of feature varies between antivirus software products, such as *On-Access Scanning* and *Auto-Protect*. So that you can configure the real-time protection feature of your antivirus software product, see the documentation for that product to determine its terminology for that feature.

Server software products execute and read files frequently. By default, most antivirus software products use the real-time protection feature to scan files on read, write, modify, and execute operations. Such a configuration can significantly reduce input and output performance of the storage media, create file lock contention, and cause a reduction in processing capacities of the host server.

> **Important!**
> Configure the real-time protection feature of your antivirus software product to scan for viruses for only *write* operations, such as when you create or modify files.

Exclude Continually Accessed File Types and Directories

To process the interactions in your organization, CIC and its subsystem servers must write and modify files on a rapid, continual basis, such as recordings and log files. To ensure the maximum performance, configure your antivirus software product to exclude specific file types as listed here.

Files and file types to exclude

Configure your antivirus software product to exclude the following files and file name extensions:

- `.i3p`
- `.i3c`
- `.ivp`
- `.dxs`
- `.ihd`
- `.i3pub`
- `.db` (for .inin.db database)
- `.ininlog` (CIC log file format)
- `.ininlog_idx` (CIC log index file format)

Directories and subdirectories to exclude

> **Important!**
> When you exclude a directory, ensure that you exclude all its subdirectories.

Configure your antivirus software product to exclude the following directories and all subdirectories:

- Directory that contains the Interaction Media Server log files. For more information about log files, see Interaction Media Server Log Files.
- Directory specified in the **Directory for Cache of HTTP Client** parameter for this Interaction Media Server
- Directory specified in the **ResourceBaseUriLocal** property for this Interaction Media Server

> **Important!**
> Your specific antivirus software product may require more configuration. Consult the document for your specific antivirus software product on http://testlab.genesys.com for any special instructions beyond these recommendations.

Update Virus Definitions Daily

Genesys strongly recommends that you configure your antivirus software product to download and implement new virus definitions daily. Schedule these updates to occur during off-peak hours. For more information about virus definitions, see the documentation for your antivirus software product.

Conduct a Full Scan of the File System on a Regular Basis

Genesys strongly recommends that you configure your antivirus software product to scan the file system of the host server storage media on a daily or weekly basis. Schedule this scan to occur during off-peak hours. Ensure that you select a time for starting the scan that allows it to finish before demand on host server resources increases.

Important!

Some antivirus products use separate exclusion lists for real-time protection and full system scans. Ensure that you define the files and directories specified in Exclude Continually Accessed File Types and Directories for both types of scans.

Change Log

The following table lists the changes to the *Interaction Media Server Technical Reference* since its initial release.

Date	Changes
11-November-2011	Initial release.
16-January-2012	Add virtualization information regarding Interaction Media Server.
24-January-2012	• IC-91333 - Media Server Call Analysis support for es-CL language model files. • IC-92963 - Correct inconsistencies in Interaction Media Server Technical Reference. • IC-92166 - Document that antivirus signature updates should be scheduled during low system usage. • IC-89725 - Document that properties and parameters that require a restart are now marked with a red asterisk. • IC-92220 - MSCA regional model files: Venezuela, "es-VE". • IC-86242 - Document rejection of resource operations from IC servers with duplicate license IDs.
03-February-2012	Add compatibility requirements regarding Interaction Center 3.0.
06-March-2012	• IC-90659 - Document coaching restrictions for conferences on Interaction Media Server. • IC-90660 - Document hosted monitor restrictions for conferences on Interaction Media Server. • IC-90662 - Document hosted listens and recording behavior for conferences on Interaction Media Server. • IC-92112 - Document configuration and usage of Media Server 4.0 with Interaction Center 3.0. • IC-92346 - MSCA regional model files: Spain, "es-ES". • IONMEDIA-208 - Change "Dynamic" load balancing to "Fewest Elements" for less than 8 CPUs.
27-March-2012	• IC-94973 - MSCA regional model files: New Zealand, "en-NZ". • IC-95244 - Add content for Text-to-Speech support.
29-June-2012	• IC-82384 - Expose Media Server rules in TS (and IA). • IC-92283 - Document Secure Input/Secure IVR: Interaction Media Server log encryption. • IC-94660 - Secure Input: tell Media Server we support secure input based on license. • IC-95244 - Update "Play TTS audio" for Adv Ops to include MRCP description. • IC-93860, IONMEDIA-328 - Media Server to support IPv6 in future. • IONMEDIA-323 - Check for correct DSCP (QoS) tagging of inbound RTP streams. • Add tracing levels and descriptions for event logging. • Add troubleshooting information regarding results of low free space on hard disk drives. • Add information on Interaction Media Server log files. • Clarify property override hierarchy feature. • Provide additional information on G.722 audio processing. • Add clarification of CPU usage for additional software on Interaction Media Server. • Provide additional information on RTP redirection for dynamic audio path. • Recreate several diagrams for accuracy and consistency. • Correct content for fax processing and provide additional details. • Incorporate content for new antivirus requirements and best practices. • Update software requirements. • Update hardware requirements.
14-August-2012	• Update content regarding data migration from 3.0 to 4.0. • Fix incorrect Interaction Center 3.0 backward compatibility level.
17-October-2012	• Correct discrepancies regarding the maximum number of participants for a single conference call on Interaction Media Server. • Correct the RTP acronym definition.

