Interaction Media Server™

Technical Reference

Interactive Intelligence Customer Interaction Center® (CIC)

Version 2017 R2

Last updated November 17, 2016
(See Change Log for summary of changes.)

Abstract

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

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# Table of contents

## Introduction to Interaction Media Server
- Interaction Media Server functional overview ............................................. 7
- Interaction Media Server network communications ..................................... 7
- Interaction Media Server audio processing ............................................... 7
- Interaction Media Server network topology ............................................. 8
  - Small contact center Interaction Media Server implementation ................ 8
  - Large contact center Interaction Media Server implementation ................. 8
- Interaction Media Server advantages ..................................................... 9
  - Interaction Media Server frees resources ........................................... 9
  - Interaction Media Server reduces network consumption ......................... 9
  - Interaction Media Server provides scalability .................................... 10
  - Interaction Media Server provides redundancy .................................... 10
- Interaction Media Server features ....................................................... 10
  - Interaction Media Server network features ....................................... 10
  - Interaction Media Server audio features ......................................... 11
  - Interaction Media Server telephony features ..................................... 12
  - Other Interaction Media Server features ......................................... 12
- Interaction Media Server virtualization ............................................... 14

## Install Interaction Media Server
- Install Interaction Media Server appliance .......................................... 15
- Install Interaction Media Server software .......................................... 15
  - Interaction Media Server hardware and network requirements ............... 15
  - Interaction Media Server software requirements .................................. 16
  - Install Interaction Media Server on a certified machine ....................... 17
- Add Customer Interaction Center server to Interaction Media Server .......... 21
- Add Interaction Media Server to a domain ......................................... 24
- Apply Interaction Media Server updates ............................................. 25
  - Preinstallation tasks ........................................................................ 25
  - Apply an update to Interaction Media Server .................................... 25
- Interaction Media Server licensing ..................................................... 29
  - I3_FEATURE_MEDIASERVER_TYPE_STANDARD .................................... 29
  - I3_LICENSE_MEDIASERVER_MAX_MEDIA_ENGINES ................................ 29
  - Media sessions ............................................................................. 29
  - Basic sessions ............................................................................. 29
  - Conference sessions ...................................................................... 29
  - Fax sessions ................................................................................. 30
  - I3_LICENSE_MEDIA_SERVER_G.729_SESSIONS ..................................... 30
  - Interaction Text To Speech (ITTS) licenses ....................................... 30
  - Acquire an Interaction Media Server license ..................................... 30
  - Apply an Interaction Media Server license ....................................... 31

## Upgrade Interaction Media Server
- Full migration ..................................................................................... 35
- Partial migration ................................................................................ 35

## Configure Customer Interaction Center for Interaction Media Server
- Configure “Always-In” or “Dynamic” audio path for Interaction Media Server ........ 38
  - Always-In audio path ................................................................... 38
  - Dynamic audio path ...................................................................... 39
  - Which audio path method should I use? ........................................... 39
  - Set the Interaction Media Server audio path behavior ....................... 40
- Configure network interfaces on Interaction Media Server .................. 40
  - Teamed network interfaces ........................................................... 41
  - Configure Interaction Media Server for virtual local area networks .... 41
  - Configure Interaction Media Server to use a network interface for RTP communications 42
- Add Interaction Media Server to a Customer Interaction Center location .... 44
- Add Interaction Media Server to a location ......................................... 44
Troubleshoot Interaction Media Server issues

Interaction Media Server Config-Snmp page
Interaction Media Server Config-Administration page
Interaction Media Server Config-License page

Interaction Media Server REST API

REST API configuration

Enable REST API on an Interaction Media Server

REST API usage

REST API commands

REST API value types

REST API restrictions

HTTP status codes

REST API tools

REST API methods

Activation and deactivation

Command servers

Configuration and statistics

Interaction Media Server call recordings and failover

Interaction Media Server call recording if Customer Interaction Center or the network connection fails

Interaction Media Server call recording if Interaction Media Server fails

Troubleshoot Interaction Media Server issues

Interaction Media Server log files

Interaction Media Server memory dump

Interaction Media Server stopped recording calls

Audio quality issues

Jitter

VLAN misconfiguration

Packet loss

Data corruption

Interaction Media Server stopped creating or appending log files

Low storage free space

Probation status in Windows Event Log

Disconnected calls

Connection to Customer Interaction Center server over a WAN is failing

Lost or forgotten credentials for Interaction Media Server REST API

Interaction Media Server backward compatibility with Customer Interaction Center

Interaction Media Server has corrupted or missing components

Customer Interaction Center marks Interaction Media Server inactive and creates an entry in the Windows Event Log

Cannot connect Interaction Media Server to the secondary server in a switchover pair

Distributed conference call considerations
Interaction Media Server web interface does not accept administrator credentials with Japanese characters

Appendix A: OpenSSL Copyright ................................................................. 184
Appendix B: Backward compatibility with Customer Interaction Center .......... 185
Appendix C: Antivirus requirements and best practices for Customer Interaction Center and subsystem servers ................................................................. 186
- Install only a supported antivirus product .................................................. 186
- Install only the virus protection security feature ............................................. 187
- Configure real-time protection for only write operations ............................... 187
- Exclude continually accessed file types and directories ............................... 187
  - Files and file types to exclude ..................................................................... 187
  - Directories and subdirectories to exclude ..................................................... 188
- Update virus definitions daily ...................................................................... 188
- Conduct a full scan of the file system on a regular basis ............................... 188

Change Log ..................................................................................................... 189
Index .............................................................................................................. 196
Introduction to Interaction Media Server

This section contains the following topics:

- Interaction Media Server functional overview .......................................................... 7
- Interaction Media Server network communications .................................................. 7
- Interaction Media Server audio processing ................................................................. 7
- Interaction Media Server network topology .................................................................. 8
- Interaction Media Server advantages .......................................................................... 9
- Interaction Media Server features .............................................................................. 10
- Interaction Media Server virtualization ...................................................................... 14

Interaction Media Server functional overview

Interaction Media Server is a required subsystem of Customer Interaction Center. 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 Customer Interaction Center 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 Customer Interaction Center environment. When Interaction Media Server must make a connection, change, or termination between two or more SIP calls, Customer Interaction Center 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 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**.

- 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 a call is recorded, 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 Customer Interaction Center 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 call is hosted on a single Interaction Media Server. For a conference call with more than 20 participants, the call is processed through multiple Interaction Media Servers.
- Keyword spotting – Interaction Media Server analyzes speech during telephone conversations and can recognize predefined keywords when they are spoken. For more information about this feature, see Interaction Analyzer Technical Reference.
- 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 Interaction Speech Recognition Technical Reference and Interaction Attendant Help.

**Interaction Media Server network topology**

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

**Large contact center Interaction Media Server implementation**

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

Interaction Media Server provides distinct advantages in your Customer Interaction Center telephony network. Ranging from resource availability to redundancy, these advantages ensure that you network can adapt to the demands that are 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 Customer Interaction Center to focus on only the logistics of calls. If you want to increase the capacity of your contact center, add additional 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 Customer Interaction Center. Only small, occasional Session Initiation Protocol (SIP) packets from Customer Interaction Center are sent 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 Customer Interaction Center server. To properly allocate and use multiple Interaction Media Servers, you can configure logical locations in which Interaction Media Servers reside. For example, you may 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, Customer Interaction Center distributes callers across multiple Interaction Media Servers, even in different locations. Interactive Intelligence recommends that you use an \(N+1\) configuration for Interaction Media Servers where \(N\) represents the number of Interaction Media Server 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 an Customer Interaction Center server. Therefore, if the Customer Interaction Center server becomes unavailable for any other reason, the active calls being processed 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 features

Interaction Media Server network features

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

- 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!
You should 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. Interaction Media Server 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 if the Disable Media Server Passthru feature on the SIP line is enabled.

- 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 Customer Interaction Center servers enables redundancy in your telephony network if any specific system becomes unavailable. Interaction Media Server can support multiple Customer Interaction Center servers and one Customer Interaction Center 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 manually analyze recorded calls.

- 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 if 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 **Text to Speech Engines for IC Technical Reference**.
- 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 developed by Interactive Intelligence. Interaction Speech Recognition enables Customer Interaction Center to identify basic spoken words, such as those a caller might provide to Interaction Attendant, instead of requiring Dual-Tone Multi-Frequency (DTMF) digits through a telephone keypad. For more information about Interaction Speech Recognition, see **Interaction Speech Recognition Technical Reference and ASR Technical Reference** in the CIC Documentation Library.
- 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 through Interaction Administrator.

**Other Interaction Media Server features**

The following list provides additional 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 that available through the Interaction Media Server web-based user interface. For more information about the Interaction Media Server REST API, see **Interaction Media Server REST API** in this document.
• **Selection Rules** – This feature enables you to create and tailor configurations that Customer Interaction Center 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 Customer Interaction Center 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 the Secure Input feature is enabled, 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 enter through 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** – This feature supports Interaction Analyzer, which analyzes telephone conversations in real time and can notify supervisors when calls contain predefined keywords. For more information, see *Interaction Analyzer Technical Reference*.

• **Interaction Media Server** allows Customer Interaction Center to retrieve call recordings and diagnostic recordings through HTTPS network communications.

• **Conferencing** – Interaction Media Server provides the ability to host conference calls. For conference calls of more than 20 participants, Customer Interaction Center 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 additional 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.

• **Backwards compatibility** – This version of Interaction Media Server is backwards compatible with Customer Interaction Center 4.0 and Customer Interaction Center 3.0 SU12 and later. However, to ensure that best performance and feature availability in your CIC environment, Interactive Intelligence 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 the call is being recorded. 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 Automatic Speech Recognition (ASR) engine to recognize speech. For more information about Interaction Speech Recognition, see *Interaction Speech Recognition Technical Reference* and *ASR Technical Reference*.

• **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. The Interaction Edge edition of Interaction Media Server is still based on 32-bit architecture.
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 will require more storage stage for call recordings. The following list provides some Opus characteristics that impact CPU usage and recording storage:

- Dynamically adjustable bitrate
- Audio bandwidth
- Frame size for audio streams
- Two-channel recordings


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 virtualization**

Interaction Media Server processes real-time communications and, as such, is not a good candidate for virtualization. Interactive Intelligence does not advocate or support virtualization of Interaction Media Server, especially in production environments.

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

This section contains the following topics:

Install Interaction Media Server appliance ......................................................15
Install Interaction Media Server software ..........................................................15
Add Customer Interaction Center server to Interaction Media Server ..............15
Add Interaction Media Server to a domain ......................................................21
Apply Interaction Media Server updates .......................................................24
Interaction Media Server licensing ..................................................................29

Install Interaction Media Server appliance

Interactive Intelligence 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 Interaction Media Server Appliance Installation and Configuration Guide.

Install Interaction Media Server software

**Important!**

If you are installing a packaged server from Interactive Intelligence, also known as an Interaction Media Server appliance, do the procedures in Interaction Media Server Appliance Installation and Configuration Guide.

This topic contains the requirements and software installation procedure for installing Interaction Media Server on your own pre-certified hardware.

**Interaction Media Server hardware and network requirements**

<table>
<thead>
<tr>
<th>CPU (minimum)</th>
<th>Intel quad-core, hyper-threaded CPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM</td>
<td>4 GB</td>
</tr>
<tr>
<td>Local storage</td>
<td>2 – 500 GB SATA hard drives</td>
</tr>
<tr>
<td>Cache</td>
<td>256 MB Battery Backed Write Cache (BBWC)</td>
</tr>
<tr>
<td>Power supply units (PSUs)</td>
<td>2 – 365 W redundant power supply units</td>
</tr>
<tr>
<td>Network interface</td>
<td>1 GB Ethernet with driver software that supports Receive Side Scaling (RSS)</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Systems</th>
<th>A functional Customer Interaction Center server in the network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain (optional)</td>
<td>If you do not connect Interaction Media Server to a domain, limit the machine name of Interaction Media Server to a maximum of 15 characters. Failure to follow this restriction can result in connectivity problems.</td>
</tr>
</tbody>
</table>

Interaction Media Server software requirements

| Operating system | • Windows Server 2012 R2  
• Windows Server 2008 R2 (Service Pack 1)  
  — Datacenter edition  
  — Enterprise edition  
  — Standard edition |
|------------------|-----------------------------------------------------------------|
| Software         | Microsoft .NET Framework 3.5.1 or later  
  **Tip:**  
  Interactive Intelligence recommends installing Microsoft .NET Framework 4.0 (Full) and later in addition to .NET Framework 3.5.1 for future compatibility.  
  **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. For Interaction Media Server hosted on an Interaction Edge appliance, iUpdate and Microsoft .NET Framework are not installed or required. |
| 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 machine

1. If you have not done so already:
   a. Download the CIC .iso file from the Interactive Intelligence product information site at the following URL address:
      https://my.inin.com/products/Pages/Downloads.aspx
   b. Copy the .iso file to a non-Customer Interaction Center file server with a high bandwidth connection to the machines on which you will install a CIC product.
   c. Mount the .iso file and share the contents to make them accessible to the machines on which you will 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 machine on which you want to install Interaction Media Server.
   \( n \) is a variable that represents digits that identify the specific release of CIC.
   The Welcome to the Interaction Media Server Setup Wizard for CIC 20nn Rn dialog box appears.

   ![Welcome to the Interaction Media Server Setup Wizard for CIC 20nn Rn dialog box](image)

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

5. Click **Next**.
6. The **Custom Setup** dialog box appears.
7. The **Custom Setup** dialog box enables you to do the following optional tasks:

- **Change installation directory** – If you want to change the directory where Interaction Media Server software is installed, 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 the **Disk Usage** button to determine if the hard disk drive has enough free space available to install the Interaction Media Server software.

  **Note:**
  If you already have software from Interactive Intelligence installed on the system, the interface does not display a **Browse** button as all software from Interactive Intelligence must be installed in the same directory location.

  **Note:**
  By default, the Interactive Intelligence QoS driver is installed silently and the certificate is added 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.

8. Click **Next**.

  The **Web Configuration Server** dialog box appears.
9. In the following text boxes, specify the necessary information:

- **Web Configuration Server HTTP Port** – Enter the port number that Interaction Media Server will use for HTTP web interface sessions.

- **Web Configuration Server HTTPS Port** – Enter the secure port number that Interaction Media Server will use for HTTPS web interface sessions.

- **Administration Login Name** – Enter the 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 Customer Interaction Center 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** – Enter the password that you want a user to supply when accessing the Interaction Media Server web interface.

- **Confirm Password** – Re-enter the password that you supplied in the previous text box.

10. After you supply the necessary information in the text boxes, select the **Next** button.

   The **Interaction Media Server Install** dialog box appears.
11. Specify the following information:
   a. In the **HTTP Cache Location** text box, specify the path where the directory for files transferred over HTTP (the default file transfer mechanism) will be stored temporarily.
   b. In the **Recordings and Faxes Location** text box, specify the path where the directory for storing files associated with recordings and faxes will be stored.

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

12. After you have specified the directory paths, click **Next**.

   The **Ready to install Interaction Media Server for CIC** dialog box appears.

13. If you want to change any specifications that you have made, click **Back** until the appropriate dialog box appears. Otherwise, click **Install** to start installation of Interaction Media Server.

   The **Installing Interaction Media Server** dialog box appears.

   When the installation process completes, the final installation dialog box appears.
14. Click **Finish** to complete the Interaction Media Server software installation.

An **Interaction Media Server for CIC 20nn Rn Setup** dialog box appears.

15. Restart the server by clicking **Yes**.

---

**Important!**

Interaction Media Server cannot function properly without a restart of the server after installation.

---

**Add Customer Interaction Center server to Interaction Media Server**

This section contains the procedure for configuring Interaction Media Server to communicate with one or more Customer Interaction Center servers.

**Note:**

Before you can do this procedure, you must have a functional Customer Interaction Center server in your network.

To add a Customer Interaction Center server entry so that Interaction Media Server can communicate with it, do the following steps:

1. On a personal computer in your network or on the Interaction Media Server itself, open a web browser and navigate to the Uniform Resource Locator (URL) address of the Interaction Media Server machine. 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.

   Interaction Media Server prompts you for the administrative user ID and password, if one is assigned.

2. Enter the administrative user ID and password in the appropriate text boxes and click **OK**.

   **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 are then able to log on to the web configuration interface without credentials and can then reset them once you are in the web configuration interface. Do not enter a plain-text user name and password in these registry values.

   The **Status-About** page appears.

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 fields, enter the indicated information:
   - **Notifier Host** – Enter the fully qualified domain name of the Customer Interaction Center to which you want to connect this Interaction Media Server.
   - **IC User Id** – Enter the Customer Interaction Center administrative user ID that will enable Interaction Media Server to log on to the server.
   - **IC Password** – Enter the password for the administrative user ID that you specified in the previous text box.
   - **Accept sessions** – To have this Interaction Media Server accept host sessions from the specified Customer Interaction Center server, select Yes from this list box.
   - **Copy Properties From** – If you want to copy the defined properties from a previously defined Customer Interaction Center server, select that server from this field. If this Customer Interaction Center definition is your first, leave this field blank.

6. At the bottom of the page, select the **Add** button to create an Interaction Media Server connection to the specified Customer Interaction Center server.

   Once you configure Interaction Media Server to communicate with a Customer Interaction Center server, use Interaction Administrator to accept the security certificate that Interaction Media Server sends to the Customer Interaction Center server. This action enables the systems to communicate securely over an SSL connection.

7. On the Customer Interaction Center server, open Interaction Administrator.

8. On the left side of the Interaction Administrator window, select the **System Configuration** container.

   The right pane displays the **Configuration** item.

9. Double-click the **Configuration** item.

   The **System Configuration** dialog box appears.
10. Select the **Certificate Management** tab.

11. In the **Subsystem Certificates Configuration** area, click **Modify**.

The **Subsystem Certificates** dialog box appears.
12. Select the **New** certificate from the Interaction Media Server that you configured to communicate with this Customer Interaction Center server.

13. Click **Trust**.

   The certificate from the specified subsystem is trusted.

14. On the **Subsystem Certificates** dialog box, click **Close**.

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

15. The specified Interaction Media Server is now displayed in Interaction Administrator under the **Media Servers** container and can now host sessions from the Customer Interaction Center server.

### 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, Interactive Intelligence releases improvements for its products in the form of updates. Each update contains multiple improvements and is distributed as an installation package.

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

**Caution:**

Apply the update to Interaction Media Server before applying the same level update to any other Customer Interaction Center 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.

Preinstallation tasks

1. Open a web browser and navigate to the following Uniform Resource Locator (URL) address:
   
   [https://my.inin.com/products/cic/Pages/Latest-Release.aspx](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, select the **Download this release and the latest patch** hyperlink.

   The Downloads page is displayed.

4. In the **CIC** section, download either the latest Customer Interaction Center update or the Appliances update (both are available as **.ISO files**) from the following Uniform Resource Locator (URL) address:

   [https://my.inin.com/products/Pages/Downloads.aspx](https://my.inin.com/products/Pages/Downloads.aspx)

   **Important!**

   The Interaction Edge edition of Interaction Media Server is available only on the Appliances **.ISO file**. Do not attempt to install the CIC edition of Interaction Media Server on an Interaction Edge appliance.

