Interaction Media Streaming Server

Technical Reference

Interactive Intelligence Customer Interaction Center® (CIC)

Version 2016

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(See Change Log for summary of changes.)

Abstract

Interaction Media Streaming Server is a Customer Interaction Center subsystem that streams audio from multiple sources for different audio playback operations, including music-on-hold and voice mail, to telephony devices.

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Introduction to Interaction Media Streaming Server

Purpose of Interaction Media Streaming Server

Interaction Media Streaming Server is a Media Resource Control Protocol (MRCP) server that can inject audio from the following sources into calls in a Customer Interaction Center environment:

- **Streaming audio** – Using external audio sources, such as microphones or audio devices connected to the host machine, Interaction Media Streaming Server can insert the audio input from these devices into calls within the Customer Interaction Center system. An example of an external audio source is a CD player connected to the line-in audio port on a personal computer, which can then be used as the audio that parties hear when placed on hold.

  **Important!**

  Copyright laws prohibit you from rebroadcasting licensed, commercial recordings or performances. You are solely responsible for licensing any audio, including music, that you configure Interaction Media Streaming Server to play to persons in calls in the Customer Interaction Center environment. Commercial recordings and performances include but are not limited to radio broadcasts, Internet radio, privately purchased music, and any commercially produced recordings.

  There are many businesses that offer audio recordings or broadcasts for playing to persons in calls in a contact center environment. Additionally, some royalty-free audio recordings are available on the Internet.

  You are responsible for ensuring that you are aware of and abide by any regional, national, and international laws regarding the rebroadcast of audio recordings or performances.

  The following website addresses from leading music licensing organizations provide information on the requirements for rebroadcasting and commercial use of recordings:

  - [http://www.bmi.com/licensing/faq](http://www.bmi.com/licensing/faq)
  - [http://www.sesac.com/Licensing/FAQsBroadcast.aspx](http://www.sesac.com/Licensing/FAQsBroadcast.aspx)

  Interactive Intelligence Group, Inc., and its subsidiaries are not legally responsible for any usage of Interaction Media Streaming Server that violates any law.

- **Voice mail** – Interaction Media Streaming Server extracts voice mail messages that are stored as attachments in email messages on an email server. It then injects the audio from the voice mail attachments into calls in the Customer Interaction Center system.

- **Speech synthesis** – Interaction Media Streaming Server uses the Microsoft Speech Application Programming Interface (SAPI) engine in Windows to generate audio streams with synthesized speech from written text.
**Interaction Media Streaming Server architecture**

**Network technologies**

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notifier</td>
<td>This proprietary communication method allows the systems of Customer Interaction Center to exchange messages efficiently.</td>
</tr>
<tr>
<td>Session Initiation Protocol (SIP)</td>
<td>Interaction Media Streaming Server uses SIP to establish communication channels and relay supported resources, codecs, and media player operations. The default port is 6060.</td>
</tr>
<tr>
<td>Real-time Transfer Protocol (RTP)</td>
<td>Interaction Media Streaming Server sends audio to Interaction Media Server through RTP. The audio is always sent using the G.711 codec. The default port range is 16384-32767</td>
</tr>
<tr>
<td>Media Resource Control Protocol (MRCP)</td>
<td>Interaction Media Streaming Server uses MRCP version 2 to communicate with the Customer Interaction Center server. These systems use MRCP to send and receive specific media commands. The default port is 8104.</td>
</tr>
<tr>
<td>File Based Mail Connector (FBMC)</td>
<td>Interaction Media Streaming Server uses these protocols to communicate with and retrieve audio files from email messages on an email server.</td>
</tr>
<tr>
<td>Internet Message Access Protocol (IMAP)</td>
<td></td>
</tr>
</tbody>
</table>
Interaction Media Streaming Server uses HTTP to allow configuration through its web interface. The default port is 8190.

**Single location**

Interaction Media Streaming Server can be a centralized source of streaming audio for an entire Customer Interaction Center network.