27-February-2013	• DP-863 - Add content for support of in-band DTMF. • DP-765 - Add content for new call analysis functionality when connecting to remote stations in the Interaction Center network. • DP-687 - Update migration procedures. • DP-292 - Add feature item describing support of recording notification beeps. • IC-95754 - Add content describing adjustment of MaxNumFilters registry setting for installation of the PureConnect QoS driver. • IC-95054 - Add content describing how conferences that contain only external parties are automatically disconnected. • IC-91257 - Add admonishment for selecting the appropriate Interaction Media Server Service Update when using `SUInstall.exe`. • Add an admonishment stating that to use call analysis for a language other than English that is set on the Interaction Center server requires creating a **Call Analysis Language** server parameter on the Interaction Center server. • Add list of Special Information Tones supported by Interaction Media Server. • Add an admonishment stating that call analysis model files cannot be modified. It also requests recordings of problematic calls that fail call analysis be sent to PureConnect Customer Care. • Add information about supporting whisper tones announcing auto-answer calls. • Update content on virtualization support to include Testing licenses. • Add content regarding the need to generate and apply a new license after applying Service Update 2 or later. • IC-107503 - Add HTTP and HTTPS port numbers for packaged servers. • Modify content to specify how Interaction Center selects a single Interaction Media Server should multiple servers exist in a location. • Remove obsolete information regarding installation of an Interaction Media Server appliance and add cross-references to the appropriate documentation.
04-March-2013	Changed the default value for the **Min Scheduler Latecy** parameter from 2 to 4.