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

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, select the Administration icon.

   The Config – Administration page is displayed.

4. In the Deactivate Server section, select the Deactivate button.

   The page displays the number of active sessions.
Interaction Media Server does not accept any new calls from Customer Interaction Center servers. Any current calls are maintained until ended by one of the parties on that call.

You can use the **Refresh** button or enable the **Auto-refresh every 10s** check box to view the current number of active resources in use.

5. Wait until the number of active resources is **0** (zero).

6. If you record calls through this Interaction Media Server, wait an additional 5 minutes for Interaction Recorder to retrieve any active recordings from this Interaction Media Server.

7. Log out and close the web interface.

8. At the console of the inactive Interaction Media Server, log on with a user account that is a member of the Administrators domain group.

9. From Interaction Media Server, access the mounted **.ISO** file and navigate to the appropriate directory:

<table>
<thead>
<tr>
<th>Interaction Edge</th>
<th>\ (root directory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Appliances .ISO file)</td>
<td></td>
</tr>
<tr>
<td>All other hardware hosts</td>
<td>\Installs\Off-ServerComponents\</td>
</tr>
<tr>
<td>(CIC .ISO file)</td>
<td></td>
</tr>
</tbody>
</table>

10. Execute the appropriate file:

<table>
<thead>
<tr>
<th>Interaction Edge host</th>
<th>EDGE-MediaServer_20nn_Rn.msi</th>
</tr>
</thead>
<tbody>
<tr>
<td>All other hardware hosts</td>
<td>MediaServer_20nn_Rn.msi</td>
</tr>
</tbody>
</table>
n represents the digits specifying the release.

**Note:**
During an update to Interaction Media Server, ensure that you select the appropriate entry, as explained in the following list:

- **Interaction Media Server** – Select this entry if Interaction Media Server resides on your own hardware or an Interactive Intelligence Package Server
- **Interaction Media Server Edge** – Select this entry if Interaction Media Server resides on an Interaction Edge appliance.

The update is applied to this Interaction Media Server.


12. 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 Interactive Intelligence QoS driver. For more information, see [http://support.microsoft.com/kb/2530477](http://support.microsoft.com/kb/2530477).

13. Once you have finished the setup wizard, restart the system.

14. Log on to Interaction Media Server again with an administrative user account.

15. In the Windows Control Panel, in the Administrative Tools folder, start the Services application.

The Services window appears.

16. Ensure that the **ININ Media Server** service is started and running.

17. On any computer, open a web browser and navigate to the URL of the web interface of this Interactive Media Server.

18. Enter the administrative user name and password for this Interactive Media Server web interface.

The **Status-About** page appears.

19. On the left side of the page, click the **Server Status** icon.

20. 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 require you to generate a new Interaction Media Server license through [http://license.inin.com](http://license.inin.com) and apply it through the **Config-License** page in the Interaction Media Server web interface. For more information about generating the license, see [Interaction Text](#).
Interaction Media Server licensing

Interaction Media Server requires the following licenses and purchased sessions in the Customer Interaction Center environment:

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 with the host ID of the computer on which Interaction Media Server is installed.

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

A media session is required for each audio operation on an Interaction Media Server. 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. Basic sessions are defined in the Customer Interaction Center 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 Interaction Desktop Help.

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. Conference sessions are defined in the Customer Interaction Center 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. Fax sessions are defined in the Customer Interaction Center 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 Customer Interaction Center license. Use the Interactive Intelligence Online Ordering System to purchase these licenses. You can then download the license from the Interactive Intelligence License Management website at the following URL address: http://license.inin.com.

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

You must also purchase a license specifying the number of simultaneous sessions that Interaction Text To Speech allows:

I3_SESSION_MEDIA_SERVER_TTS

You must also 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:

- 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
- German (Germany) - I3_FEATURE_MEDIA_SERVER_TTS_LANGUAGE DE
- 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.

Acquire an Interaction Media Server license

The Interactive Intelligence License Management website (http://license.inin.com) enables you to create Interaction Media Server and Customer Interaction Center licenses. If you have purchased the appropriate products, you are certified and authorized to generate these licenses through the website.

If you are not certified to log on to this website, you can contact Interactive Intelligence through the following e-mail address:
When you contact Interactive Intelligence through this e-mail address, include your order number and request a license file. If you are installing the Interaction Media Server software on your own hardware, which was not purchased from Interactive Intelligence, include your server name and MAC address ID numbers for the machine that you intend to host Interaction Media Server.

For more information on generating your Customer Interaction Center server license for Interaction Media Server, see IC Licensing Technical Reference.

### Apply an Interaction Media Server license

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

1. Load the license on Interaction Media Server by doing the following steps:
   a. Place your Customer Interaction Center 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 URL:
      
      http://mediaserver1.mydomain.com:8084/

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

      You are prompted to supply a user name and password.
   c. Log on to the Interaction Media Server configuration webpage with the administrative user ID and password.

      The **Status-About** page appears.

      ![Status-About page](image)

      d. In the upper right corner, click the **Config** icon.

      The **Config-Servers** page appears.
   d. On the left side of the page, click the **License** tab.
The **Config-License** page appears.

---

<table>
<thead>
<tr>
<th>Configuration</th>
<th>License Status: Valid License</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Machine ID: 090000036009</td>
</tr>
<tr>
<td></td>
<td>Identifier: a0000a0-0080-a0a0-a0a0-a0000a00a000</td>
</tr>
<tr>
<td></td>
<td>Description: Interactive Media Server Production License</td>
</tr>
<tr>
<td></td>
<td>Expires: never</td>
</tr>
<tr>
<td></td>
<td>Licensed Features:</td>
</tr>
<tr>
<td></td>
<td>12_FEATURE_MEDIASERVER_TYPE_STANDARD</td>
</tr>
<tr>
<td></td>
<td>13_FEATURE_MEDIASERVER_VIRTUALIZATION</td>
</tr>
<tr>
<td></td>
<td>License Values:</td>
</tr>
<tr>
<td></td>
<td>Name: 12_LICENSE_MEDIASERVER_MAX_MEDIA_BUSINES</td>
</tr>
<tr>
<td></td>
<td>Value: 32</td>
</tr>
</tbody>
</table>

---

**Add License**

---

f. Click the **Add License** hyperlink.

The **To add a License** page appears:

---

<table>
<thead>
<tr>
<th>Configuration</th>
<th>To add a License:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Obtain a license for Media Server from Interactive Intelligence or an authorized reseller</td>
</tr>
<tr>
<td></td>
<td>2. Browse to or enter the license file name and path in the License File edit field below</td>
</tr>
<tr>
<td></td>
<td>3. Click 'Submit' to upload the license file to the Media Server and activate the license on the server</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Machine ID</th>
<th>Primary: 90001900a</th>
</tr>
</thead>
</table>

---

License File: Choose File: No file chosen

---

Submit | Cancel

---

**Add License**

---

g. Follow the instructions at the top of the page.

h. Once the license is loaded, select the **Servers** icon on the left side of the page.

i. Choose a Customer Interaction Center server to which this Interaction Media Server will connect and click the **Server** button that is associated with that server.
The **Configuration of Command Server** page appears.

j. In the **Accept sessions** list, select **Yes**.

k. Select the **Apply Changes** button.

l. Repeat the **Accept sessions** configuration for each Customer Interaction Center server with which this Interaction Media Server will communicate.

2. Load the license on Customer Interaction Center by doing the following steps:

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.

   ![License Management Dialog Box]

   c. Click **Load License**.

   The **Load License** dialog box appears.

   d. In the **Load License** dialog box, navigate to the location where the license file is stored and double-click the license file.

   The included licenses and features are loaded into Customer Interaction Center.

   e. Click **Close** to complete the process.

   The Interaction Media Server that you configured to communicate with this Customer Interaction Center server is now displayed in Interaction Administrator under the **Configuration > Media Servers > Servers** object.
Upgrade Interaction Media Server

Interactive Intelligence provides Interaction Migrator, which enables you to export configuration data from previous versions of Customer Interaction Center 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, you must ensure that the server meets the requirements in Interaction Media Server hardware and network requirements and Interaction Media Server software requirements.

Important!
Interaction Migrator does not support migrating Interaction Media Server 2.4 configurations to this version of Interaction Media Server. You must manually recreate the 2.4 configuration on a new Interaction Media Server.

Full migration
This method upgrades all products in your Customer Interaction Center network. If you are upgrading all products in your Customer Interaction Center network, you must follow the procedures in IC Migration Installation and Configuration Guide. 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 Customer Interaction Center 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:

<table>
<thead>
<tr>
<th>Method</th>
<th>Procedure overview</th>
</tr>
</thead>
</table>
| Install a new Interaction Media Server | 1. Install Interaction Media Server on a new server with the Microsoft Windows Server 2008 R2 or Windows Server 2012 R2 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 the "Install Interaction Migrator" section of IC Migration Installation and Configuration Guide.  
4. Export the configuration data of the previous Interaction Media Server using the procedure in the "Export Interaction Media Server 3.0 Configuration Data" topic of IC Migration Installation and Configuration Guide.  
5. Install Interaction Migrator on the new Interaction Media Server.  
| Upgrade the existing Interaction Media Server | 1. Install Interaction Migrator on the previous version of Interaction Media Server using the procedure in the "Install Interaction Migrator" section of *IC Migration Installation and Configuration Guide*.  
2. Using Interaction Migrator, export the configuration data from the previous version of Interaction Media Server using the procedure in the "Export Interaction Media Server 3.0 Configuration Data" topic of *IC Migration Installation and Configuration Guide*.  
3. Ensure that the server meets the requirements for Microsoft Windows Server 2008 R2 or Windows Server 2012 R2. For more information on Windows Server requirements, see [http://technet.microsoft.com](http://technet.microsoft.com).  
4. Upgrade the operating system to Microsoft Windows Server 2008 R2 or Microsoft Windows Server 2012 R2.  
5. Install the latest version of Interaction Media Server. For more information, see [Install Interaction Media Server](#).  
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 the "Install Interaction Migrator" section of *IC Migration Installation and Configuration Guide*.  
8. Using Interaction Migrator, import that configuration data using the procedure in the "Import Interaction Media Server 3.0 Configuration Data" topic of *IC Migration Installation and Configuration Guide*. |


Configure Customer Interaction Center for Interaction Media Server

After you install Interaction Media Server in your Customer Interaction Center environment, use Interaction Administrator to configure Customer Interaction Center 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 Customer Interaction Center or Interaction Media Server, Interactive Intelligence recommends that you create a diagram of all components and their relationships. These components can include Customer Interaction Center 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.

This section contains the following topics:

Configure “Always-In” or “Dynamic” audio path for Interaction Media Server........38
Configure network interfaces on Interaction Media Server .................................................40
Add Interaction Media Server to a Customer Interaction Center location.................44
Interaction Media Server Selection Rules for audio processing ..........................46
Configure Prompt Server for Interaction Media Server ..............................................57
Interaction Media Server conference calls...............................................................60
Specify Interaction Media Server call analysis language model ..........................71
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 is involved 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 Customer Interaction Center system. Customer Interaction Center controls the SIP messages between SIP devices, as displayed in the following diagram:
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; Interaction Media Server is not involved. However, if a call requires audio processing from Interaction Media Server, such as an agent choosing to record a call, Customer Interaction Center 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 transcription, transcoding, or playing a media file, such as an audio prompt.

Which audio path method should 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, this method is preferred as it only uses Interaction Media Server when requested. There is a 0.5-second delay that occurs when Interaction Media Server is inserted into the audio path.

**Tip:**
The always-in method is recommended if you want the highest performance available for media operations, such as ad-hoc recording or recording a majority of calls. 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

To set a SIP line so that it uses the necessary audio path method in Interaction Media Server, do the following steps:

1. Open Interaction Administrator and log on with the administrator credentials.
   The Interaction Administrator main window appears.
2. In the left pane, select 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, select the **Audio** item.

![Line Configuration dialog box]

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 machine. Interaction Media Server packaged servers provide multiple network interfaces.

If available, you should 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.

Additionally, 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**
- **RtpLocalAddressMask**

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 on 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 provided through either one of the following means:

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

**Important!**

Testing by Interactive Intelligence has shown that network interface teaming in a load balancing configuration on Interaction Media Server results in the creation or increase of audio issues. Interactive Intelligence 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, Interactive Intelligence recommends that you disable teaming and use the network adapters individually; with each having its own IP address.

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

Interaction Media Server provides its own form of load balancing when multiple network interfaces on the host are specified 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 enables 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 Configuration-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.


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 it should 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 Interactive Intelligence Professional Services by sending an e-mail message to PSO@inin.com.
Configure Interaction Media Server to use a network interface for RTP communications

If you want Interaction Media Server to send network communications containing RTP packets through a specific network interface on the host machine, do the following steps:

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.

   You are prompted to supply a user name and password.

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, select RtpAddressLocalMask. The RtpAddressLocalMask property appears in the list of current properties.
7. In the **RtpAddressLocal** text box, enter an IP address for the local network interface that will send communications containing RTP packets.

8. In the **RtpAddressLocalMask** text box, enter 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 the **Apply Changes** button.

### Add Interaction Media Server to a Customer Interaction Center location

Locations are the method through which Customer Interaction Center 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. Customer Interaction Center then uses locations in dial plan processing, call routing, distributed conferencing, and to select Interaction Media Servers to process audio communications for interactions.

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

**Tip:**
If you have a single office location, Interactive Intelligence 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.

You create locations through the **Locations** object under the **Regionalization** container in Interaction Administrator. For instructions on creating locations, see "Create Location" in Interaction Administrator Help.

### Add Interaction Media Server to a location

This topic contains the procedure for adding an Interaction Media Server to a location. A location must exist before you can add an Interaction Media Server to it.

To add an Interaction Media Server to an existing location, do the following steps:

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

2. Under the Customer Interaction Center server object in the left pane, expand the **Regionalization** container and select the **Locations** object.

3. In the right pane, double-click the location to which you want to add Interaction Media Server.
   
   The **Locations Configuration** dialog box for the specific location appears.
4. Select the **Endpoints** tab.

5. In the **Endpoint type** box, select the **Media Server** item.

6. In the **Available endpoints** box, select one or more Interaction Media Servers that you want to add to this location.

7. Select the arrow button that points to the right to move the selected Interaction Media Servers into the **Selected endpoints** box.

8. Click **OK**.

   The specified Interaction Media Server is added to the list of Interaction Media Servers for this location.

**Modify an existing Interaction Media Server location**

After you have defined the location for an Interaction Media Server, you can change the location assignment for an Interaction Media Server by doing the following steps:
1. On the Customer Interaction Center server or a remote personal computer, open Interaction Administrator.
   The Interaction Administrator window appears.
2. Expand the System Configuration container.
3. Expand the Media Servers container.
4. Select the Server object.
5. Double-click the server definition for which you want to change the location.
   The Servers Configuration dialog box for the specified Interaction Media Server appears.

6. In the Location dialog box, select the new predefined location for this Interaction Media Server.
7. Click OK.

**Interaction Media Server Selection Rules for audio processing**

Customer Interaction Center 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, Customer Interaction Center uses Selection Rules.

The Selection Rules feature enables you to create prioritized lists of locations, which you define through Interaction Administrator. Customer Interaction Center uses these lists, named Selection Rules configurations, to select a server to service an interaction. This document provides information for only the selection of Interaction Media Servers.

Within a location, Customer Interaction Center 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, Customer Interaction Center 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, Customer Interaction Center searches the next location in the Selection Rules configuration. This process continues until Customer Interaction Center finds an available Interaction Media Server.
Important!

By default, Customer Interaction Center has only one location: <Default Location>. When you create a device in Interaction Administrator, it is assigned to the <Default Location> location. To use the Selection Rules feature effectively, define additional 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 Interaction Administrator Help.

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 that are involved in an interaction. The following table defines each location variable:

<table>
<thead>
<tr>
<th>Location variable</th>
<th>Intercom interactions</th>
<th>External interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;This Location&gt;</td>
<td>This variable represents the location of the device that starts an interaction to another endpoint in the Customer Interaction Center network.</td>
<td>This variable represents the location of the SIP line that is involved in the interaction in the following situations:</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong></td>
<td>• Receives the inbound interaction from a gateway or another Customer Interaction Center system</td>
</tr>
<tr>
<td></td>
<td>SIP lines are not considered during intercom interactions.</td>
<td>• Sends the outbound interaction to a gateway</td>
</tr>
<tr>
<td>&lt;Other Locations in Audio Path&gt;</td>
<td>This variable represents any location that is involved in conveying the audio communications of the interaction.</td>
<td></td>
</tr>
<tr>
<td>&lt;IC Server Location&gt;</td>
<td>This variable represents the location containing the Customer Interaction Center server that controls the interaction.</td>
<td></td>
</tr>
</tbody>
</table>

- Any – In each Selection Rules configuration, you can enable the Use any Location option. This option directs Customer Interaction Center to search any defined location in the network if it cannot find an available Interaction Media Server in the listed locations.
The following diagram displays how Customer Interaction Center assigns existing locations to the location variables for intercom interactions:

![Diagram showing media server selection rules for intercom communications]

The following diagram displays how Customer Interaction Center assigns existing locations to the location variables for external interactions:

![Diagram showing media server selection rules for external communications]

**Important!**

In all interactions that initially connect to external entities through a gateway, Customer Interaction Center 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, Customer Interaction Center uses the default Selection Rules configuration: `<Default Media Server Selection Rule>`. Customer Interaction Center automatically assigns this default configuration to any locations that you define in Interaction Administrator.

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

1. `<This Location>`
2. `<Other Locations in Audio Path>`
3. `<IC Server Location>`
4. Any available Interaction Media Server in any other defined location (**Use any Location** option)

**Selection Rules configuration by location**

To control how Customer Interaction Center selects an Interaction Media Server to service an interaction, create separate Selection Rules configurations and assign them to each defined location in your Customer Interaction Center network. When an interaction originates from a location, Customer Interaction Center 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 Customer Interaction Center 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.
To address this situation, the administrator can create the following Selection Rules configurations and then assign them to the separate locations:

<table>
<thead>
<tr>
<th>Atlanta location US Selection Rules configuration</th>
<th>Glasgow location UK Selection Rules configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago</td>
<td>&lt;IC Server Location&gt; (London)</td>
</tr>
<tr>
<td>New York</td>
<td>&lt;Other Locations in Audio Path&gt;</td>
</tr>
<tr>
<td>Denver</td>
<td></td>
</tr>
<tr>
<td>Los Angeles</td>
<td></td>
</tr>
<tr>
<td>&lt;IC Server Location&gt; (London)</td>
<td></td>
</tr>
</tbody>
</table>

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

If the Glasgow location starts an interaction, Customer Interaction Center first searches the <IC Server Location>, which is in the London location, for an available Interaction Media Server. If Customer Interaction Center 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 specify that multiple locations, both variable and defined, be grouped together. Grouped locations provide a method of distributing audio processing tasks. In this method, Customer Interaction Center distributes audio processing tasks between all of the Interaction Media Servers in the grouped locations, as displayed in the following diagram:

![Diagram showing grouped locations and load distribution](image)

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

![Example of a load-balanced group](image)

Selection Rules excluded locations

When you enable the **Use any Location** option in a Selection Rules configuration, you can also specify locations that Customer Interaction Center 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.