**Multiple locations**

You can deploy multiple Interaction Media Streaming Servers to service different Locations, such as in other countries or regions of the world.
**Hybrid deployment**

You can deploy separate installations of Interaction Media Streaming Server with each one handling a single function. For example, you can deploy one Interaction Media Streaming Server that only retrieves voice mail messages in a central headquarters location that also contains the email server. You can then deploy multiple Interaction Media Streaming Servers that only play streaming audio in each location defined in your Customer Information Center environment.

**Selection rules**

Using MRCP selection rules, you can configure CIC to use specific Interaction Media Streaming Servers in specific or variable location. For more information about MRCP selection rules, see *MRCP Technical Reference*.

**Load balancing**

You can deploy multiple Interaction Media Streaming Servers in a single location to service high volumes of call traffic. For load balancing between multiple Interaction Media Streaming Servers, use the same name for an external audio source on each server. The Customer Interaction Center server then selects the Interaction Media Streaming Server with the most available resources to service the call.

For example, if you attach an MP3 player to each of two Interaction Media Streaming Servers in a location and configure "MP3" as the name for each MP3 player source, the Customer Interaction Center server selects the Interaction Media Streaming Server with the most available resources. The audio stream from "MP3" on that specific Interaction Media Streaming Server is played to the caller.
Plan Interaction Media Streaming Server implementation

Before you install Interaction Media Streaming Server, plan how it can best serve your needs in the Customer Interaction Center environment. Depending on your needs, you can install Interaction Media Streaming Server in a single, centralized location or install it in multiple locations for performance and cost benefits.

Determine feature usage and proximity of associated systems

Interaction Media Streaming Server can support voice mail playback, streaming audio, and Text-to-Speech (TTS) operations. Will you use all of these features in your Customer Interaction Center environment? Each of these features gain performance benefits when the host computer is located close to the entities with which it communicates, such as Interaction Media Server and an email server.

Determine potential workload

If you use all features of Interaction Media Streaming Server, there is usually very low impact on the resources of a typical desktop computer. However, consider which features will be simultaneously used and the number of concurrent calls being serviced.

For example, if your contact center services thousands of simultaneous calls where callers are played Music on Hold, you may want to consider using separate installations of Interaction Media Streaming Server to ensure that other features, such as playing voice mail and Text-to-Speech are not affected or hinder the Music on Hold capabilities.

Additionally, a single network segment may not efficiently or sufficiently handle thousands of Real-time Transport Protocol (RTP) streams used in the playing of streaming audio. In this situation, you may want to consider deploying multiple installations of Interaction Media Streaming Server and use load balancing or MRCP selection rules to distribute the workload.

If your company uses voice mail as a primary means of communication instead of email, your Interaction Media Streaming Server will service more calls more often and experience periods of high usage, such as the beginning of the workday and end-of-meal periods.

Determine network costs

Along with bandwidth availability, network costs can include charges by carriers to other geographic locations and performance hindrances.

If you administer multiple contact centers or satellite offices across a country, continent, or the world, you probably are familiar with the costs of transmitting data to those locations. Installing Interaction Media Streaming Server locally to the location that it will service ensures that communication data largely remains in local networks. You can also use MRCP selection rules in Interaction Administrator to configure which Interaction Media Streaming Servers in other locations can service calls.

Another network consideration is quality. Network connections to distant geographic locations require many hops along the route. Each of these hops can introduce latency that slows down the transmission of real-time audio data. Another point to consider is that the farther the distance to the network destination, the higher the chance that packets are lost.

Determine language and cultural requirements

Depending on the requirements or your Customer Interaction Center environment, your Interaction Media Streaming Server can use external audio sources that contain audio that is specific to a country, region, or language. Before you start installing and configuring
Interaction Media Streaming Server, consider the exact audio content that it will play to the locations that it will service.

For example, installing and configuring Interaction Media Streaming Server in a location in Japan but having it also service a location in Australia could cause caller confusion with its configured Music on Hold, custom spoken recordings in a specific language, and Text-to-Speech voice. You risk call abandonment and customer loss in a particular country if the Music on Hold plays a patriotic theme for a rival country.