23-August-2013	• IONMEDIA-502 - Add global language model for Call Analysis feature. • IONMEDIA-491, IC-109732 - Add language model for Call Analysis feature for Korean, Republic of Korea. • IONMEDIA-493, IC-109737 - Add language model for Call Analysis feature for German, Switzerland. • IONMEDIA-495, IC-109706 - Add language model for Call Analysis feature for French, France. • IONMEDIA-494, IC-109728 - Add language model for Call Analysis feature for Italian, Italy. • IONMEDIA-483, IC-109723 - Add language model for Call Analysis feature for Chinese, Hong Kong. • IONMEDIA-599 - Add language model for Call Analysis for Spanish, Puerto Rico. • IONMEDIA-604 - Add language model for Call Analysis for Spanish, Peru. • IONMEDIA-601 - Document that network communications can be transmitted across multiple network adapters through **RtpAddressLocal** and **RtpAddressLocalMask** properties. • IC-96270 - Document that setting the **Broken RTP Disconnect Time** server parameter to **0** (zero) stops Interaction Center from disconnecting calls where both endpoints have stopped transmitting RTP packets. • IC-105999 - Document the new TS server parameter, **TreatEndpointIdleAsFullIdle**, that enables Interaction Center to disconnect an interaction where one party has stopped transmitting RTP packets (idle state). • IC-108211 - Document new "Automatic Speech Recognition" statistics on the Audio Engine Status page of the Interaction Media Server web user interface. • IC-106095 - Document changes to Selection Rules feature. • IC-109645 - Document supported decibel range for "beeps" played during recording. • IC-107892 - Document new Distributed Conferencing feature. • Document the new ASR parameters on the **Config-Parameters** web interface. • Add content for the new **Test** button on the **Alerts** page of the Interaction Media Server web interface. • Update interface images. • Update "Enable Secure Input feature" topic to be more comprehensive. • Add content on network interface configuration. • Add new index entries and enhance existing entries. • Update content on virtualization support. • Add content on supported audio formats for prompts. • DP-1082 - Remove references to an obsolete product. • IC-112984 - Add content stating how Interaction Media Server attempts to download grammars Interaction Speech Recognition multiple times before entering an active state with the Interaction Center server. • Document the new **RecognizerDiagnosticRecordings** property. • Add content for Interaction Speech Recognition.
11-February-2014	• Clarify supported CPU brand. • IONMEDIA-691 - Add language model for call analysis feature for Spanish, Mexico. • IONMEDIA-753 - Add language model for call analysis feature for Turkish, Turkey. • IONMEDIA-658 - Add language model for call analysis feature for German, Germany. • IONMEDIA-635, IC-109702 - Add language model for call analysis feature for Danish, Denmark. • IONMEDIA-623 - Add language model for call analysis feature for Tagalog, Philippines. • IONMEDIA-615 - Add language model for call analysis feature for English, India. • IC-113848 - Add language model for call analysis feature for global setting (x-inin-global). • DP-162 - Document new features for conference calls on Interaction Media Server. • Added clarification about using **RtpAddressLocalMask** to transmit RTP packets across multiple NICs in the host server. • Added content for PureConnect SNMP agent registry service. • Added and updated content to reflect new licensing model.
13-May-2014	• Update content and procedures for Server Selection Rules for changes to the Interaction Administrator interface and expansion of the feature (DP-1204) to other server types. • Update requirements section for recent .NET Framework version. • DP-1321 - Add Echo Cancellation configuration in Interaction Administrator. • DP-809 - Support for G.711 faxing.

03-September-2014	• Updated documentation to reflect changes required in the transition from version 4.0 SU# to CIC 2015 R1, such as updates to product version numbers, system requirements, installation procedures, references to Product Information site URLs, and copyright and trademark information. • IC-125022 - Display Interaction Media Server version and license type in Interaction Administrator. • IC-124113 - Alter **About Box** to display new application version and patent information. • IC-123549 - Configuration File Import. • IC-122687 - Add option to disable an Interaction Media Server from the web configuration. • IC-118155 - Add regional model for call analysis for he-IL (Israel). • IC-118151 - Add regional model for call analysis for ar-AE (UAE). • IC-118144 - Add regional model for call analysis for es-PA (Panama). • IC-118139 - Add regional model for call analysis for es-GT (Guatemala). • IC-107185 - Document new property, **EnableCallRecovery**, to keep audio sources alive when a Notifer connection is lost. • IC-119721 - Emphasize the recommendation of using the **Always-In** method for audio processing.
30-January-2014	• Updated screen captures throughout document. • Added content for new **CreateMemoryDumponEngineFault** parameter. • Document new `<Version>` node in configuration file in "Import configuration file" section. • Rewrote procedure in "Apply an update to Interaction Media Server" for new **Deactivate Server** feature and the new Appliances `.ISO` file. • Update "Copyright and Trademark information" page. • Removed admonishment stating that Interaction Media Server requires *certified* hardware for installation. Note that any specified hardware requirements must still be met for installation and support of Interaction Media Server.
02-March-2015	Rewrote content in "Interaction Media Server virtualization" as this option is not supported by Genesys.
25-March-2014	• DP-1467 - Secure IVR Playback. • IC-127525 - DocLink: Add TLS support for Prompt Server. • IC-127527 - DocLink: Add configuration to enable the media server as default TTS provider.
28-July-2015	• IC-127182 - Update the software requirements of Interaction Media Server to state that its web interface supports only web browsers that use version 1.1 or 1.2 of TLS. • DP-1272 - Update content related to SNMP for the new changes in the PureConnect SNMP service to support SNMPv3.
30-September-2015	• Added feature description for the new 64-bit architecture that enables more resource utilization. • Update all images to reflect corporate rebranding.
14-December-2015	DP-1525 - Add REST API support to configure Interaction Media Server. See Interaction Media Server REST API.
11-January-2016	• IC-133901 DocLink: MSCA regional model files: Kuwait, "ar-KW" (Install: Server). See Supported call analysis language models and regions. • IC-134614 Clarify content on NIC teaming in Interaction Media Server documentation. See Teamed network interfaces.
09-March-2016	• IC-135280 Update media server tech ref regarding RtpAddressLocalMask/multiple nic's. See Teamed network interfaces and Configure Interaction Media Server to use a network interface for RTP communications. • IC-135385 DocLink: MSCA regional model files: Taiwan, "zh-TW" (Install: Server). See Supported call analysis language models and regions. • IC-135406 Check Media Server documentation for possible impacts by ITTS. See Interaction Text To Speech (ITTS) licenses. • DP-1665 Windows 10 Validation. • Added "Microsoft Edge" to supported web browsers for viewing the Interaction Media Server web interface in Interaction Media Server software requirements.
24-August-2016	• IC-137979 DocLink: Add support for Portugal, "pt-PT", for Media Server Call Analysis. See Supported call analysis language models and regions. • Updated content in Interaction Media Server call recordings and failover.