<table>
<thead>
<tr>
<th>Selection Rules configuration</th>
<th>Prioritized location list</th>
<th>&quot;Use any Location&quot; option</th>
<th>Excluded locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle</td>
<td>Los Angeles, Denver</td>
<td>Enabled</td>
<td>New York</td>
</tr>
</tbody>
</table>

If the Seattle location starts an interaction, Customer Interaction Center 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, Customer Interaction Center then searches other locations. Because the Selection Rules configuration specifies the New York location as excluded, Customer Interaction Center 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, Customer Interaction Center 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, Customer Interaction Center then searches other locations. Because the Selection Rules configuration specifies the Los Angeles location as excluded, Customer Interaction Center 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, Interactive Intelligence recommends that you validate how the proposed modifications can affect each location that uses the configuration.

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

   The Interaction Administrator window appears.

   **Note:**
   To add or modify Selection Rules configurations, your Customer Interaction Center user ID must have the **Administrator Access** permission for the configurations. Those configurations are listed in the **Selection Rules** section of the **Administrator Access** dialog box in Interaction Administrator. For more information, see "Administrator Access" in Interaction Administrator Help.

2. In the left pane of the **Interaction Administrator** window, under the object that represents your Customer Interaction Center server, expand the **Regionalization** container.

3. Under the **Regionalization** container, click the **Selection Rules** object.
4. Do one of the following steps:
   - If you want to create a Selection Rules configuration, do the following steps:
     a. Right-click an empty area in the right pane and click **New** from the resulting shortcut menu.
     b. In the resulting **Entry Name** dialog box, enter a unique name for the new Selection Rules configuration and click **OK**.
   - If you want to modify an existing Selection Rules configuration, double-click the Selection Rules configuration entry 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:

<table>
<thead>
<tr>
<th>Prioritized Location list</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add</strong></td>
<td>Click this button to add a static or variable location to the <strong>Prioritized Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Remove</strong></td>
<td>Click this button to remove the selected location from the <strong>Prioritized Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Move up</strong></td>
<td>Click this button to move the selected location to a higher position in the <strong>Prioritized Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Move down</strong></td>
<td>Click this button to move the selected location to a lower position in the <strong>Prioritized Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Group selected</strong></td>
<td>Click this button to assign the selected locations to a group that provides load balancing of call audio processing.</td>
</tr>
</tbody>
</table>

**Tip:**
To select multiple locations, press and hold the **Ctrl** key while clicking each location in the box.
<table>
<thead>
<tr>
<th><strong>Ungroup selected</strong></th>
<th>Click this button to remove the selected location from an existing call audio processing group.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excluded Location list</strong></td>
<td>Click this option to restrict Customer Interaction Center from selecting any other location than those locations specified in the <strong>Prioritized Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Do not use any other Locations</strong></td>
<td>Click this option to allow Customer Interaction Center to select any available location after it cannot locate an available Interaction Media Server in the <strong>Prioritized Location list</strong> box. Customer Interaction Center excludes any Interaction Media Server location specified in the <strong>Excluded Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Use any Location, except the following</strong></td>
<td>Click this button to add a location to the <strong>Excluded Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Add</strong></td>
<td>Click this button to remove the selected location from the <strong>Excluded Location list</strong> box.</td>
</tr>
<tr>
<td><strong>Remove</strong></td>
<td>Click this button to reset this configuration to the default settings.</td>
</tr>
</tbody>
</table>

6. When finished, click **OK** to save the new Selection Rules configuration.

**Assign an Interaction Media Server Selection Rules configuration to a location**

This procedure enables you to assign a Selection Rules configuration to an existing Customer Interaction Center location. Assigning a Selection Rules configuration causes Customer Interaction Center to use this configuration for any media operations required by other entities within the location.

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

   The Interaction Administrator window appears.

2. In the left pane of the **Interaction Administrator** window, under the object that represents your Customer Interaction Center 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 you want to assign an existing Selection Rules configuration.

Interaction Administrator displays the **Locations Configuration** dialog box for the selected location.

5. Select the **Selection Rules** tab.
6. In the **Media Server** box, select the Selection Rules configuration that you want to assign to this location.

7. Click **OK**.

**Configure Prompt Server for Interaction Media Server**

Before you enable the Customer Interaction Center system to process calls, ensure that the Prompt Server is configured to serve audio files to Interaction Media Server.

**Prompt Server overview**

A Customer Interaction Center subsystem, known as Prompt Server, copies audio files, such as `.wav`, `.au`, and `.snd` in specified directories, from the Customer Interaction Center 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 Customer Interaction Center 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. Prompt Server always sends the latest version of an audio file to Interaction Media Server, if that file is not already cached on Interaction Media Server.
The following diagram and table describe the process by which Interaction Media Server acquires prompts and plays them:

![Diagram](image.png)

The following table describes the callouts in the diagram:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customer Interaction Center receives notification that a prompt must be played for a specific call.</td>
</tr>
<tr>
<td>2</td>
<td>It then notifies Interaction Media Server to play the prompt.</td>
</tr>
<tr>
<td>3</td>
<td>Interaction Media Server determines if the audio file for the prompt is cached locally. If it is, Interaction Media Server proceeds to step 5.</td>
</tr>
<tr>
<td>4</td>
<td>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.</td>
</tr>
<tr>
<td>5</td>
<td>Interaction Media Server plays the audio file for the prompt to the specific call.</td>
</tr>
</tbody>
</table>

**Supported audio formats for Prompt Server**

The following types of audio formats are supported as prompts:

<table>
<thead>
<tr>
<th>File type</th>
<th>Extension</th>
<th>MIME type</th>
<th>Codecs</th>
<th>Bits/Sample</th>
</tr>
</thead>
</table>
| Wave file | .wav      | • audio/x-wav  
            | • audio/wav   | G.711 MuLaw/ALaw | 8           |
|           |           |           | Linear16bit     | 16          |
|           |           |           | G.726 32-bit    | 4           |
### Prompt files

Prompt files are transferred from the Customer Interaction Center 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 Customer Interaction Center server—or by the file name extension—if the file is local to the machine. 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:
Interaction Media Server supports only 8Khz sampling rates.

#### Configuring Prompt Server settings in Interaction Administrator

By default, Prompt Server has settings that are sufficient for most Customer Interaction Center environments. However, you may want to review these settings or alter them, depending on your configuration. To configure Prompt Server settings, do the following steps:

1. On the Customer Interaction Center server or a remote personal computer, open Interaction Administrator.
   - The Interaction Administrator window appears.
2. In the left pane, select the **System Configuration** container.
3. In the right pane, double-click the **Configuration** item.
   - The **System Configuration** dialog box appears.
4. Select 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 have reviewed or modified these settings, click **OK** to save these settings and close this dialog box.

**Caution!**

Do not change the protocol (HTTP/HTTPS) or change the **Mutual authentication required** check box on a live Interaction Media Server as it may cause all prompts to again be retrieved from the Customer Interaction Center server. 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 Customer Interaction Center environment, Interaction Media Server processes all audio communications for conference calls.

**Conference call features**

Conference calls hosted by Interaction Media Server 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 globally control dominant speaker detection with echo cancellation for conference calls.

If you experience audio issues when Optimize Audio for Conferences is enabled, you can enter 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 an Interactive Intelligence Support 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](image)

However, if the conference call needs to support more than 20 participants or the participants are distributed over a large geographical area, Customer Interaction Center creates additional conference calls—each supporting up to 20 participants—on other Interaction Media Servers and connects them to the original conference call through *peering connections*. 
Note:
You cannot merge two or more existing conference calls on the Customer Interaction Center server with this feature. This feature enables expansion of one existing conference call by creating new 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** – This type 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** – This type connects multiple conferences to a host conference and allows multiple peering connections. Customer Interaction Center 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 Customer Interaction Center are configured to accept hub connections for joining regional conference calls. If you are updating Customer Interaction Center from GA through SU3, applying a later release or upgrade results in all existing locations being configured to accept hub conference connections automatically.
The following diagram displays how Customer Interaction Center can connect conference calls hosted on regional Interaction Media Servers, which allow only one peering connection, through hub locations.

**Interactivity Media Server selection for conference call processing**

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

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

![Locations Configuration - Chicago](image)

**Important!**
For distributed conference calls in the Customer Interaction Center 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 Customer Interaction...
Center should first use 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 Customer Interaction Center should prefer 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 enter a latency value of -1 to specify that Customer Interaction Center will not consider that location when calculating the preferred route between locations. You can adjust the latency values to specify which location that Customer Interaction Center should first attempt to use 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. Customer Interaction Center would try to join conference calls through a hub connection in the second location. Only if no Interaction Media Servers in the second location had enough resources to facilitate the conference calls would Customer Interaction Center then try to use an Interaction Media Server in the first hub location.

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

**Distributed conference call example**

The diagram above represents locations defined in Customer Interaction Center. 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, Customer Interaction Center creates new regional conference calls, based on Selection Rules, for additional callers.

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

Since the London and Tokyo locations do not allow hub connections, Customer Interaction Center must use the specified latency values for all connections to other locations to determine which Interaction Media Server can be a hub server to connect the calls. Customer Interaction Center must include and add all latency values for all necessary connections as the selection process may 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 Customer Interaction Center 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.

Customer Interaction Center must then determine, using latency values, which additional hub locations, if any, it must use to connect the regional conference calls in London and Tokyo with
the Chicago hub location. The following table displays how Customer Interaction Center chooses the hub servers in this example through latency values.

<table>
<thead>
<tr>
<th>Regional conference call locations</th>
<th>Hub locations with cumulative latency values</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>Chicago (50) Pretoria (70 + 80) Istanbul (50 + 100) Buenos Aires (100 + 70)</td>
</tr>
<tr>
<td>Tokyo</td>
<td>Buenos Aires (150 + 70) Pretoria (300 + 80) Chicago (400) Istanbul (1000 + 100)</td>
</tr>
</tbody>
</table>

The shaded cells represent the hub locations with the lowest cumulative latency value.

**Considerations for configuring distributed conferencing**

By default, Customer Interaction Center enables hub conferences for new locations that you create through 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 Customer Interaction Center network.

Interactive Intelligence 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**

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

2. Under the Customer Interaction Center server object in the left pane, expand the **Regionalization** container and select the **Locations** object.

3. In the right pane, double-click the defined location.
   
   The **Locations** dialog box appears.
4. Ensure that the **This Location accepts hub conferences** check box is enabled.
5. Click **OK**.

**Important!**

If you want 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**

1. On the Customer Interaction Center server or a remote personal computer, open Interaction Administrator.
   The Interaction Administrator window appears.
2. Under the Customer Interaction Center server object in the left pane, expand the **Regionalization** container and select the **Default Regionalization** object.
3. In the right pane, double-click the **Configuration** item.
   The **Default Regionalization Configuration** dialog box appears.
4. Select 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 the Configure button.
        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.
     c. Click OK.
6. Click the Simulate button.
   The Simulation Results dialog box appears.
If you selected more than two locations, Customer Interaction Center calculates the path between each combination of locations.

**Note:**
The *Components* column of the list box in the top 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 have configured locations so that some cannot communicate with other locations, including locations that provide hub connections, Customer Interaction Center may not be able to 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 Customer Interaction Center would 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, Customer Interaction Center would not be able to connect a distributed conference call between the two locations. This problem is caused by a location that is configured to not provide hub connections or the latency value is set to -1. To fix this problem, enable the location to allow hub connections or change the latency value to a non-negative number.

8. When you are finished, select the **Close** button.

**Interaction Media Server conference call considerations**

- You can coach conferences that contain less than 20 participants. If there are any coaching sessions in a conference that exceeds 20 participants, the coaching sessions are downgraded to single listen sessions.
- You can monitor conferences that contain less than 50 participants. If there are any hosted monitors in a conference that exceeds 50 participants, the hosted monitor sessions are downgraded to single listen sessions.
• You can use hosted listen sessions in conferences that contain less 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.
  — A hosted listen session is recorded.

• Customer Interaction Center disconnects conferences that consist of only external parties. For example, if you use a station to create a conference call with two external parties, Customer Interaction Center 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 Customer Interaction Center environment.

Specify Interaction Media Server call analysis language model

Interaction Media Server analyzes speech when you use the call analysis feature that is configured through 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 a language for use with speech analysis in Interaction Media Server, do the following steps:

1. On the Customer Interaction Center server or a remote personal computer, open Interaction Administrator.
   The Interaction Administrator window appears.
2. In the left pane, expand the named Customer Interaction Center server object.
3. Select the Server Parameters object.
4. In the right pane, right-click anywhere and select New from the resulting shortcut menu.
   The Entry Name dialog box appears.

5. In the Enter Parameter Name text box, enter Call Analysis Language and click OK.

   Important!
   Enter 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.
6. In the **Parameter Value** text box, enter 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.

7. Click **OK**.
The specified language model is assigned 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, see [Interaction Administrator Help regarding Customer Interaction Center server parameters](#).

**Note:**
Interactive Intelligence carefully tunes the call analysis models 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 Interactive Intelligence Support and provide those recordings. Any recordings that you provide are added to the Interactive Intelligence call analysis database to ensure that the most situations are addressed in future versions.
### Supported call analysis language models and regions

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

### 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 Customer Interaction Center would initiate 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, Customer Interaction Center terminates 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.

If you want to restore the previous functionality of using call analysis when connecting to remote stations, set the **Remote Station Call Analysis Answer Supervision** Customer Interaction Center server parameter to **false**.
Optional administrative tasks for Interaction Media Server

This topic contains the optional tasks that you can do for Interaction Media Server.

**Change the name of Interaction Media Server** .......................................................... 75
**Change the defragmentation schedule on Interaction Media Server** .......................... 76
**Delete an Interaction Media Server from Customer Interaction Center** ................. 76
**Enable Secure Input feature** ................................................................................... 79
**Enable Secure IVR Playback feature** ........................................................................ 80

**Change the name of Interaction Media Server**

1. Log on to Windows Server machine that hosts Interaction Media Server.
2. Right-click the **Computer** icon on the Desktop and, on the resulting shortcut menu, 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, enter the name that you want to assign to this server.

   **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 Customer Interaction Center.

6. After you have entered the new name, click **OK** to save the change and to close this dialog box.
7. In the **System Properties** dialog box, click **OK**.

**Change the defragmentation schedule on Interaction Media Server**

By default, Interaction Media Server is configured to run the disk defragmenter on all drives each night. Interactive Intelligence 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 the storage of recordings and faxes, do not defragment the volume as these files are only ever written and read once.

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

**Delete an Interaction Media Server from Customer Interaction Center**

This topic contains the procedure for removing an Interaction Media Server from Customer Interaction Center.

To delete an Interaction Media Server from Customer Interaction Center, do the following steps:

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.

   You are prompted to supply a user name and password.

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 Customer Interaction Center server from which you want to remove this Interaction Media Server and click the associated **Remove** button.

The selected Customer Interaction Center server is removed 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 Customer Interaction Center 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 select the **Servers** object.
8. In the right pane, locate the Interaction Media Server that you want to remove from this Customer Interaction Center server, right-click it, and select **Delete** on the resulting shortcut menu.

   The selected Interaction Media Server is removed from this Customer Interaction Center 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 Customer Interaction Center server.

9. In the left pane, select 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.

![](image)

12. In the **Subsystem Certificates Configuration** area, click **Modify**.

    The **Subsystem Certificates** dialog box appears.

13. Select the Interaction Media Server entry that you want to remove and click **Delete**.

**Note:**

If you are using a pair of Customer Interaction Center servers in a switchover configuration, you see two certificates; one for each server. Delete both of these certificates.

14. Select the **Close** button.

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 Customer Interaction Center 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 a call is monitored.
- When the Secure Input feature is enabled, 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:**
The Secure Input feature is not currently supported for conference calls, even if the call has only two parties.

To enable the Secure Input feature, do the following tasks:

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

2. In the toolbar, click the License button.

   ![License button](Image)

   The License Management dialog box appears.

3. In the License Management dialog box, select the Features tab.

   ![License Management dialog box](Image)

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 Customer Interaction Center license.
5. Click the Close button.
6. In the left pane of Interaction Administrator, select the Customer Interaction Center server object.
7. In the right pane, double-click the Configuration item.
   The Server Configuration dialog box appears.
8. Select the Telephony Parameters tab.

   ![Server Configuration dialog box]

9. Use the scroll bar on the right side of the dialog box to display the Enable Secure Input feature check box.
10. Enable the Enable Secure Input feature check box.
11. 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 on Secure Input, see Secure Input Technical Reference in the CIC Documentation Library.

**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 securely enter DTMF digits through a telephone keypad and hear the corresponding DTMF digits as feedback. The entered digits are not included in call recordings or keyword spotting diagnostic recordings, are not present in log or tracing files, cannot be heard by any other persons on the call, and are encrypted 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:**
Interactive Intelligence 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 on Interaction Text To Speech licenses, see Interaction Text To Speech (ITTS) licenses.

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

For more information on Interaction Text To Speech, see Text To Speech Engines for IC 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 have applied the CIC license through Interaction Administrator, you initiate the Secure IVR Playback feature through customization of handers 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 Customer Interaction Center to replay the captured DTMF digits securely.
Interaction Media Server faxing

Customer Interaction Center 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. Additionally, you can add Quality of Service (QoS) to the T.38 or T.30 protocol. QoS sends IP packets with high priority, which is recognized among network routing devices.

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

Interaction Media Server faxing process

This section describes how faxing works with Interaction Media Server.

Inbound faxes and Interaction Media Server

The following diagram displays how inbound faxes are processed with Interaction Media Server in your Customer Interaction Center environment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>An external source transmits a fax to a telephone number for a user extension in the Customer Interaction Center network.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong></td>
</tr>
<tr>
<td></td>
<td>Faxes that are sent to a station extension do not require audio processing through Interaction Media Server.</td>
</tr>
<tr>
<td>2</td>
<td>A gateway converts the analog fax data to a digital format and sends the data to Interaction Media Server.</td>
</tr>
</tbody>
</table>
83

Interaction Media Server converts the fax data to TIFF format image files and sends the files to Customer Interaction Center.

Customer Interaction Center attaches the fax images to an e-mail message and addresses it to the associated user of the target station.

The user receives an e-mail 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 Customer Interaction Center for stand-alone fax machines, see *IC Installation and Configuration Guide*.

**Outbound faxes and Interaction Media Server**

The following diagram displays how outbound faxes are processed with Interaction Media Server in your Customer Interaction Center environment:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Using Interaction Fax, a user of a station sends a fax to an external telephone number.</td>
</tr>
<tr>
<td>2</td>
<td>Customer Interaction Center sends the fax data—in the form of TIFF format image files—to Interaction Media Server.</td>
</tr>
<tr>
<td>3</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

**Interaction Media Server fax licensing**

Each simultaneous active fax, either inbound or outbound, requires a fax session license. Fax session licenses are defined in the Customer Interaction Center 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 are not serviced.
- **Outbound** – Customer Interaction Center 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 and view the **Fax Licenses Available** statistic.
Configure Interaction Media Server through the web interface

You configure Interaction Media Server through its web interface. This section contains the following topics:

Configure audio recording retrieval on Interaction Media Server ........................................85
Configure Quality of Service on Interaction Media Server ..................................................88
Configure SNMP support on Interaction Media Server ......................................................90

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 Customer Interaction Center 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 to use HTTPS, do the following steps:

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.