**Determine redundancy needs**

Redundant systems are important in all network configurations. If an Interaction Media Streaming Server is unavailable to service a request, do you have an alternate system available? Interaction Administrator enables you to configure MRCP selection rules to specify which Interaction Media Streaming Servers in different locations can service other locations.

In addition to selection rules, you can use Interaction Administrator to set priority levels for multiple MRCP servers in a location. If the MRCP server with the highest priority level is unavailable, the request is sent to the MRCP server in that location with the next highest priority level.
## Interaction Media Streaming Server requirements

### Interaction Media Streaming Server hardware requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Processing Unit</td>
<td>Same as operating system requirements</td>
</tr>
<tr>
<td>Random Access Memory</td>
<td>Same as operating system requirements</td>
</tr>
<tr>
<td>Free Storage Space</td>
<td>175 MB</td>
</tr>
<tr>
<td>Sound controller</td>
<td>An installed and enabled audio device</td>
</tr>
<tr>
<td>Network Interface Speed</td>
<td>The speed of the network interface determines the number of concurrent sessions that Interaction Media Streaming Server can service.</td>
</tr>
</tbody>
</table>

**Note:**
Each Real-time Transport Protocol (RTP) stream from Interaction Media Streaming Server uses approximately 95.2 Kbps of bandwidth for an Ethernet connection. For example, a 100Base-T Ethernet network connection can service approximately 1000 concurrent RTP streams.

**Important!**
Interaction Media Streaming Server requires a personal computer or server that has a physical sound device. For this reason, you cannot install Interaction Media Streaming Server on a virtual machine.

### Interaction Media Streaming Server software requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>- Windows 8.1 (64-bit)</td>
</tr>
<tr>
<td></td>
<td>- Windows 7 (64-bit)</td>
</tr>
<tr>
<td></td>
<td>- Windows Server 2012 R2</td>
</tr>
<tr>
<td></td>
<td>- Windows Server 2008 R2 with Service Pack 1</td>
</tr>
<tr>
<td>Customer Interaction Center environment</td>
<td>- 4.0 Service Update 3 or later</td>
</tr>
<tr>
<td></td>
<td>- 20nn Rn</td>
</tr>
<tr>
<td>Software Co-residency</td>
<td>Interaction Media Streaming Server cannot co-reside on a host computer with any of the following Interactive Intelligence products:</td>
</tr>
<tr>
<td></td>
<td>- Interaction Media Server</td>
</tr>
<tr>
<td></td>
<td>- Customer Interaction Center server</td>
</tr>
<tr>
<td>Antivirus Compatibility</td>
<td>- McAfee VirusScan Enterprise 8.8</td>
</tr>
<tr>
<td></td>
<td>- Symantec Endpoint Protection 12.1 RU1</td>
</tr>
</tbody>
</table>
## Administration

Configure Interaction Media Streaming Server with the following applications:
- Interaction Administrator
- Web browser

## Interaction Media Streaming Server network requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network bandwidth</strong></td>
<td>Ensure that the network connections from the host computer to the destination can support the required number of possible RTP streams. A 100Base-T Ethernet connection can support approximately 1000 concurrent Real-time Transport Protocol (RTP) streams.</td>
</tr>
<tr>
<td><strong>Application Layer Protocols</strong></td>
<td>Interaction Media Streaming Server uses the following application layer protocols and default port numbers:</td>
</tr>
<tr>
<td></td>
<td>- HTTP – 8190</td>
</tr>
<tr>
<td></td>
<td>- SIP – 6060</td>
</tr>
<tr>
<td></td>
<td>- MRCP – 8104</td>
</tr>
<tr>
<td></td>
<td>- RTP – 16384-32767</td>
</tr>
<tr>
<td></td>
<td>- IMAP – 143 (Configured through the <strong>Mail</strong> container in Interaction Administrator)</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>To allow these protocols and ports, ensure that you configure any firewalls along the network path.</td>
</tr>
<tr>
<td><strong>Transport Layer Protocols</strong></td>
<td>TCP</td>
</tr>
<tr>
<td></td>
<td>UDP</td>
</tr>
<tr>
<td><strong>Internet Layer Protocols</strong></td>
<td>IPv4</td>
</tr>
<tr>
<td></td>
<td>IPv6</td>
</tr>
<tr>
<td><strong>Other network technologies</strong></td>
<td>Quality of Service (QoS)</td>
</tr>
<tr>
<td><strong>Mailbox permissions</strong></td>
<td>The network user ID that you use to install Interaction Media Streaming Server must have the appropriate permissions to read and delete email messages for all mailboxes on the email server.</td>
</tr>
<tr>
<td><strong>Interaction Message Store permissions</strong></td>
<td>If you use Interaction Message Store to store and retrieve voice mail messages, configure each Customer Interaction Center user and workgroup with a mailbox.</td>
</tr>
</tbody>
</table>
Install Interaction Media Streaming Server