17-November-2016	• DP-1449 Add support for Opus for Recordings. • DP-1710 Support for OPUS mono and dual-channel recordings within Interaction Recorder. • IC-139824 DocLink: Create a way to produce a dump of the media server via the web configuration page. For more information about this feature, see Create a diagnostic memory dump and Interaction Media Server memory dump. • Updated diagrams to conform to corporate standards.
06-June-2017	Updated licensing for supported Text-to-Speech languages.

20-September-2017	• Rebranded the document to Genesys.
	• Added support for the following languages:
	  ○ es-CR (Spanish, Costa Rica)
	  ○ es-EC (Spanish, Ecuador)
	  ○ es-HN (Spanish, Honduras)
	  ○ es-NI (Spanish, Nicaragua)
	Also, improved accuracy for other supported languages. For more information, see Supported call analysis language models and regions.

25-September-2017	• Revised the definition for RecognizerDiagnosticRecording. • Added a definition for RecognizerDiagnosticLog.
15-December-2017	Added support for Windows Server 2016.
09-March-2018	Removed support for Windows Server 2008 R2.
08-June-2018	Added Microsoft .NET Framework 4.7 or later requirement to the Interaction Media Server software requirements.
25-July-2018	Corrected the place where users set the number of days that Interaction Media Server retains data in the log file in "Interaction Media Server log files." It is ININ_TRACE_LOG_VARIABLE, **not** ININ_TRACE_RETENTION.
21-September-2018	In the "Other Interaction Media Server features" topic, changed the link to the Interaction Media Server sizing calculator.
02-November-2018	• Removed “pre-certified” from "Install Interaction Media Server software." • Added a warning statement to "Interaction Media Server hardware and network requirements" about meeting the minimum hardware requirements for Interaction Media Servers. • In "Interaction Media Server hardware and network requirements," added links to the small, medium, and large Media Server 360 Gen10 technical specifications for assistance with workload estimations.
24-January-2018	Corrected hyperlink targets in Interaction Media Server hardware and network minimum requirements.
17-April-2019	Replaced references to the License Management System with the new Activation File Management tool in Acquire an Interaction Media Server license and under "I3_LICENSE_MEDIA_SERVER_G.729_SESSIONS"in Interaction Media Server licensing.
17-April-2019	Organizational cleanup only.
07-June-2019	Reorganized the content only, which included combining some topics and deleting others that just had an introductory sentence such as, "In this section...".
13-December-2019	Remove references to Interaction Edge as it is EOL.
05-February-2020	Updated Interaction Media Server Virtualization to indicate that Genesys supports Interaction Media Server on virtual machines when the system meets specific conditions.