   You are prompted to supply a user name and password.

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.

![Config-Servers page](image)

**Configuration**

<table>
<thead>
<tr>
<th>Command Servers:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Servers</strong></td>
</tr>
<tr>
<td>ID</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

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 Customer Interaction Center 3.0. Do not enable this parameter if Interaction Media Server is supporting Customer Interaction Center 3.0 servers.

6. In the associated list box, select **true**.

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

Interaction Media Server now uses the HTTPS protocol to transfer recordings to Customer Interaction Center.

**Note:**

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 Customer Interaction Center server exchange certificates so that recordings cannot be intercepted 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, Interactive Intelligence installed its own Quality of Service (QoS) driver to handle the prioritization of VoIP communications. For information on stopping the Interaction Media Server installation process from installing the Interaction Intelligence QoS driver or the associated certificate to the Trusted Publishers list, see the QoS for the xIC Platform white paper. This document is located in the CIC Documentation Library.

Interaction Media Server uses QoS to mark Internet Protocol (IP) packets that contain Real-time Transport Protocol (RTP) data with prioritization information. QoS is recognized in almost all network devices. 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.

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 Interactive Intelligence 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 through QoS, do the following steps:

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.

   You are prompted to supply a user name and password.

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, select the DSCP value that you want 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. Interactive Intelligence 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, select the Apply Changes button to save your modification of this property.

You can also change which Interaction Media Server communications use QoS. See the Interaction Media Server Config-Properties page topic for information on the NotifierQosTaggingEnabled, RtpQosTaggingEnabled, and UdptlQosTaggingEnabled properties.

**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 QoS tagging is enabled 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 enter the following command for each interface that handles RTP traffic from an Interaction Media Server:

```
mis 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.

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

<table>
<thead>
<tr>
<th>Transport layer protocols</th>
<th>UDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network port numbers</td>
<td></td>
</tr>
<tr>
<td>• 161 – General SNMP messages</td>
<td></td>
</tr>
<tr>
<td>• 162 – SNMP trap messages</td>
<td></td>
</tr>
</tbody>
</table>

The Interactive Intelligence SNMP service supports SNMPv1, SNMPv2c, and SNMPv3.

For more information about the Interactive Intelligence SNMP service, see *IC and SNMP
Technical Reference*.

**Important!**
To configure SNMPv3 settings, you must use a command line utility that is installed with the
**ININ SNMP** service. For information usage and syntax for this command line utility, see *IC
and SNMP Technical Reference*.

To configure Interaction Media Server to send SNMPv1 or SNMPv2c messages to an
NMS, do the following steps:

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 Interactive Intelligence SNMP service (**ININ SNMP**) uses the same configuration
   that the Windows **SNMP Service** used when it was disabled. Therefore, you can use
   the **SNMP Service Properties** dialog box to configure the SNMPv1 or SNMPv2c
   settings that **ININ SNMP** uses.

3. Select the **Security** tab.
4. Enable the **Send authentication trap** check box.
5. In the **Accepted community names** box, select the **Add** button and do the following
   steps:
   a. In the **Community Rights** list box, select **READ ONLY**.
   b. In the **Community Name** box, enter a name to which all Interaction Media Servers
      will belong.
6. Click **OK**.
7. Select the **Accept SNMP packets from these hosts** option and then click **Add**.
8. Enter **localhost** in the text box and click **OK**.
9. Click **OK** to close the **SNMP Service Properties (Local Computer)** dialog box.
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.

You are prompted to supply a user name and password.

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, select the **Config** icon.

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

   The **Snmp** page appears.

   ![Snmp page screenshot]

14. Under the **Accepted Community Names** label, in the first **Community Name** text box, enter a name for an SNMP group of resources to which all Interaction Media Servers will belong.

   The name that you enter must be compatible with the network management system (NMS).

15. In the **Community Rights** list box to the right, select the **READ ONLY**.

16. Under the **Trap Settings** label, in the first **Community Name** text box, enter the name that you specified in step 14.

17. In the **Trap destinations** box, enter the address of the NMS to which this Interaction Media Server will send SNMP messages.

   Depending on your network configuration you can enter 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. At the bottom of the page, click **Apply**.

   Your SNMP configuration is saved.

**Note:**

For information on 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 Interactive Intelligence SNMP service, which is shared between both products. 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.

If you are using Interaction Media Server or Interaction SIP Proxy on an Interaction Edge appliance, you do not have the capability to repair the installation. Instead, open a command prompt and execute the following command:

```cmd
Msiexec /i {B4318EC8-D381-4230-AD00-DC6D5F430AC3} REINSTALL=ALL REINSTALLMODE=omus
```
Interaction Media Server web interface reference

For information about each of the configuration options and information on the Interaction Media Server configuration pages, see the relevant screens and the descriptions in the following topics. This section contains the following topics:

- Interaction Media Server Status-About page ................................................................. 95
- Interaction Media Server Status-Server Status page ...................................................... 96
- Interaction Media Server Status-Media Engine page ..................................................... 98
- Interaction Media Server Config-Servers page ............................................................... 100
- Interaction Media Server Config-Parameters page ......................................................... 104
- Interaction Media Server Config-Properties page ......................................................... 111
- Interaction Media Server Config-Diagnostics page ....................................................... 124
- Interaction Media Server Config-Snmp page .................................................................... 128
- Interaction Media Server Config-Administration page .................................................. 130
- Interaction Media Server Config-License page .............................................................. 132

Interaction Media Server Status-About page

The About page lists the current statistics for Interaction Media Server. It contains the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Name</td>
<td>The Windows name of the computer that is hosting Interaction Media Server</td>
</tr>
<tr>
<td>Machine Uptime</td>
<td>The length of time since Interaction Media Server was started</td>
</tr>
<tr>
<td>Local IP Address</td>
<td>The IP address of Interaction Media Server</td>
</tr>
<tr>
<td>License Type</td>
<td>The form of license that has been applied to Interaction Media Server</td>
</tr>
</tbody>
</table>
**Product Version**  The version number of the Interaction Media Server software

**File Version**  The internal build version for the Interaction Media Server files

**Special Build Description**  The internal build process identifier that generated the files for Interaction Media Server

**Hotfix**  The latest patch that has been applied to this Interaction Media Server

### Interaction Media Server Status-Server Status page

The **Server Status** page lists all Customer Interaction Center 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 Customer Interaction Center server. The **Details** button provides more details about each Customer Interaction Center server and its connection.

The **Server Status** page contains the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>This column displays the identifier number for a connection between this Interaction Media Server and a Customer Interaction Center server. It is written to trace logs to correlate Notifier connections.</td>
</tr>
<tr>
<td>Notifier Host</td>
<td>This column displays the Customer Interaction Center server name or IP address in this connection.</td>
</tr>
<tr>
<td>Connection Status</td>
<td>This column displays the status of this connection between this Interaction Media Server and the Customer Interaction Center server. The following list displays the possible values for this column:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Not Connected</strong> (yellow) – Interaction Media Server is attempting to establish a Notifier connection with the Customer Interaction Center server, but is unable to locate it. In this state, Interaction Media Server attempts to</td>
</tr>
</tbody>
</table>
reconnect approximately once every 2 minutes until it is successful.

- **Authentication Failure** (red) – Interaction Media Server found the Customer Interaction Center server but failed to establish a Notifier connection. This failure can be due to invalid credentials. This message is also displayed if the Interaction Media Server certificate has not been trusted through Interaction Administrator.

- **Notifier Connection Failure** (red) – The Customer Interaction Center (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** – The Customer Interaction Center server connection has been successfully established and Interaction Media Server is waiting for the client (Telephony Services on the Customer Interaction Center server) to start.

- **Active** (green) – Interaction Media Server has established a Notifier connection with the Customer Interaction Center server and has successfully logged on to Telephony Services.

### Accepts Sessions

The column displays if Interaction Media Server is ready to accept sessions from the Customer Interaction Center server. For a connection, the following conditions must be true:

- Interaction Media Server is successfully connected to the Customer Interaction Center server.
- Interaction Media Server has a loaded and valid license.
- Interaction Media Server is configured to accept sessions from the Customer Interaction Center server.

### Active Resources

This column displays the number of Interaction Media Server resources that are currently hosted on behalf of the associated Customer Interaction Center server.

Select the **Active Resources** numeric hyperlink to display a table that lists each active resource that is associated with that Customer Interaction Center 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

Select this button to see more detailed information about the Interaction Media Server status that is relative to the associated Customer Interaction Center server.

Auto-refresh every 10s

Enable this check box if you want the information on this page to reload 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. The Media Engine page contains the following fields and controls:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread ID</td>
<td>This column displays the operating system identifier of the single, high-priority thread currently in use by each CPU (physical and hyper-threaded).</td>
</tr>
<tr>
<td>CPU ID</td>
<td>This column displays the number of the CPU in use by the associated Thread ID.</td>
</tr>
<tr>
<td><strong>Locations</strong></td>
<td>This column displays the actual location of the CPU on which the media engine is hosted.</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Current Load</strong></td>
<td>This column displays a value that indicates the 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 <strong>Task Manager</strong> or <strong>Perfmon</strong>. This value could be higher or lower than the CPU usage depending on the features in use on this Interaction Media Server.</td>
</tr>
<tr>
<td><strong>Average Load</strong></td>
<td>This column displays the moving average of the current load over a 30-second period.</td>
</tr>
<tr>
<td><strong>Graphs</strong></td>
<td>This column displays the number of audio processing graphs that are hosted on a specific media engine.</td>
</tr>
<tr>
<td><strong>Elements</strong></td>
<td>This column displays the number of audio processing elements that are hosted on a specific media engine.</td>
</tr>
<tr>
<td><strong>Refresh</strong></td>
<td>Select this button to refresh the data displayed on this page.</td>
</tr>
</tbody>
</table>
| **Show ASR Statistics** | Enable this check box to display detailed information on Automatic Speech Recognition (ASR) processing on this Interaction Media Server. These statistics indicate the resources that this Interaction Media Server is using for ASR activities and can assist in 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** | This value indicates the maximum number of CPU threads that are dedicated to ASR search operations. This value is controlled by the **AsrWorkerThreadsMax** parameter and cannot be more than one thread for each logical CPU core. |
| **Current ASR Worker Threads** | This value indicates the current number of CPU threads in the thread pool. This value cannot exceed the value in **Maximum ASR Worker Threads**. |
| **Active Recognition Tasks** | This value indicates the number of current ASR input operations for recognizing and collecting speech. |
| **Active ASR Search Jobs** | This value indicates the 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** | This value indicates the average number of pending ASR search jobs within the last 15 seconds. |
| **Average Work Ratio** | This value indicates the ratio between the average number of ASR search jobs and the maximum number of ASR worker threads. A value of 1 indicates that some ASR search jobs cannot be actively processed and are waiting for processing resources to become available. If this value consistently... |
remains above the value specified in the **AsrWorkerMaxWorkRatio** parameter, Interaction Media Server will reject new ASR sessions.

<table>
<thead>
<tr>
<th><strong>Max. Completion Delay</strong></th>
<th>This value indicates the largest delay in completing any ASR search operations within the last 15 seconds. If this value increases consistently, ASR operations are being delayed because sufficient resources are not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Completion Delay</strong></td>
<td>This value indicates the average delay in completing ASR search operations within the last 15 seconds.</td>
</tr>
<tr>
<td><strong>Min. Search Speed</strong></td>
<td>This value represents the 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.</td>
</tr>
<tr>
<td><strong>Max. Search Speed</strong></td>
<td>This value indicates the best speed for a completed ASR search operation within the last 15 seconds.</td>
</tr>
<tr>
<td><strong>Average Search Speed</strong></td>
<td>This value indicates the average speed for completed ASR search operations within the last 15 seconds.</td>
</tr>
<tr>
<td><strong>Auto-refresh every 10s</strong></td>
<td>Enable this check box if you want to have new data displayed on this page every 10 seconds. Interactive Intelligence recommends that you do not leave this check box enabled on a continual basis.</td>
</tr>
</tbody>
</table>

Interaction Media Server Config-Servers page

![Interaction Media Server Config-Servers page](image)

**Configuration**

| Command Servers: |
|------------------|------------------|
| **Servers** |
| ID | Notifier Host | Accept Sessions | Configure | Remove |
| 1 | BostonCIC1 | Yes | Server | Properties | Remove |
| 1 | BostonCIC2 | Yes | Server | Properties | Remove |
| 1 | DallasCIC1 | Yes | Server | Properties | Remove |
| 1 | DallasCIC2 | Yes | Server | Properties | Remove |
| 1 | SeattleCIC1 | Yes | Server | Properties | Remove |
| 1 | SeattleCIC2 | Yes | Server | Properties | Remove |

**Add Server:**
The **Servers** page enables you to add and remove Customer Interaction Center server connections for this Interaction Media Server. You can also specify properties that are specific between this Interaction Media Server and the specified Customer Interaction Center server. This page contains the following columns and controls:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ID</strong></td>
<td>This column displays a unique identifier number for a connection between Interaction Media Server and a specific Customer Interaction Center server. This number is written to trace logs to identify a connection.</td>
</tr>
<tr>
<td><strong>Notifier Host</strong></td>
<td>This column displays the name or IP address of a Customer Interaction Center (Notifier) server definition to which Interaction Media Server can connect.</td>
</tr>
</tbody>
</table>
| **Accept Sessions** | This column displays if Interaction Media Server accepts audio processing requests from the associated Customer Interaction Center server. For Interaction Media Server to accept a connection from a Customer Interaction Center server, the following conditions must be true:  
  - Interaction Media Server successfully connected to the associated Customer Interaction Center server.  
  - Interaction Media Server has a valid and loaded license.  
  - The Accept Sessions feature is set to **Yes**. |

**Tip:**

To take an Interaction Media Server out of service for all command servers, use the **Deactivate** button on the **Config-Administration** page. Interaction Media Server will continue to process current media operations until the associated calls have ended.
**Server button**  
Select this button to display 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 button**  
Select this button to display a page where you can specify properties for this connection between Interaction Media Server and the associated Customer Interaction Center server.

See [Interaction Media Server Config-Properties page](#) for definitions of the items in the list box.

**Remove button**  
Select this button if you want to remove the associated Customer Interaction Center server connection.

**Add Server button**  
Select this button if you want to define a new connection to a Customer Interaction Center server. It displays the following page:
This page contains the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Notifier Host</strong></td>
<td>Enter the name of a Customer Interaction Center server. You cannot specify multiple Customer Interaction Center servers in this box. Each Customer Interaction Center server connection must be defined individually.</td>
</tr>
<tr>
<td><strong>IC User Id</strong></td>
<td>Enter the user name of the Customer Interaction Center user account that Interaction Media Server will use to log on to the Customer Interaction Center server.</td>
</tr>
<tr>
<td><strong>IC Password</strong></td>
<td>Enter the password for the user name specified in the <strong>IC User Id</strong> box.</td>
</tr>
<tr>
<td><strong>Accept Sessions</strong></td>
<td>This field is set to <strong>Yes</strong> by default. The <strong>Yes</strong> setting causes Interaction Media Server to accept audio processing requests from the specified Customer Interaction Center server.</td>
</tr>
<tr>
<td><strong>Copy Properties From</strong></td>
<td>This field is set to <strong>None</strong> by default. If you want to use the settings, including property settings, from an existing Customer Interaction Center server connection definition, select that definition from this list box.</td>
</tr>
<tr>
<td><strong>Add button</strong></td>
<td>Select this button to save the entered information and to create the Customer Interaction Center server connection for this Interaction Media Server.</td>
</tr>
</tbody>
</table>
The Parameters page enables you to configure specific aspects of Interaction Media Server.

**Important!**
Change these parameters only if you are instructed to do so by an Interactive Intelligence support engineer. 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.
The **Parameters** page contains the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASR Worker Max. Work Ratio</strong></td>
<td>This parameter specifies a threshold that represents the number of ASR search operations compared to the maximum number of ASR worker threads. A value greater than 1.0 indicates that there are more search operations than can be processed by the ASR worker threads, which results in delays of speech recognition tasks. If the ratio remains above this value, Interaction Media Server starts rejecting new ASR processes until the ratio falls below the value.</td>
</tr>
<tr>
<td><strong>ASR Worker Thread Priority</strong></td>
<td>This parameter controls how the CPUs process ASR tasks as compared to other processes on the Windows Server. <strong>Important!</strong> ASR tasks do not require the same level of processing as other processes, such as those involved in conversations and recordings. Interactive Intelligence recommends that you use the <strong>BelowNormal</strong> setting unless you are directed to use a different setting by an Interactive Intelligence technical support representative.</td>
</tr>
<tr>
<td><strong>ASR Worker Max. Threads</strong></td>
<td>This parameter 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. Interactive Intelligence strongly recommends that you do not create more threads to process ASR than there are CPU resources in the machine. If you require more resources for other media tasks, such as recording, transcoding, or speech analytics, enter a lower number than the number of enabled CPU resources so that those time-sensitive operations receive...</td>
</tr>
</tbody>
</table>
prioritization for CPU resources over ASR operations.

| **CreateMemoryDumpOnEngineFault** | This parameter controls if and what type of memory dump that Interaction Media Server will create should there be a terminating error for one of the media engines. The values for this parameter are as follows:
- Default
- Disabled
- Full (default)
- Mini

**Important!**
Interactive Intelligence recommends that you use the **Full** value for the `CreateMemoryDumpOnEngineFault` parameter. Should a media engine terminate unexpectedly, the **Full** value provides the most information for Interactive Intelligence to determine the cause.

| **Media Engine CPU Mask** | This array of check boxes enables you to specify which CPUs can host media engines. By default, all CPUs are enabled.

**Important!**
If you are using Interaction Media Server on an Interaction Edge appliance, you can use only the following CPU cores:
- 1, 2, 4, and 7 (Edge GA through SU2)
- 1, 2, 5, and 6 (Edge SU3 and later, all 20XX RX upgrades)

Enabling other CPU cores when Interaction Media Server is hosted on the Interaction Edge appliance can result in instability, unresponsive behavior, and critical failures, including complete system failure.

| **Media Engine Load Limit** | New media engine sessions are created only if 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!**
Interactive Intelligence recommends that you do not change the setting for this server parameter unless directed to do so by an Interactive Intelligence support representative.

### Media Engine Selection Algorithm

Use this list box to determine the method in which media engines are selected to process audio operations, including conferencing. This list box contains the following items:

- **FewestElements** – Use this setting if you have less than eight logical CPU cores in your Interaction Media Server machine.
- **Load Weighted Stochastic** – Use this setting if you have eight or more logical CPU cores in your Interaction Media Server machine.

**Important!**
Interactive Intelligence recommends that you do not change the setting for this server parameter unless directed to do so by an Interactive Intelligence support representative.

### Media Engine Thread Priority

This parameter controls the priority of the media engine threads. The default value is **TimeCritical**.

**Important!**
Interactive Intelligence recommends that you do not change the setting for this server parameter unless directed to do so by an Interactive Intelligence support representative.

### Media Engine UDP Sender Loopback

This parameter controls 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 you are instructed to change it by an Interactive Intelligence support engineer.

**Important!**
Set this parameter to the **AdaptiveForLocalAddresses** value for the following situations:
<p>| <strong>Directory for Cache of HTTP Client</strong> | This parameter specifies the local directory on Interaction Media Server where prompts or voice mail are cached after being played from their original location on the Customer Interaction Center 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, a minimum of 150 gigabytes of free disk space is required. More or less space can be required 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. <strong>Note:</strong> To avoid a performance problem, if your system uses antivirus software, exclude this cache directory from scanning when Interaction Media Server reads these files. |
| <strong>Http Trace Log Access</strong> | This parameter specifies if trace logs can be retrieved through an HTTP connection. The trace logs involve certificates and the movement of diagnostic recordings. The default value for this parameter is Disabled. <strong>Note:</strong> If you enabled the Fetch Diagnostic Recordings from Media Server feature on the Customer Interaction Center server through Interaction Administrator, set this parameter value to AnyConnection. |
| <strong>Allow Hyper Threaded Media Engines</strong> | This parameter controls if media engines can share a physical core that already has one or more hyper-threaded logical CPUs. If you set this value to False, each core is limited to one media engine. |</p>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max Concurrently Active Diagnostic Captures</strong></td>
<td>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 that are created to avoid excessive load on Interaction Media Server. The default value is <strong>32</strong>.</td>
</tr>
<tr>
<td><strong>Max Number of Media Engines</strong></td>
<td>This parameter specifies the 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 <strong>0</strong>, which specifies that each CPU core has one media engine.</td>
</tr>
<tr>
<td><strong>Min Scheduler Latency [ms]</strong></td>
<td>The default value is <strong>4</strong>.</td>
</tr>
<tr>
<td><strong>Process Priority Class</strong></td>
<td>This parameter controls the priority of the main Interaction Media Server process. The default value is <strong>AboveNormal</strong>.</td>
</tr>
<tr>
<td><strong>Recording Retrieval HTTP Capacity</strong></td>
<td>This parameter controls the maximum number of concurrent recording retrieval requests that can be served on Interaction Media Server. The default value is <strong>100</strong>.</td>
</tr>
<tr>
<td><strong>Recording Retrieval HTTP Interface</strong></td>
<td>This parameter specifies the network interface on which Interaction Media Server listens for Customer Interaction Center servers to retrieve recordings. By default, this parameter is set to <strong>Any</strong>, which causes Interaction Media Server to accept connections from HTTP clients (Customer Interaction Center servers) on any of the network interfaces. If you want to restrict recording retrieval, select another named network connection. If this parameter is set to a value other than <strong>Any</strong>, and multiple network</td>
</tr>
<tr>
<td>Topic</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Recording Retrieval HTTP Port</td>
<td>This parameter specifies the computer port that the HTTP recording retrieval process monitors for requests. The default port is 8102.</td>
</tr>
<tr>
<td>Recording Retrieval Thread Priority</td>
<td>This parameter controls the priority of the HTTP Recording Retrieval thread on Interaction Media Server. Set this parameter to <strong>Below Normal</strong> unless otherwise instructed to change it by an Interactive Intelligence support engineer.</td>
</tr>
<tr>
<td>Recording Retrieval Use Mutual Authentication</td>
<td>This parameter specifies that any remote connection that attempts to retrieve recordings from Interaction Media Server must exchange certificates with Interaction Media Server before the recordings can be downloaded. The default value for this parameter is <strong>false</strong>.</td>
</tr>
<tr>
<td>Recording Retrieval HTTPS Required</td>
<td>This parameter specifies that Customer Interaction Center or any remote connection must use the HTTPS protocol to retrieve recordings. The default value for this parameter is <strong>false</strong>.</td>
</tr>
<tr>
<td><strong>Apply Changes</strong> button</td>
<td>Select this button to save and changes made on this page.</td>
</tr>
<tr>
<td><strong>Cancel</strong> button</td>
<td>Select this button to disregard any changes on this page and return to the <strong>Configuration-Servers</strong> page.</td>
</tr>
</tbody>
</table>
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 Customer Interaction Center 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 the Apply Changes button 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.

The Properties page can contain the following items:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
</table>
| AnalyzerDiagnosticRecording | **Important!**  
Set this property to **true** only if directed to do so by an Interactive Intelligence support engineer.  
This property specifies if diagnostic recordings can be made 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**.  
**Tip:**  
The preferred method of enabling diagnostic recordings is through the **Telephony Parameters** interface in Interaction Administrator. |
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
</table>
| AsrDiagnosticRecording  | When set to **true**, this property causes Interaction Media Server to create diagnostic recordings for ASR input echo cancellation.  
Set this property to **true** only if you have detected echo in the diagnostic recordings created by the **RecognizerDiagnosticRecording** property (in the case of Interactive Speech Recognition) or the **ASRDebugWav** property (in the case of a third-party ASR server.)  
**Caution!**  
Diagnostic recordings for Interaction Speech Recognition that are created 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 of time as it could exhaust local storage capabilities. Additionally, the amount of processing resources that Interaction Media Server uses when this property is set to **true** significantly impacts performance. Interactive Intelligence recommends that you enable this property only when call volume and CPU usage are low for this Interaction Media Server.  
You should not enable this property unless directed to do so by an Interactive Intelligence Support representative. |
| AudioSourceBaseUri      | **Note:**  
This property is for backward compatibility with Customer Interaction Center 3.0. It has no effect when you use Interaction Media Server in a Customer Interaction Center of the same version.  
Enter the local path on Interaction Media Server to the directory that contains all audio .WAV files that are used for ring back, music on hold, and in-queue audio. Ensure that the path ends with a backslash (\). The default value is `C:\Program Files\Interactive Intelligence\Resources\` |
| AudioSourceFallbackUri  | **Note:**  
This property is for backward compatibility with Customer Interaction Center 3.0. It has no effect when you use Interaction Media Server in a Customer Interaction Center of the same version.  
Enter the specific .WAV file name that Interaction Media Server uses if any of the primary audio files, which are specified in Interaction Administrator, cannot be found. This .WAV file is used 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` |
<table>
<thead>
<tr>
<th><strong>EnableCallRecovery</strong></th>
<th>Add this property and set the value to <code>true</code> if you want Interaction Media Server to keep audio sources alive when the Notifer connection to the Customer Interaction Center server is lost.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MaxResourceIdle</strong></td>
<td>If an Interaction Media Server resource does not receive audio for more than the specified number of seconds, the RTP stream is marked as idle. This value is approximate as Interaction Media Server polls for idle calls every 30 seconds. The minimum value is 15.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>To disable disconnection of calls when no RTP packets are received for the specified period of time, use Interaction Administrator to set the <code>Broken RTP Disconnect Time</code> TS server parameter to 0 (zero).</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>By default, Customer Interaction Center disconnects a call when both endpoints are in the <code>idle</code> state (no RTP packets). If you want Customer Interaction Center to disconnect calls where only one endpoint has entered the <code>idle</code> state, use Interaction Administrator to set the <code>TreatEndpointIdleAsFullIdle</code> TS server parameter to <code>on</code>.</td>
</tr>
<tr>
<td><strong>NotifierDscpValue</strong></td>
<td>If the <code>NotifierQosTaggingEnabled</code> property is set to <code>True</code>, this parameter changes the DSCP value of the Quality of Service (QoS) tags on Notifier network traffic.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>If you change this property, restart Interaction Media Server for this change to take effect.</td>
</tr>
<tr>
<td><strong>Important!</strong></td>
<td>You cannot override this value by specifying it through Interaction Administrator or the Command Servers web interface of Interaction Media Server.</td>
</tr>
<tr>
<td><strong>NotifierQosTaggingEnabled</strong></td>
<td>If you want to specify the DSCP value of QoS tags in network traffic, set this property to <code>True</code>.</td>
</tr>
</tbody>
</table>
| **Note:**              | If you change this property, restart Interaction Media Server for this change to take effect.
<table>
<thead>
<tr>
<th><strong>Important!</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>You cannot override this value by specifying it through Interaction Administrator or the <strong>Command Servers</strong> web interface of Interaction Media Server.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>RecognizerDiagnosticRecording</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>When set to <strong>true</strong>, this property causes Interaction Media Server to create diagnostic recordings for Interaction Speech Recognition. You can send these diagnostic recordings to Interactive Intelligence for analysis to resolve issues.</td>
</tr>
</tbody>
</table>

If you are experiencing audio issues with Interaction Speech Recognition, select this property in the list box, set the value to **true**, and select the **Apply** button at the bottom of the page.

If you add and enable this property through the Interaction Media Server web interface, Interaction Media Server creates the diagnostic recordings as **.wav** files, which remain on this Interaction Media Server.

If you add and enable this property through the **System Configuration > Recognition > Interaction Speech Recognition > Configuration** dialog box in Interaction Administrator, both **.wav** and **.xml** files are created for diagnostic recordings on all Interaction Media Servers connected to the Customer Interaction Center server. The Customer Interaction Center server then moves those files from Interaction Media Server to the Customer Interaction Center server.

**Important!**

If Interaction Media Server is connected to Customer Interaction Center through WAN or other network connections with reduced bandwidth, Interactive Intelligence recommends that you do not set this property through 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 through Interaction Administrator, ensure that you have sufficient free storage space on the Customer Interaction Center server as Interaction Speech Recognition diagnostic recordings are created on all Interaction Media Servers and moved to the Customer Interaction Center server.

<table>
<thead>
<tr>
<th><strong>RecordingAuthorityFormat</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>This property specifies how Interaction Media Server defines its server address in an HTTP URL when Customer Interaction Center attempts to download recordings. For example, http://&lt;server&gt;:&lt;port&gt;.</td>
</tr>
</tbody>
</table>

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 Customer Interaction Center environment.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RecordingCustomAuthority</strong></td>
<td>If the <strong>RecordingAuthorityFormat</strong> property is set to <strong>Custom</strong>, this property specifies the text (server address) that Interaction Media Server sends to Customer Interaction Center.</td>
</tr>
</tbody>
</table>
| **RecordingMimeTypeDefault**      | This property specifies the audio codec to associate with a recording when Interaction Recorder is configured to use **None** as its compression format or when custom handlers override a recording and do not specify a **Mime Type** parameter. The following values are supported:  
  - **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, the audio codec for the recordings on Interaction Media Server is specified in **Interaction Recorder > Configuration > Recording Processing** or **System Configuration > Mail > Configuration > Prefixes and Voice Mail** in Interaction Administrator. |
<p>| <strong>ResourceBaseUriLocal</strong>          | This property specifies the local path where Interaction Media Server stores recording files as it records them. The default value is <code>&lt;drive&gt;:\&lt;install_dir&gt;\Media</code>.                                                                 |
| <strong>RtcpQosDscpValue</strong>              | If the <strong>RtcpQosTaggingEnabled</strong> property is set to <strong>true</strong>, this property specifies the DSCP value to tag to each RTCP packet for Quality of Service (QoS). The |</p>
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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**        | Set this property to **true** if you want to specify the DSCP value to tag to each RTCP packet for Quality of Service (QoS). If this property is not defined, RTCP packets are tagged in the same manner as RTP packets.  
If you set this property to **false**, DSCP tagging is disabled.                                                                                                                  |
| **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 enter 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, the NIC can be assigned an address 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 will send RTP packets through only the first NIC configured to reach the destination IP address in the Windows Server routing table. |
| **RtpAddressLocalMask**          | Use this property to enter a 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 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. |
| **RtpAddressLocalType**          | Use this property to specify the versions of Internet Protocol (IP) that this system uses for Real-time Transport Protocol (RTP) communications. Enter 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 is required to use both IPv4 and IPv6 addresses. |

**Note:**
For the **IP4IP6** value, Interaction Media Server must supply acceptable IPv4 and IPv6 addresses or be placed 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 are currently installed and available on this host server. |

**Caution!**
Customer Interaction Center does not yet fully support the IPv6 protocol. This feature is intended for future use. Do not change the value for this property unless directed to do so by an Interactive Intelligence Support representative.

| **RtpDiagnosticCaptureCipherSuite** | Use this property to specify the 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 no encryption or authentication is used.

**Important!**
If the Secure Input feature is enabled on the Customer Interaction Center 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 this property is set to true, Interaction Media Server logs all RTP and RTCP packets, both sent and received, in a diagnostic capture file with additional metadata. This feature enables the reconstruction and analysis of the audio by Interactive Intelligence personnel.

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, a large amount of data is written to the hard disk drive; 40 KB for each call for each second with the G.711 codec. If you enable encryption and authentication, there is an additional load on the CPU. Because of these conditions, enable diagnostic captures only when needed, as when an Interactive Intelligence support representative instructs you to do so.

**Note:**
If the Secure Input feature is not enabled on the Customer Interaction Center 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 Customer Interaction Center 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 | In this property, specify the range of ports that Interaction Media Server uses for receiving RTP communications. The default value of 16384-32767 accommodates most installations. Interactive Intelligence 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 |
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 the **Add Value** button.

| **RtpQosDscpValue** | If the **RtpQosTaggingEnabled** property is set 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** | Set this property to **true** if you want to specify the DSCP value to tag to each RTP packet for Quality of Service (QoS). If you set this property to **false**, DSCP tagging is disabled.

| **SecureInputModeEnabled** | If your Customer Interaction Center license includes the Secure Input feature and you enable the feature in the **Server Configuration** dialog box in Interaction Administrator, Customer Interaction Center 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. Enter 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 is required to use both IPv4 and IPv6 addresses.
Note:
For the IP4IP6 value, Interaction Media Server must supply acceptable IPv4 and IPv6 addresses or be placed 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 are currently installed and available on this host server.

**Caution!**
Customer Interaction Center does not yet fully support the IPv6 protocol. This feature is intended for future use. Do not change the value for this property unless directed to do so by an Interactive Intelligence Support representative.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UdptlPortRange</td>
<td>Use this optional property to specify the UDPTL (T.38 or T.30 fax) socket in the same way that RtpPortRange configures voice ports.</td>
</tr>
<tr>
<td>UdptlQosDscpValue</td>
<td>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.</td>
</tr>
<tr>
<td>UdptlQosTaggingEnabled</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Add custom properties to Interaction Media Server**

Depending on your configuration or network environment, an Interactive Intelligence support engineer may direct you to add a custom property. To add a custom property, use the unlabeled field that is next to the Add button, as displayed in the following image:
Property override hierarchy for Interaction Media Server

If you have multiple Customer Interaction Center servers, you can configure each Customer Interaction Center 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 Customer Interaction Center 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 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:
<table>
<thead>
<tr>
<th>Override priority</th>
<th>Application and interface</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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 Customer Interaction Center 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 Customer Interaction Center server. |
This Interaction Media Server property definition overrides all properties defined through the Interaction Media Server web interface.

Customer Interaction Center assigns this property-value combination to any Interaction Media Server when Customer Interaction Center uses it to process audio for its interactions.

This Interaction Media Server property definition overrides all other Interaction Media Server property definitions.

Customer Interaction Center assigns this property-value combination to this specific Interaction Media Server when Customer Interaction Center uses it to process audio for its interactions.

**Note:**
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.
Tip:
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 enables 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 enables you to enter 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 this key is not set when the Secure Input feature is enabled, Interaction Media Server does not record DTMF digits in the log file or diagnostic captures.
The Trace Log Encryption Key for Secure Input Mode page contains the following controls:

- **Category** – This box contains the name of the feature that uses this encryption key.
- **Instance** – This box contains a dynamically generated string consisting of the name of the Interaction Media Server, the domain, and numeric data representing date and time.
- **Key** – This box enables you to enter a key that the encryption algorithm will use to encrypt DTMF digits in diagnostic captures.
- **Random Key** – Use this button to generate an encryption key. The encryption key replaces any key entered in the Key box.
- **Apply Key** – Use this button to set the encryption key for DTMF digits in subsequent diagnostic captures.
- **Cancel** – Use this button to disregard any changes to the controls on this page and return to the Diagnostics page.

**Important!**
If you select the Cancel button after selecting the Apply Key button, the encryption key is not removed and is still applied 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 that is 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 enables 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 enables you to export the current trace level settings of this Interaction Media Server to a file.

**Import configuration file**

The **Import Configuration File** hyperlink enables 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 results in a new `<Version>` element being added 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 located at the following path:

D:\I3\IC\Resources\MediaServerConfig.xml

**Download current configuration**

The **Download current Configuration File of this media server** hyperlink enables 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 an Interactive Intelligence representative for troubleshooting.

For more information about creating memory dumps, see **Interaction Media Server memory dump** in the **Troubleshoot Interaction Media Server issues** section.

**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 an Interactive Intelligence support representative. In most cases, the default tracing levels provide enough information for Interactive Intelligence 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:
<table>
<thead>
<tr>
<th>Tracing Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>No information is written to the log file.</td>
</tr>
<tr>
<td>Critical Error</td>
<td>Use this setting to record severe failures that cannot be corrected.</td>
</tr>
<tr>
<td>Error</td>
<td>Use this setting to record data for the previous setting and minor failures that cannot be automatically corrected.</td>
</tr>
<tr>
<td>Warning</td>
<td>Use this setting to record data for the previous setting and conditions that will impair Interaction Media Server without corrective action.</td>
</tr>
</tbody>
</table>
| Status        | Use this setting to record data for the previous setting and for the following information:  
  - Configuration changes  
  - Performance metrics  
  - Resource usage |
| Notes         | Use this setting to record data for the previous setting and for the following information:  
  - Expected failures  
  - Minor errors |
| Verbose Notes | Use this setting to record data for the previous setting and for select programmatic values. |
| Ultra Verbose | Use this setting to record events for the previous setting and for most programmatic values. |
| All           | Use this setting to record all data from Interaction Media Server operations. |
Interaction Media Server Config-Snmp page

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

**Note:**

Interaction Media Server uses the Interactive Intelligence SNMP service, which support SNMPv1, SNMPv2c, and SNMPv3. The Snmp page enables you to configure settings for only SNMPv1 and SNMPv2c. To configure the settings for SNMPv3, including user definitions and encryption, you must use the command line utility that is installed with the service. For information about usage and syntax for this command line utility, see IC and SNMP Technical Reference.

The Snmp page contains the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accepted Community Names</strong></td>
<td></td>
</tr>
<tr>
<td>Community Name</td>
<td>This field specifies the group name under which Interaction Media Server receives SNMP requests. The default value is I3MEDIASERVER.</td>
</tr>
<tr>
<td>Community Rights</td>
<td>This field specifies the permissions that an external SNMP system has for the Management Information Base (MIB) files on this system. Interactive Intelligence recommends that you use the default value of READ ONLY.</td>
</tr>
<tr>
<td><strong>Trap Settings</strong></td>
<td></td>
</tr>
<tr>
<td>Community Name</td>
<td>This field specifies the group name under which Interaction Media Server sends SNMP trap messages to the specified destination address.</td>
</tr>
<tr>
<td>Trap Destinations</td>
<td>In this field, enter a list of IP addresses or host names to receive SNMP trap messages from this Interaction Media Server.</td>
</tr>
<tr>
<td>Security</td>
<td>Accept SNMP Packets from these Hosts</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Important!</td>
</tr>
<tr>
<td></td>
<td>Send Authentication Trap</td>
</tr>
<tr>
<td>Supported MIBs</td>
<td>Media Server</td>
</tr>
<tr>
<td></td>
<td>Host Resources</td>
</tr>
<tr>
<td>Apply</td>
<td>Select this button to implement any changes that you made to controls in the Snmp page.</td>
</tr>
<tr>
<td>Cancel</td>
<td>Select this button to revert to the settings that were active on this Interaction Media Server before you made changes.</td>
</tr>
</tbody>
</table>

**Note:**

You cannot revert to the SNMP configuration by selecting the Cancel button after you select the Apply button.

Interactive Intelligence 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 any fields on this page, select the **Apply** button to save your changes, which are then applied to Interaction Media Server.
The Administration page enables 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. This page contains the following fields and controls:

**Change Login Credentials**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Old User Name</strong></td>
<td>Enter the existing user name that you use to log on to Interaction Media Server as an administrator.</td>
</tr>
<tr>
<td><strong>Old Password</strong></td>
<td>Enter the existing password for the administrator account specified in the Old User Name field.</td>
</tr>
<tr>
<td><strong>New User Name</strong></td>
<td>Enter a new user name to use for the administrative account.</td>
</tr>
</tbody>
</table>

**HTTP/HTTPS Server**

- **External access is currently enabled**: Enable/Disable

**REST API**

- **REST API is currently disabled**: Enable

**Deactivate Server**

- **Deactivate**: Cautions: Deactivating the server will cause it to stop accepting new sessions from all command servers and wait for active resources to close as existing sessions and normally.
<table>
<thead>
<tr>
<th><strong>New Password</strong></th>
<th>Enter a new password for the new user name.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confirm New Password</strong></td>
<td>Enter the password again in this field to ensure that there are no typographical errors.</td>
</tr>
<tr>
<td><strong>Apply</strong> button</td>
<td>When you have entered new credentials, use the <strong>Apply</strong> button to save these changes and apply them to Interaction Media Server.</td>
</tr>
<tr>
<td><strong>Revert</strong> button</td>
<td>If you want to discard any changes that you have entered, and you have not selected the <strong>Apply</strong> button, the <strong>Revert</strong> button clears the fields of information.</td>
</tr>
</tbody>
</table>

**Note:**
Interactive Intelligence 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** button | This button 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** button | This button controls whether this Interaction Media Server accepts REST API transactions. |
| **New User Name** | Enter a new user name to use for authenticating REST API transactions. |
| **New Password** | Enter a new password for the new user name. |
| **Confirm New Password** | Enter the password again in this field to ensure that there are no typographical errors. |
| **Apply** button | When you have entered new credentials, use the **Apply** button to save these changes and apply them to this Interaction Media Server. |
| **Revert** button | If you want to discard any changes that you have entered, and you have not selected the |
Deactivate Server

**Deactivate button**

This button stops this Interaction Media Server from receiving new media processing requests from all connected Customer Interaction Center servers. Interaction Media Server will continue to process current media operations until the calls with which they are associated 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.

This page contains one interactive element: the **Add License** hyperlink. When you select this hyperlink, the following page appears:

---

**License Status:** Valid License  
**Machine ID:** 020000000000  
**Identifier:** a0000000000000000-00000000-0000-000000000000  
**Description:** Interaction Media Server Production License  
**Expires:** never  
**Licensed Features:**  
- RS_FEATURE_MEDIASERVER_TYPE_STANDARD  
- RS_FEATURE_MEDIASERVER_VIRTUALIZATION  
**License Values:**  
- I5_LICENSE_MEDIASERVER_MAX_MEDIA_ENGINES 32  

---

The **Apply** button, the **Revert** button clears the fields of information.
This page enables you to specify the location of a new license file from Interactive Intelligence by selecting the **Choose File** button and populating the **License File** field. After you specify the license file, select the **Submit** button to copy this license to Interaction Media Server and enable it. You are then returned to the page listing the license details.
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

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

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.

   You are prompted to supply a user name and password.

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, select the **Administration** tab.

The **Config-Administration** page is displayed.
5. Using the following boxes in the **Change REST API Credentials** area of the page, supply credentials that this Interaction Media Server will require 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. Select the **Apply** button.
   Interaction Media Server securely stores the credentials in the Windows Registry of the host computer.

7. In the **REST API** area of the page, select the **Enable** button.

8. If you want 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:
Interactive Intelligence 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. Interactive Intelligence will not provide technical support for connectivity or authentication issues with the Interaction Media Server REST API.

REST API usage

REST API commands

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

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET</td>
<td>Retrieves information</td>
</tr>
<tr>
<td>PUT</td>
<td>Submits information as a simple command</td>
</tr>
<tr>
<td>POST</td>
<td>Submits data to configure Interaction Media Server by overwriting existing data or creating new data if it does not currently exist</td>
</tr>
<tr>
<td>PATCH</td>
<td>Modifies a portion of an existing data set or file</td>
</tr>
<tr>
<td>DELETE</td>
<td>Removes a portion of an existing data set or file</td>
</tr>
</tbody>
</table>

REST API value types

<table>
<thead>
<tr>
<th>Type</th>
<th>Example values</th>
</tr>
</thead>
<tbody>
<tr>
<td>String</td>
<td>Valid JSON-format string, numbers, true, false, or null</td>
</tr>
<tr>
<td>Boolean</td>
<td>true, false, &quot;true&quot;, &quot;false&quot;, 0, 1</td>
</tr>
<tr>
<td>Integer</td>
<td>123, &quot;123&quot;</td>
</tr>
</tbody>
</table>

Note:
Range restrictions may be applicable.
<table>
<thead>
<tr>
<th>Type</th>
<th>Example values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>• 1.5</td>
</tr>
<tr>
<td></td>
<td>• &quot;1.5&quot;</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>Range restrictions may be applicable.</td>
</tr>
<tr>
<td>OneOf</td>
<td>A string that matches one of the multiple acceptable values for an Interaction Media Server configuration setting.</td>
</tr>
<tr>
<td>Directory</td>
<td>A string containing a directory path or the friendly name of a network interface on the server.</td>
</tr>
<tr>
<td>Network interface</td>
<td>• &quot;Any&quot; (matches any network interface on the Interaction Media Server host)</td>
</tr>
<tr>
<td></td>
<td>• The IP address of a network interface on the Interaction Media Server host</td>
</tr>
<tr>
<td></td>
<td>• A friendly name, such as &quot;Local Area Connection&quot;</td>
</tr>
<tr>
<td></td>
<td>For example, the Interaction Media Server property, <strong>Recording Retrieval HTTP Interface</strong>, can accept &quot;Any&quot; or a friendly name of a network interface card (NIC) on the Interaction Media Server host.</td>
</tr>
<tr>
<td>Port range</td>
<td>• &quot;16384-32767&quot;</td>
</tr>
<tr>
<td></td>
<td>• &quot;16384,32767&quot;</td>
</tr>
<tr>
<td>DSCP value</td>
<td>An integer from 0 to 63</td>
</tr>
<tr>
<td>IP address</td>
<td>• &quot;127.0.0.1&quot;</td>
</tr>
<tr>
<td></td>
<td>• &quot;2001:db8:a0b:12f0::1&quot;</td>
</tr>
<tr>
<td>IP address type</td>
<td>• &quot;all&quot;</td>
</tr>
<tr>
<td></td>
<td>• &quot;IP4&quot;</td>
</tr>
<tr>
<td></td>
<td>• &quot;IP6&quot;</td>
</tr>
<tr>
<td></td>
<td>• &quot;IP4IP6&quot;</td>
</tr>
<tr>
<td>CPU mask</td>
<td>An array of Boolean values where the first position represents CPU 0</td>
</tr>
</tbody>
</table>

**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`. You can exclude the `Content-Type` header if the body component of the REST API request is empty. 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 will 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.

Some values for Interaction Media Server parameters and properties are restricted in their length, range, and formats. Failure to specify valid parameter and property values in REST API request will return an error. For more information about REST API values and formats, see REST API value types. For more information on 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.

### HTTP status codes

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

<table>
<thead>
<tr>
<th>Status code</th>
<th>Disposition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>Success</td>
<td>The REST API response message contains a body.</td>
</tr>
<tr>
<td>201 Created</td>
<td>Success</td>
<td>The REST API created the requested POST action. The response message may include a Location header.</td>
</tr>
<tr>
<td>204 No Content</td>
<td>Success</td>
<td>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.</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>Failure</td>
<td>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.</td>
</tr>
<tr>
<td>401 Unauthorized</td>
<td>Failure</td>
<td>The REST API could not authenticate the supplied credentials.</td>
</tr>
<tr>
<td>404 Not Found</td>
<td>Failure</td>
<td>The resource specified in the REST API request does not exist. An example of this error is an invalid command server ID.</td>
</tr>
</tbody>
</table>
### 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, Interactive Intelligence 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 will 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 over that of 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](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 username/password and the Fully-Qualified Domain Name (FQDN) or IP address of the Interaction Media Server.

**Sample GET script for Windows PowerShell**

```powershell
$cred = New-Object System.Management.Automation.PSCredential("username", (ConvertTo-SecureString "password" -AsPlainText -Force))
```

**Sample POST script for Windows PowerShell**

```powershell
$body = ConvertTo-Json @( "TestProperty" = "TestValue" )
$cred = New-Object System.Management.Automation.PSCredential("username", (ConvertTo-SecureString "password" -AsPlainText -Force))
Invoke-RestMethod http://url: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
# Python 3.4
# ms-get.py

# This Python example uses the Requests HTTP library, which is documented at
# 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 + deact

print("---------------")
# 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
REST API methods

Activation and deactivation

/api/v1/server/deactivate (PUT)
The **deactivate** PUT method starts the deactivation process of an Interaction Media server. If the Interaction Media Server is already deactivated or is 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"
}
```

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Responses</th>
</tr>
</thead>
</table>
| deactivationStatus | string   | • deactivating  
                |           | • deactivated   |

/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 the Interaction Media Server is already activated or is 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"
}
```

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>deactivationStatus</td>
<td>string</td>
<td>activated</td>
</tr>
</tbody>
</table>

/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:

```json
{
    "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"
        }
    ]
}
```

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>deactivationStatus</td>
<td>string</td>
<td>- deactivating</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- deactivated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- activated</td>
</tr>
<tr>
<td>commandServers</td>
<td>An array of CommandServerInfo objects, as displayed in the above example</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Command servers**

`/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:

```json
{
    "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-b70afc5a15c1",
            "acceptSessionsStatus": true,
            "acceptSessions": true,
            "cpuCapacity": "Not Applicable"
        }
    ]
}
```

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>commandServers</td>
<td>array of CommandServerInfo</td>
<td>An array of command servers and related information for each.</td>
</tr>
</tbody>
</table>

/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

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>notifierHost</td>
<td>string</td>
<td>The 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: Interactive Intelligence does not recommend running the CIC server and an Interaction Media Server on the same host in a production environment.</td>
</tr>
<tr>
<td>icUserId</td>
<td>string</td>
<td>The user name to use for authentication into the CIC server.</td>
</tr>
<tr>
<td>icPassword</td>
<td>string</td>
<td>The password for the supplied CIC user name.</td>
</tr>
<tr>
<td>acceptSessions</td>
<td>bool</td>
<td>If you set the value for this field to True, the Interaction Media Server will accept sessions from the specific command server. This field is optional. The default value is True.</td>
</tr>
<tr>
<td>copyPropertiesFromId</td>
<td>int</td>
<td>If you want to copy the properties that are already configured for another command (CIC) server defined on this Interaction Media Server, provide the numerical identifier of that command server as the value for this field. This field is optional.</td>
</tr>
</tbody>
</table>
**Responses**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>201 Created</td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>&quot;id&quot; : 3,</td>
</tr>
<tr>
<td></td>
<td>&quot;notifierHost&quot; : &quot;host3&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;icServerName&quot; : &quot;HOST3&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;activeResources&quot; : 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;status&quot; : &quot;active&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;details&quot; : &quot;Server is processing requests&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;clientId&quot; : &quot;ce699a67-5df5-49ce-9c57-562b657bc7a4&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;recordingRescueId&quot; : &quot;e31a15f0-ca3c-4cbf-a720-03c877217037&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;acceptSessionsStatus&quot;: true,</td>
</tr>
<tr>
<td></td>
<td>&quot;acceptSessions&quot;: true,</td>
</tr>
<tr>
<td></td>
<td>&quot;cpuCapacity&quot; : &quot;Not Applicable&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;certificate&quot;: {</td>
</tr>
<tr>
<td></td>
<td>&quot;certSerialNumber&quot;: &quot;1234567890&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;issuer&quot;: {</td>
</tr>
<tr>
<td></td>
<td>&quot;organization&quot;: &quot;Servers&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;organizationalUnit&quot;: &quot;IC Certificate Authority (3065270705)&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;commonName&quot;: &quot;EXAMPLE&quot;</td>
</tr>
<tr>
<td></td>
<td>},</td>
</tr>
<tr>
<td></td>
<td>&quot;subject&quot;: {</td>
</tr>
<tr>
<td></td>
<td>&quot;organization&quot;: &quot;Servers&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;organizationalUnit&quot;: &quot;EXAMPLE- IC Certificates API Library (0987654321)&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;commonName&quot;: &quot;1234567890&quot;</td>
</tr>
<tr>
<td></td>
<td>}</td>
</tr>
<tr>
<td></td>
<td>}</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>status: 400</td>
</tr>
<tr>
<td></td>
<td>message: &quot;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.&quot;</td>
</tr>
<tr>
<td></td>
<td>messageWithParams: &quot;Unable to establish Notifier connection for certificate request. NotifierHost={@notifierHost}, UserId={@userId}, Notifier Error: {@error}&quot;</td>
</tr>
<tr>
<td></td>
<td>messageParams: {</td>
</tr>
<tr>
<td></td>
<td>error: &quot;Access is denied. Please check your username and password. If the problem persists, contact your administrator.&quot;</td>
</tr>
<tr>
<td></td>
<td>notifierHost: &quot;localhost&quot;</td>
</tr>
<tr>
<td></td>
<td>userId: &quot;devlab_user&quot;</td>
</tr>
<tr>
<td></td>
<td>}</td>
</tr>
<tr>
<td></td>
<td>}</td>
</tr>
</tbody>
</table>

`/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 numerical IDs on separate Interaction Media Servers.

**Request body**
None

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>{ &quot;id&quot;: 1, &quot;notifierHost&quot;: &quot;host1&quot;, &quot;icServerName&quot;: &quot;HOST1&quot;, &quot;activeResources&quot;: 5, &quot;status&quot;: &quot;active&quot;, &quot;details&quot;: &quot;Server is processing requests&quot;, &quot;clientId&quot;: &quot;dfba5c54-ff1b-4db9-90ea-f3ee360d9573&quot;, &quot;recordingRescueId&quot;: &quot;935892e1-c2cd-4732-b236-3e51f22fbd3&quot;, &quot;acceptSessionsStatus&quot;: true, &quot;acceptSessions&quot;: true, &quot;cpuCapacity&quot;: &quot;2532&quot;, }</td>
</tr>
<tr>
<td>404 Not Found</td>
<td>{ &quot;status&quot;: 404, &quot;message&quot;: &quot;No Command Server with the ID '{id}' exists&quot;, &quot;messageWithParams&quot;: &quot;No Command Server with the ID '{@segment}' exists&quot;, &quot;messageParams&quot;: { &quot;segment&quot;: '{id}' }, &quot;code&quot;: &quot;error.resourcelib.resource.invalid&quot; }</td>
</tr>
</tbody>
</table>

/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**

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>acceptSessions</td>
<td>bool</td>
<td>If you set the value for this field to True, the Interaction Media Server will accept sessions from the specific command server. This field is optional. The default value is True.</td>
</tr>
</tbody>
</table>
Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>&quot;id&quot; : 1,</td>
</tr>
<tr>
<td></td>
<td>&quot;notifierHost&quot; : &quot;host1&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;icServerName&quot; : &quot;HOST1&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;activeResources&quot; : 5,</td>
</tr>
<tr>
<td></td>
<td>&quot;status&quot; : &quot;active&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;details&quot; : &quot;Server is processing requests&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;clientId&quot; : &quot;d1ba5ca4-f1fb-4db9-90ea-f3ee30d9573&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;recordingRescueId&quot; : &quot;955892a1-c2cd-4732-b236-b3e51f22dbd3&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;acceptSessionsStatus&quot;: true,</td>
</tr>
<tr>
<td></td>
<td>&quot;acceptSessions&quot;: true,</td>
</tr>
<tr>
<td></td>
<td>&quot;cpuCapacity&quot;: &quot;2532&quot;,</td>
</tr>
<tr>
<td></td>
<td>}</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td></td>
</tr>
<tr>
<td></td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>&quot;status&quot;: 400,</td>
</tr>
<tr>
<td></td>
<td>&quot;message&quot;: &quot;Invalid acceptSessions value: Value is of type String&quot;,</td>
</tr>
</tbody>
</table>
|             |   "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 if the REST API should delete a command server definition from an Interaction Media Server if that command server still has active sessions being processed by the Interaction Media Server. 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 will not delete the specified command server definition if it still has active sessions being processed on this Interaction Media Server. **false** is the default value and is used if this **force** query parameter is not specified.
- **true** or **1**
  The REST API will delete the specified command server definition from this Interaction Media Server even if it has active sessions being processed.

**Request body**
None

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>204 No Content</td>
<td>None</td>
</tr>
</tbody>
</table>
| 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
Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td><code>{ &quot;id&quot;: 1, &quot;notifierHost&quot;: &quot;localhost&quot;, &quot;certificate&quot;: { &quot;certSerialNumber&quot;: &quot;0123456789&quot;, &quot;issuer&quot;: { &quot;organization&quot;: &quot;Servers&quot;, &quot;organizationalUnit&quot;: &quot;IC Certificate Authority (3032158907) &quot; }, &quot;commonName&quot;: &quot;EXAMPLE&quot; }, &quot;subject&quot;: { &quot;organization&quot;: &quot;Servers&quot;, &quot;organizationalUnit&quot;: &quot;CLAY - IC Certificates API Library (1919191919) &quot;, &quot;commonName&quot;: &quot;0123456789&quot; } }</code></td>
</tr>
<tr>
<td>404 Not Found</td>
<td><code>{ &quot;status&quot;: 404, &quot;message&quot;: &quot;No Command Server with the ID '{id}' exists&quot;, &quot;messageWithParams&quot;: &quot;No Command Server with the ID '{@segment}' exists&quot;, &quot;messageParams&quot;: &quot;{id} &quot; }, &quot;segment&quot;: &quot;{id} &quot; }, &quot;code&quot;: &quot;error.restresourcelib.resource.invalid&quot;</code></td>
</tr>
</tbody>
</table>

/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 no properties are defined 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 that are applied to all command servers or Interaction Media Server properties that you set on the CIC server through 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
Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td><code>{ &quot;MaxResourceIdle&quot;: &quot;20&quot; }</code></td>
</tr>
<tr>
<td>404 Not Found</td>
<td><code>{ &quot;status&quot;: 404, &quot;message&quot;: &quot;No Command Server with the ID '{id}' exists&quot;, &quot;messageWithParams&quot;: &quot;No Command Server with the ID '{@segment}' exists&quot;, &quot;messageParams&quot;: { &quot;segment&quot;: '{id}' }, &quot;code&quot;: &quot;error.restresourcelib.resource.invalid&quot; }</code></td>
</tr>
</tbody>
</table>

/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 that are applied to all command servers or Interaction Media Server properties that you set on the CIC server through 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:

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

Any properties that already exist for the specified command server but are not specified in the body of the REST API request will be 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:

```json
{ 
  "MaxResourceIdle": null
}
```
### Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td><code>{ &quot;NotifierDscpValue&quot;: &quot;46&quot;, &quot;NotifierQosTaggingEnabled&quot;: &quot;true&quot;, &quot;RtpPortRange&quot;: &quot;16384-32767&quot;, &quot;RtpQosDscpValue&quot;: &quot;46&quot;, &quot;RtpQosTaggingEnabled&quot;: &quot;true&quot; }</code></td>
</tr>
<tr>
<td></td>
<td>If the command server definition has no properties, the REST API returns an empty object:</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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.restresource.lib.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 that are applied to all command servers or Interaction Media Server properties that you set on the CIC server through 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:

```json
{
  "NotifierDscpValue": "46",
  "NotifierQosTaggingEnabled": "true",
  "RtpPortRange": "16384-32767",
  "RtpQosDscpValue": "46",
  "RtpQosTaggingEnabled": "true"
}
```
Caution!
Any properties that already exist for the specified command server but are not specified in the body of the REST API request are deleted with this method. If you want to modify one property value among several property values for the specified command server, use the PATCH method.

Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>{ &quot;NotifierDscpValue&quot;: &quot;46&quot;, &quot;NotifierQosTaggingEnabled&quot;: &quot;true&quot;, &quot;RtpPortRange&quot;: &quot;16384-32767&quot;, &quot;RtpQosDscpValue&quot;: &quot;46&quot;, &quot;RtpQosTaggingEnabled&quot;: &quot;true&quot; }</td>
</tr>
<tr>
<td>Important!</td>
<td>You will not be notified of any existing properties that are deleted as a result of this PUT method.</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>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.</td>
</tr>
<tr>
<td>404 Not Found</td>
<td>{ &quot;status&quot;: 404, &quot;message&quot;: &quot;No Command Server with the ID '{id}' exists&quot;, &quot;messageWithParams&quot;: &quot;No Command Server with the ID '{segment}' exists&quot;, &quot;messageParams&quot;: { &quot;segment&quot;: '{id}' }, &quot;code&quot;: &quot;error.restresourcelib.resource.invalid&quot; }</td>
</tr>
</tbody>
</table>

/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
**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td><code>{ &quot;value&quot;: &quot;20&quot;, }</code></td>
</tr>
</tbody>
</table>
| 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 overwrite an existing property value results in a 404 Not Found status code.

**Request body**

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
</table>
| value      | string| Provide a value to set for the specified property. Enclose the value in quotation marks.  
  `{ "value": "40" }` |

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
</table>
| 200 OK      | This status code is returned for modifications of existing properties of a command server defined on the Interaction Media Server.  
  `{ "value": "40" }` |
### Status code

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>201 Created</td>
<td>This status code is returned for newly created properties in a command server definition on the Interaction Media Server.</td>
</tr>
</tbody>
</table>

```json

{  
"value": "40"
}

```

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>404 Not Found</td>
<td>{}</td>
</tr>
</tbody>
</table>

```json

{  
"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

<table>
<thead>
<tr>
<th>Field name</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>value</td>
<td>string</td>
<td>Provide a value to set for the specified property. Enclose the value in quotation marks.</td>
</tr>
</tbody>
</table>

```json

{  
"value": "40"
}

```

### Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>204 No Content</td>
<td>No response body is included with this status code, which indicates that the property was successfully deleted.</td>
</tr>
</tbody>
</table>
Status code | Response body examples
--- | ---
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" }

Configuration and statistics

/api/v1/server/parameters (GET)
The `/api/v1/server/parameters` GET method retrieves all defined parameters on an Interaction Media Server.

Request body
None

Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
</table>

/api/v1/server/parameters (PATCH)
The `/api/v1/server/parameters` PATCH method modifies one or more specified Interaction Media Server parameters. The REST API retains any existing parameters and values that are 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:

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

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>A successful <code>server/parameters</code> PATCH request returns all Interaction Media Server parameters and values.</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>For a failed <code>server/parameters</code> PATCH request, the response body contains information as to the problem, such as invalid syntax, an invalid parameter name, or an invalid value.</td>
</tr>
<tr>
<td></td>
<td><code>{ </code>status&quot;: 400, <code>message&quot;: &quot;The ID 'MaxResourceIdle' is not a valid Parameter ID&quot;, </code>messageWithParams&quot;: &quot;The ID '{@name}' is not a valid Parameter ID&quot;, <code>messageParams&quot;: { </code>name&quot;: &quot;MaxResourceIdle&quot; }, <code>code&quot;: &quot;error.restresourcelib.request.field.notRecognized&quot;</code></td>
</tr>
</tbody>
</table>

`/api/v1/server/parameters` (PUT)

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

**Request body**

The REST API automatically adds any required parameters with default values if you do not include them in the body of the `server/parameters` PUT request.
Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>A successful server/parameters PUT request returns all Interaction Media Server parameters and values.</td>
</tr>
</tbody>
</table>

```json
{
  "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"
}
```
<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 Bad Request</td>
<td>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.</td>
</tr>
</tbody>
</table>

```json
{
  "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

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>{ &quot;value&quot; : &quot;{parameter value}&quot; }</td>
</tr>
<tr>
<td>404 Not Found</td>
<td>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.</td>
</tr>
</tbody>
</table>

```json
{
  "status":404,
  "message":"No Parameter with the ID 'MaxResourceIdle' exists",
  "messageWithParams":"No Parameter with the 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 overwrites 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"
}

Response
<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>{ &quot;AsrWorkerThreadPriority&quot;: &quot;Normal&quot;, }</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>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.</td>
</tr>
</tbody>
</table>
|                   | {
|                   |   "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:
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
None
### Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>{ &quot;AudioSourceBaseUri&quot;:&quot;D:\I3\IC\Resources&quot;, &quot;NotifierDscpValue&quot;:&quot;46&quot;, &quot;NotifierQosTaggingEnabled&quot;:&quot;true&quot;, &quot;ResourceBaseUriLocal&quot;:&quot;D:\I3\IC\Media&quot;, &quot;RtpPortRange&quot;:&quot;16384-32767&quot;, &quot;RtpQosDscpValue&quot;:&quot;46&quot;, &quot;RtpQosTaggingEnabled&quot;:&quot;true&quot;, &quot;CustomProperty1&quot;: &quot;CustomValue1&quot;, &quot;CustomProperty2&quot;: &quot;CustomValue2&quot; }</td>
</tr>
</tbody>
</table>

/api/v1/server/properties (PATCH)

The server/properties PATCH method overwrites specified Interaction Media Server properties and values for an Interaction Media Server. The REST API will 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

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

### Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>{ &quot;AudioSourceBaseUri&quot;:&quot;D:\I3\IC\Resources&quot;, &quot;NotifierDscpValue&quot;:&quot;46&quot;, &quot;NotifierQosTaggingEnabled&quot;:&quot;true&quot;, &quot;ResourceBaseUriLocal&quot;:&quot;D:\I3\IC\Media&quot;, &quot;RtpPortRange&quot;:&quot;16384-32767&quot;, &quot;RtpQosDscpValue&quot;:&quot;46&quot;, &quot;RtpQosTaggingEnabled&quot;:&quot;true&quot;, &quot;CustomProperty1&quot;: &quot;CustomValue1&quot;, &quot;CustomProperty2&quot;: &quot;CustomValue2&quot; }</td>
</tr>
<tr>
<td>Status code</td>
<td>Response body examples</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>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.</td>
</tr>
</tbody>
</table>

```
{
    "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 overwrites 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
}
```

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
</table>
| 200 OK | ```
{
    "AudioSourceBaseUri":"D:\\I3\\IC\\Resources\\",
    "NotifierDscpValue":"46",
    "NotifierQosTaggingEnabled":true",
    "ResourceBaseUriLocal":"D:\\I3\\IC\\Media\\",
    "RtpPortRange":"16384-32767",
    "RtpQosDscpValue":"46",
    "RtpQosTaggingEnabled":true
}
```

164
### Status code: 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.

```json
{
  "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

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td><code>{ &quot;value&quot;: &quot;{property-value}&quot; , }</code></td>
</tr>
</tbody>
</table>
| 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 overwrites 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 overwrite an existing property creates a new property on the Interaction Media Server with the incorrect name. Ensure that you validate that the property was created correctly by examining the body of the result message.

**Request body**

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

**Response**

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>This status code indicates that the specified property was updated successfully.</td>
</tr>
<tr>
<td></td>
<td>{ &quot;value&quot;: &quot;{property-value}&quot; }</td>
</tr>
<tr>
<td>201 Created</td>
<td>This status code indicates that the specified property was created successfully.</td>
</tr>
<tr>
<td></td>
<td>{ &quot;value&quot;: &quot;{property-value}&quot; }</td>
</tr>
<tr>
<td>400 Bad Request</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>{ &quot;status&quot;: 400,  &quot;message&quot;: &quot;Parse error occurred within JSON request at line 1, pos 1: Unexpected token&quot;,  &quot;messageWithParams&quot;: &quot;Parse error occurred within JSON request at line {line}, pos {pos}: {message}&quot;,  &quot;messageParams&quot;: {  &quot;line&quot;: &quot;1&quot;,  &quot;message&quot;: &quot;Unexpected token&quot;,  &quot;pos&quot;: &quot;1&quot; },  &quot;code&quot;: &quot;error.restresourcelib.request.invalid&quot; }</td>
</tr>
</tbody>
</table>

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

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

**Request body**

None
Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response body examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>204 No Content</td>
<td>An empty body in the response indicates that the property was successfully deleted.</td>
</tr>
<tr>
<td>404 Not Found</td>
<td>This status code indicates that the specified property does not exist on the Interaction Media Server.</td>
</tr>
</tbody>
</table>

```
{
    "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 if the REST API should include Automatic Speech Recognition (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 will not include ASR statistics in the response.

- **true** or **1**
  
  The REST API will include ASR statistics in the response.

Request body

None
### Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response example</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td>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.</td>
</tr>
</tbody>
</table>

```json
{
    "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
}
```
<table>
<thead>
<tr>
<th>Status code</th>
<th>Response example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With the <code>includeasr</code> query parameter, the body of the response will resemble the following example:</td>
</tr>
<tr>
<td></td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>&quot;audioEngines&quot;: [</td>
</tr>
<tr>
<td></td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>&quot;index&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;threadId&quot;: &quot;0xb48&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;cpuId&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;location&quot;: &quot;000000&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;currentLoad&quot;: 0.30,</td>
</tr>
<tr>
<td></td>
<td>&quot;averageLoad&quot;: 0.34,</td>
</tr>
<tr>
<td></td>
<td>&quot;graphs&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;elements&quot;: 0</td>
</tr>
<tr>
<td></td>
<td>},</td>
</tr>
<tr>
<td></td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>&quot;index&quot;: 1,</td>
</tr>
<tr>
<td></td>
<td>&quot;threadId&quot;: &quot;0x2770&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;cpuId&quot;: 1,</td>
</tr>
<tr>
<td></td>
<td>&quot;location&quot;: &quot;010100&quot;,</td>
</tr>
<tr>
<td></td>
<td>&quot;currentLoad&quot;: 0.29,</td>
</tr>
<tr>
<td></td>
<td>&quot;averageLoad&quot;: 0.35,</td>
</tr>
<tr>
<td></td>
<td>&quot;graphs&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;elements&quot;: 0</td>
</tr>
<tr>
<td></td>
<td>},</td>
</tr>
<tr>
<td></td>
<td>&quot;avgCurrentLoad&quot;: 0.29,</td>
</tr>
<tr>
<td></td>
<td>&quot;avgAverageLoad&quot;: 0.34,</td>
</tr>
<tr>
<td></td>
<td>&quot;totalGraphs&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;totalElements&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;asrStatistics&quot;:</td>
</tr>
<tr>
<td></td>
<td>{</td>
</tr>
<tr>
<td></td>
<td>&quot;currentAsrWorkerThreads&quot;: 2,</td>
</tr>
<tr>
<td></td>
<td>&quot;maxAsrWorkerThreads&quot;: 4,</td>
</tr>
<tr>
<td></td>
<td>&quot;activeRecoTasks&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;activeAsrSearchJobs&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;avgAsrSearchJobs&quot;: 0.000,</td>
</tr>
<tr>
<td></td>
<td>&quot;avgWorkRatio&quot;: 0.000,</td>
</tr>
<tr>
<td></td>
<td>&quot;maxCompletionDelay&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;avgCompletionDelay&quot;: 0,</td>
</tr>
<tr>
<td></td>
<td>&quot;minSearchSpeed&quot;: 0.000,</td>
</tr>
<tr>
<td></td>
<td>&quot;maxSearchSpeed&quot;: 0.000,</td>
</tr>
<tr>
<td></td>
<td>&quot;avgSearchSpeed&quot;: 0.000</td>
</tr>
<tr>
<td></td>
<td>}</td>
</tr>
<tr>
<td></td>
<td>}</td>
</tr>
</tbody>
</table>

/api/v1/server/about (GET)
The `server/about` GET method retrieves general information for an Interaction Media Server.

Request body
None
### Response

<table>
<thead>
<tr>
<th>Status code</th>
<th>Response example</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td></td>
</tr>
</tbody>
</table>
```
{
    "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:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>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.</td>
</tr>
<tr>
<td>2</td>
<td>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 on Media Server Selection Rules, see Interaction Media Server Selection Rules for audio processing.</td>
</tr>
<tr>
<td>3</td>
<td>If you are using the <strong>Always-In audio path</strong> 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 <strong>Dynamic audio path</strong> 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.</td>
</tr>
<tr>
<td>4</td>
<td>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.</td>
</tr>
<tr>
<td>5</td>
<td>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.</td>
</tr>
</tbody>
</table>
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. Ad-hoc recordings use unencrypted `.wav` files.

If you configure the **Interaction Recorder** object in Interaction Administrator to compress the call recording, Interaction Media Server can then compress the recording using the Opus, GSM, or TrueSpeech codec. If the call recording is not configured to be compressed, 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 **Interaction Recorder Remote Content Service Installation and Configuration Guide**.

9b. The requesting system, other than Interaction Recorder or Interaction Recorder Remote Content Service, sends the call recording as an e-mail attachment to the address that is configured for the requesting system. For example, if an agent uses CIC client software to record a call, the call recording is sent to that agent.

### Interaction Media Server call recording if Customer Interaction Center or the network connection fails

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

1. Since Customer Interaction Center 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 Customer Interaction Center server, it records new calls from the backup Customer Interaction Center server.

3. Since the Customer Interaction Center 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 Customer Interaction Center 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 Customer Interaction Center, now acting as the primary server, processes all new call recordings.
5. If Interaction Recorder requested a recording, it is automatically recovered. 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 information about rescuing recordings that are left on Interaction Media Server, see the Interactive Intelligence Product Information website:


**Interaction Media Server call recording if Interaction Media Server fails**

If Interaction Media Server ever becomes unavailable after it has started a call recording but before the call disconnects, the following events occur:

1. The audio path, but not the call, is immediately closed and the recording file is truncated at that point.

2. The Customer Interaction Center server detects that the affected Interaction Media Server is not available, so it does not send subsequent calls to that Interaction Media Server. If any other Interaction Media Servers are connected to the Customer Interaction Center server, those systems receive the new call traffic and record the calls.

3. Interaction Recorder is not able to connect to the affected Interaction Media Server, so it cannot retrieve the truncated call recording automatically. For information about rescuing recordings that are left on Interaction Media Server, see the Interactive Intelligence Product Information website:

Troubleshoot Interaction Media Server issues

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

If an Interaction Media Server cannot allocate media resources for an interaction, Customer Interaction Center 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 Customer Interaction Center also writes warnings to the Windows event log. For example, Telephony Services writes a warning to the event log if it cannot start a recording because all Interaction Media Servers that are assigned to this Customer Interaction Center server are unavailable.

This section contains the following items:

- **Interaction Media Server log files** ................................................................. 175
- **Interaction Media Server memory dump** .................................................... 176
- **Interaction Media Server stopped recording calls** ........................................ 176
- **Audio quality issues** .................................................................................. 176
- **Interaction Media Server stopped creating or appending log files** .............. 178
- **Low storage free space** ................................................................................ 178
- **Probation status in Windows Event Log** .................................................... 178
- **Disconnected calls** ..................................................................................... 179
- **Connection to Customer Interaction Center server over a WAN is failing** ...... 180
- **Lost or forgotten credentials for Interaction Media Server REST API** .......... 180
- **Interaction Media Server backward compatibility with Customer Interaction Center** .............................................................................................................. 180
- **Interaction Media Server has corrupted or missing components** ............... 181
- **Customer Interaction Center marks Interaction Media Server inactive and creates an entry in the Windows Event Log** ............................................. 181
- **Cannot connect Interaction Media Server to the secondary server in a switchover pair** ........................................................................................................ 181
- **Distributed conference call considerations** ................................................. 182
- **Interaction Media Server web interface does not accept administrator credentials with Japanese characters** ................................................................. 182

**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 located 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, log entries older than seven days are purged from the file. To change the number of days that Interaction Media Server retains data in the log file, set the ININ_TRACE_RETENTION 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. Interactive Intelligence personnel 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 is reduced 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 Real-time Transport Protocol (RTP) packets are received. 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 a number of 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 being recorded
- VoIP calls that contain digits from a dial pad interface in CIC client software
- VoIP calls on Customer Interaction Center 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 Customer Interaction Center 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. This silence can be heard 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 Interaction Media Server is configured to route RTP packets through the VLAN interface for data, other network nodes in the data VLAN will remove any QoS DSCP markings. This problem can result in network nodes delaying the transmission of RTP packets. Additionally, 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 packets are sent, resulting in no audio stream for the VoIP endpoint.

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

If no address is specified 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 the VLAN software for the NIC on the Interaction Media Server machine is configured correctly. Consult the documentation for the NIC card for proper configuration.

**Packet loss**

When RTP packets are lost in a network, the portion of the audio stream within that packet is also lost. 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 a number of causes:

- **Packet degradation** – If a network node cannot read the information in the IP packet containing the RTP packet, the node will discard 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 individual packets to be delayed so that they are received long after subsequent packets. In most VoIP solutions, these delayed packets are discarded; its position in the audio stream has already passed and was replaced with either silence or sound that was extrapolated from the surrounding packets. Delays in individual packet transmission can be caused by overburdened network switches, improper Quality of Service (QoS) settings in a network node, or a lack of QoS in a network node.

**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 reduced 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
  - Customer Interaction Center 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
- The trace level for logging the activity of an Interaction Media Server component is set 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 Customer Interaction Center to write an entry in the Windows Event Log on the Customer Interaction Center server. Interactive Intelligence recommends that you routinely monitor the Windows Event Log on the Customer Interaction Center server so that you can take pre-emptive action for problematic situations.

**Probation status in Windows Event Log**

When Customer Interaction Center 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, Customer Interaction Center places that Interaction Media Server on probation and writes an entry to the Windows Event Log.

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

<table>
<thead>
<tr>
<th>Failure sequence</th>
<th>Probation period</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>10 seconds</td>
</tr>
<tr>
<td>Second</td>
<td>20 seconds</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Third</td>
<td>40 seconds</td>
</tr>
<tr>
<td>Fourth</td>
<td>1 minute 20 seconds</td>
</tr>
<tr>
<td>Fifth</td>
<td>2 minutes 40 seconds</td>
</tr>
<tr>
<td>Sixth</td>
<td>5 minutes 20 seconds</td>
</tr>
<tr>
<td>Seventh and any subsequent failures</td>
<td>10 minutes</td>
</tr>
</tbody>
</table>

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

- Interaction Media Server is configured to apply Quality of Service (QoS) to Real-time Transport Protocol (RTP) communications, but the Interactive Intelligence QoS driver is not installed.
- 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 Customer Interaction Center.

For most cases where an Interaction Media Server is on probation, Customer Interaction Center 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, Customer Interaction Center disregards the probation state and requests resources to handle the interaction.

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

## Disconnected calls

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

Customer Interaction Center 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 Customer Interaction Center.

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 Customer Interaction Center 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 the trace level for the Config component is set to Status or higher.

**Connection to Customer Interaction Center server over a WAN is failing**

Certain network configurations and requirements can affect connectivity between Interaction Media Server and Customer Interaction Center 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 Customer Interaction Center 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 Interactive Intelligence technical support.

**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
- RestApiLoginPassword

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 Customer Interaction Center**

This version of Interaction Media Server is fully backward compatible with Customer Interaction Center 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 Customer Interaction Center 3.0 environment, you must use Interaction Administrator to configure the prompt server in Customer Interaction Center to use FQDN instead of short host names.
1. Start Interaction Administrator.
2. In the pane on the left side of the **Interaction Administrator** window, select the **System Configuration** container.
3. In the right pane of the Interaction Administrator window, select the **Configuration** item. The **System Configuration** dialog box appears.
4. In the **System Configuration** dialog box, select 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, select the **OK** button.

For more information on the backward compatibility of Interaction Media Server, see Appendix B: Backward compatibility with Customer Interaction Center.

**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 Interactive Intelligence Technical Support for assistance.

**Customer Interaction Center marks Interaction Media Server inactive and creates an entry in the Windows Event Log**

Interactive Intelligence added Interaction Speech Recognition as a native Automatic Speech Recognition (ASR) product. The processing for Interaction Speech Recognition occurs in Interaction Media Server. When Interaction Media Server starts and Interaction Speech Recognition is licensed for use, Customer Interaction Center transfers the grammars necessary to support Interaction Speech Recognition operations to Interaction Media Server.

If the network connection between Interaction Media Server and Customer Interaction Center is somehow limited, the transfer of the grammars may be slower than expected. Customer Interaction Center then re-attempt to transfer the grammars to Interaction Media Server. If the problematic network condition persists after multiple attempts, Customer Interaction Center 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 Customer Interaction Center switchover pair can result in Interaction Media Server becoming unresponsive. If this problem occurs, do the following steps:

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

Customer Interaction Center can support conference calls with a large number of participants by creating smaller conference calls on multiple Interaction Media Servers and joining them together. The following list provides 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 Customer Interaction Center locations that are restricted from communicating with other Customer Interaction Center 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 may not be able to join a distributed conference call.

- Unnecessary, numerous locations – The more Customer Interaction Center 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 Customer Interaction Center conference calls using this feature. Customer Interaction Center can only expand one existing conference call by creating new conference calls on other Interaction Media Servers and joining the audio communications through Interaction Media Servers in hub locations.

- Coaching sessions – Each Customer Interaction Center distributed conference call supports only one coach connection.

- Disconnection – If an added regional conference call is disconnected from the original conference call because of a brief network outage or some other temporary problem, Customer Interaction Center 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 participants supported for distributed conference calls is limited by the number of available Interaction Media Servers and their available resources. 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 Customer Interaction Center 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 Customer Interaction Center 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, Customer Interaction Center will not use those changes on that conference call. Customer Interaction Center will use the modified selection rules for the next new conference call it creates.

Interaction Media Server web interface does not 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 at a later time causes Interaction Media Server to fail authentication.

This problem occurs only with Microsoft Internet Explorer and Mozilla Firefox.
Appendix A: OpenSSL Copyright

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Appendix B: Backward compatibility with Customer Interaction Center

This version of Interaction Media Server is backward compatible with Customer Interaction Center 4.0 and Customer Interaction Center 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 Customer Interaction Center 3.0, apply any and all available updates to Interaction Media Server.
- This version of Interaction Media Server supports all features that are present in Customer Interaction Center 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 that were introduced in this version or version 4.0 are not compatible with Customer Interaction Center 3.0.
- Interaction Media Server Technical Reference does not contain any user interfaces or procedures that are related to usage with Customer Interaction Center 3.0. For information about configuring Interaction Media Server features and behavior, see 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 Customer Interaction Center 3.0:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording Retrieval HTTPS Required</td>
<td>False</td>
</tr>
<tr>
<td>Recording Retrieval Use Mutual Authentication</td>
<td>False</td>
</tr>
</tbody>
</table>

- The AsrDiagnosticRecording property of Interaction Media Server does not affect Customer Interaction Center 3.0.
- For backward compatibility with Customer Interaction Center 3.0, .WAV audio files are stored in the following location:

<drive>:\Program Files (x86)\Interactive Intelligence\Resources
Appendix C: Antivirus requirements and best practices for Customer Interaction Center and subsystem servers

This section provides the best practices and additional information regarding antivirus software products for Customer Interaction Center 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 Customer Interaction Center or its subsystems, do the following tasks to ensure maximum performance and processing capacity:

- **Install only a supported antivirus product**
- **Install only the virus protection security feature**
- **Configure real-time protection for only write operations**
- **Exclude continually accessed file types and directories**
- **Update virus definitions daily**
- **Conduct a full scan of the file system on a regular basis**

Interactive Intelligence has created documentation for configuring the supported antivirus software products for use with Customer Interaction Center servers. You can find this documentation by selecting the **Data and System Protection** hyperlink on the following webpage:

http://testlab.inin.com

**Install only a supported antivirus product**

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

To view the supported antivirus software products, do the following steps:

1. Open a web browser and navigate to the following URL address:

   http://testlab.inin.com

2. Select the **Data and System Protection** hyperlink.

   The resulting webpage displays the supported antivirus products, the associated versions, and any impacts on performance and capacities for Customer Interaction Center and its subsystem servers.

**Important!**

Ensure that you know what antivirus software product and version that you will use on your Customer Interaction Center and its subsystem servers before you make purchasing decisions. Some antivirus software products reduce capacities and performance, which require additional servers or affect licensing decisions.
Install only the virus protection security feature

Many software security products and suites include features in addition to virus protection. For performance and capacity considerations, Customer Interaction Center 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, Interactive Intelligence requires that you do not use standard or default installation options. Customize the installation to include only virus protection.

Configure real-time protection for only write operations

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 files are created or modified.

Exclude continually accessed file types and directories

To process the interactions in your organization, Customer Interaction Center 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 and directories, as presented in the following sections.

Files and file types to exclude

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

- .i3p
- .i3c
- .ivp
Directories and subdirectories to exclude

Important!
When you exclude a directory, ensure that all of its subdirectories are also excluded.

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

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

Important!
Your specific antivirus software product may require additional configuration. Consult the document for your specific antivirus software product on http://testlab.inin.com for any special instructions beyond these recommendations.

Update virus definitions daily

Interactive Intelligence strongly recommends that you configure your antivirus software product to download and implement new virus definitions on a daily basis. 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

Interactive Intelligence 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

<table>
<thead>
<tr>
<th>Change Log Date</th>
<th>Changed...</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 11, 2011</td>
<td><strong>Initial release</strong></td>
</tr>
<tr>
<td>January 16, 2012</td>
<td>Add virtualization information regarding Interaction Media Server</td>
</tr>
<tr>
<td>January 24, 2012</td>
<td>- IC-91333 – Media Server Call Analysis support for es-CL language model files</td>
</tr>
<tr>
<td></td>
<td>- IC-92963 – Correct inconsistencies in Interaction Media Server Technical Reference</td>
</tr>
<tr>
<td></td>
<td>- IC-92166 - Document that antivirus signature updates should be scheduled during low system usage</td>
</tr>
<tr>
<td></td>
<td>- IC-89725 - Document that properties and parameters that require a restart are now marked with a red asterisk</td>
</tr>
<tr>
<td></td>
<td>- IC-92220 - MSCA regional model files: Venezuela, &quot;es-VE&quot;</td>
</tr>
<tr>
<td></td>
<td>- IC-86242 – Document rejection of resource operations from IC servers with duplicate license IDs</td>
</tr>
<tr>
<td>February 3, 2012</td>
<td>Add compatibility requirements regarding Interaction Center 3.0.</td>
</tr>
<tr>
<td>March 6, 2012</td>
<td>- IC-90659 – Document coaching restrictions for conferences on Interaction Media Server</td>
</tr>
<tr>
<td></td>
<td>- IC-90660 – Document hosted monitor restrictions for conferences on Interaction Media Server</td>
</tr>
<tr>
<td></td>
<td>- IC-90662 – Document hosted listens and recording behavior for conferences on Interaction Media Server</td>
</tr>
<tr>
<td></td>
<td>- IC-92112 – Document configuration and usage of Media Server 4.0 with Interaction Center 3.0</td>
</tr>
<tr>
<td></td>
<td>- IC-92346 - MSCA regional model files: Spain, &quot;es-ES&quot;</td>
</tr>
<tr>
<td></td>
<td>- IONMEDIA-208 – Change &quot;Dynamic&quot; load balancing to &quot;Fewest Elements&quot; for less than 8 CPUs</td>
</tr>
<tr>
<td>March 27, 2012</td>
<td>- IC-94973 – MSCA regional model files: New Zealand, &quot;en-NZ&quot;</td>
</tr>
<tr>
<td></td>
<td>- IC-95244 – Add content for Text-to-Speech support</td>
</tr>
<tr>
<td>June 29, 2012</td>
<td>- IC-82384 – Expose Media Server rules in TS (and IA)</td>
</tr>
<tr>
<td></td>
<td>- IC-94660 – Secure Input: tell Media Server we support secure input based on license</td>
</tr>
<tr>
<td></td>
<td>- IC-95244 – Update &quot;Play TTS audio&quot; for Adv Ops to include MRCP description</td>
</tr>
<tr>
<td></td>
<td>- IC-93860, IONMEDIA-328 – Media Server to support IPv6 in future</td>
</tr>
</tbody>
</table>
- 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

<table>
<thead>
<tr>
<th>Date</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 14, 2012</td>
<td>Update content regarding data migration from 3.0 to 4.0</td>
</tr>
<tr>
<td></td>
<td>Fix incorrect Interaction Center 3.0 backward compatibility level</td>
</tr>
<tr>
<td>October 17, 2012</td>
<td>Correct discrepancies regarding the maximum number of participants for a single conference call on Interaction Media Server</td>
</tr>
<tr>
<td></td>
<td>Correct the RTP acronym definition</td>
</tr>
<tr>
<td>February 27, 2013</td>
<td>DP-863 – Add content for support of in-band DTMF</td>
</tr>
<tr>
<td></td>
<td>DP-765 - Add content for new call analysis functionality when connecting to remote stations in the Interaction Center network</td>
</tr>
<tr>
<td></td>
<td>DP-687 - Update migration procedures</td>
</tr>
<tr>
<td></td>
<td>DP-292 – Add feature item describing support of recording notification beeps</td>
</tr>
<tr>
<td></td>
<td>IC-95754 – Add content describing adjustment of MaxNumFilters registry setting for installation of the Interactive Intelligence QoS driver</td>
</tr>
<tr>
<td></td>
<td>IC-95054 – Add content describing how conferences that contain only external parties are automatically disconnected</td>
</tr>
<tr>
<td></td>
<td>IC-91257 – Add admonishment for selecting the appropriate Interaction Media Server Service Update when using SUInstall.exe</td>
</tr>
<tr>
<td></td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>Add list of Special Information Tones supported by Interaction Media Server</td>
</tr>
</tbody>
</table>
- 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 Interactive Intelligence
- 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.

<table>
<thead>
<tr>
<th>Date</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 4, 2013</td>
<td>Changed the default value for the <strong>Min Scheduler Latecy</strong> parameter from 2 to 4.</td>
</tr>
</tbody>
</table>
| August 23, 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 (ASR) 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

**February 11, 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
<table>
<thead>
<tr>
<th>Date</th>
<th>Changes</th>
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</thead>
<tbody>
<tr>
<td>May 13, 2014</td>
<td>- Added content for Interactive Intelligence SNMP agent registry service</td>
</tr>
<tr>
<td></td>
<td>- Added and updated content to reflect new licensing model</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
<tr>
<td></td>
<td>- Update requirements section for recent .NET Framework version.</td>
</tr>
<tr>
<td></td>
<td>- DP-1321 – Add Echo Cancellation configuration in Interaction Administrator</td>
</tr>
<tr>
<td></td>
<td>- DP-809 – Support for G.711 faxing</td>
</tr>
<tr>
<td>September 3, 2014</td>
<td>- 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 Interactive Intelligence Product Information site URLs, and copyright and trademark information.</td>
</tr>
<tr>
<td></td>
<td>- IC-125022 – Display Interaction Media Server version and license type in Interaction Administrator</td>
</tr>
<tr>
<td></td>
<td>- IC-124113 – Alter <strong>About Box</strong> to display new application version and patent information</td>
</tr>
<tr>
<td></td>
<td>- IC-123549 – Configuration File Import</td>
</tr>
<tr>
<td></td>
<td>- IC-122687 – Add option to disable an Interaction Media Server from the web configuration</td>
</tr>
<tr>
<td></td>
<td>- IC-118155 – Add regional model for call analysis for he-IL (Israel)</td>
</tr>
<tr>
<td></td>
<td>- IC-118151 – Add regional model for call analysis for ar-AE (UAE)</td>
</tr>
<tr>
<td></td>
<td>- IC-118144 – Add regional model for call analysis for es-PA (Panama)</td>
</tr>
<tr>
<td></td>
<td>- IC-118139 – Add regional model for call analysis for es-GT (Guatemala)</td>
</tr>
<tr>
<td></td>
<td>- IC-107185 – Document new property, <strong>EnableCallRecovery</strong>, to keep audio sources alive when a Notifer connection is lost</td>
</tr>
<tr>
<td></td>
<td>- IC-119721 – Emphasize the recommendation of using the <strong>Always-In</strong> method for audio processing</td>
</tr>
<tr>
<td>January 30, 2014</td>
<td>- Updated screenshots throughout document</td>
</tr>
<tr>
<td></td>
<td>- Added content for new <strong>CreateMemoryDumponEngineFault</strong> parameter</td>
</tr>
<tr>
<td></td>
<td>- Document new <code>&lt;Version&gt;</code> node in configuration file in &quot;Import configuration file&quot; section</td>
</tr>
<tr>
<td></td>
<td>- Rewrote procedure in &quot;Apply an update to Interaction Media Server&quot; for new <strong>Deactivate Server</strong> feature and the new Appliances .ISO file</td>
</tr>
<tr>
<td></td>
<td>- Update &quot;Copyright and Trademark information&quot; page</td>
</tr>
<tr>
<td></td>
<td>- Removed admonishment stating that Interaction Media Server requires <em>certified</em> hardware for installation. Note that any</td>
</tr>
<tr>
<td>Date</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 2, 2015</td>
<td>Specified hardware requirements must still be met for installation and support of Interaction Media Server. Rewrote content in &quot;Interaction Media Server virtualization&quot; as this option is not supported by Interactive Intelligence</td>
</tr>
</tbody>
</table>
| March 25, 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 |
| July 28, 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 Interactive Intelligence SNMP service to support SNMPv3 |
| September 30, 2015 | - Added feature description for the new 64-bit architecture that enables more resource utilization.  
- Update all images to reflect corporate rebranding. |
| December 14, 2015 | - IC-133901 DocLink: MSCA regional model files: Kuwait, "ar-KW" (Install: Server)  
- IC-134614 Clarify content on NIC teaming in Interaction Media Server documentation  
- DP-1525 - Add REST API support to configure Interaction Media Server  
  See Interaction Media Server REST API. |
| January 11, 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. |

194
<table>
<thead>
<tr>
<th>Date</th>
<th>Changes</th>
</tr>
</thead>
</table>
| August 24, 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](#). |
| November 17, 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. |
Index

A
About page, 95
administration
change server name, 75
defragment drive, 76
optional tasks, 75
remove CIC, 76
REST API, 135
Administration page, 130
advantages, 9
always-in audio path, 38
antivirus, 186
API. See REST API
audio issues, 176
data corruption, 177
jitter, 176
packet loss, 177
VLAN configuration, 177
audio path, 38
always-in, 38
configure, 40
dynamic, 39
audio processing, 7

B
backward compatibility, 185

C
call analysis
language models, 71
language support, 7, 12
remote stations, 74
supported regions, 73
CIC
backward compatibility, 185
configure, 37
connect, 21
connection failure, 180
remove, 76
codes
supported, 10
conference calls, 60
configure locations, 67
considerations, 67, 70
distributed example, 65
features, 60
latency values, 63
location types, 62
overview, 61
server selection, 63
test configuration, 68
troubleshooting, 182
configuration. See administration
export, 126
import, 126
configuration options, 95

d
Details button, 96
Diagnostics page, 124
disconnected calls, 179
domain
add Interaction Media Server, 24
DSCP, 88
DTMF
digit obfuscation, 79
dynamic audio path, 39

E
encryption, 79
DTMF, 124

F
fax
QoS, 82
fax over IP, 82
faxing, 82
inbound, 82
licensing, 84
outbound, 83
features, 10
audio, 11
network, 10
other, 12
telephony, 12

I
inactive connection, 181
install, 15
add to CIC, 21
appliance, 15
hardware requirements, 15
software, 15
software requirements, 16
task, 17
Interaction Migrator, 35
interface, 85
About page, 95
Administration page, 130
Diagnostics page, 124
License page, 132
Media Engine page, 98
Parameters page, 104
Properties page, 111
reference, 95

196
trace topics, 126
export settings, 126
import settings, 126
levels, 126
troubleshooting, 175
audio issues, 176
CIC server connection, 180
conference calls, 182
disconnected calls, 179
inactive connection, 181
log files, 175
low storage space, 178
memory dump, 176
probation, 178
program files, 181
recordings, 176
switchover, 181

U
update, 25
install, 25
prerequisites, 25
upgrade, 35

V
virtualization, 14
VLAN
audio issues, 177

W
web interface, 85, See interface