Prerequisite tasks

- Ensure that you have read Interaction Media Streaming Server requirements and that the host computer, network, and environment meet or exceed those requirements.
- Ensure that the network user ID with which you will install Interaction Media Streaming Server has Administrator permissions.

Procedure

1. If you have not done so already:
   a. Download the CIC 2015 R1 or later .iso file from the Interactive Intelligence product information site at the following URL address:  
   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 be installing CIC.
   c. Mount the .iso file and share the contents to make them accessible to the machines on which you will be installing CIC.
2. Navigate to the \Installs\Off-ServerComponents directory of the mounted .iso file.
3. Copy the MediaStreamingServer_20nnRn.msi file to the server on which you plan to install it.
4. Log on to the machine where you will install Interaction Media Streaming Server with an administrative network user ID.
5. Run the following installation program:
   MediaStreamingServer_20nnRn.msi
   The Interaction Media Streaming Server installation program displays the first screen.
6. Select the Next button.
   The installation program displays the Destination Folder screen.
   
   **Note:**
   If you already have other products from Interactive Intelligence installed on the computer, you cannot change the destination folder.

7. If you want to change the location where the program installs Interaction Media Streaming Server on the computer, select the Change button, enter the appropriate path, and select the OK button.
8. Select the Next button.
   The installation program displays the Domain User Validation screen.
9. In the Password box, enter the password for the network user ID that you used to log on to this Windows computer.
10. Select the Next button.
    The installation program displays the Web Configuration Server screen.
11. Enter the appropriate information in the following controls:

| **Web Configuration Server Port** | Enter the port number that you want to use to access the web interface of Interaction Media Streaming Server. The default value is **8190**. Always provide this port number when you specify the URL address in a web browser as displayed in the following example:
| http://server.yourcompany.com:8190 |

| **Administration Login Name** | Enter a string of characters as the name of the account that you will use to log on and configure Interaction Media Streaming Server. |

| **Administration Login Password** | Enter a string of characters as the password for the account that you will use to log on and configure Interaction Media Streaming Server. |

**Important!**

The **Administration Login Password** box does not use a second entry to confirm the entered password. Ensure that you do not enter a typographical error in this box as it could restrict you from accessing the Interaction Media Streaming Server web interface.

12. Select the **Next** button.

The installation program displays the **Interaction Media Streaming Server Install** screen.

13. If you want to change the directory where Interaction Media Streaming Server stores downloaded voice mail messages and generated text-to-speech streams, enter the drive and directory path in the **Temporary Directory Location** box.

You can also select the **Browse** button to display a window that enables you to navigate the file system and select an existing directory.

14. Select the **Next** button.

The installation program displays the **Media Streaming Server Options** screen.

15. Place a check mark in each of the following features that you want to enable:

| **External Audio** | Enable this check box if you want Interaction Media Streaming Server to stream audio from devices connected to the host computer, such as a CD player or MP3 player. |

| **Text to Speech** | Enable this check box if you want Interaction Media Streaming Server to convert text to spoken audio. |

| **Voicemail Playback** | Enable this check box if you want Interaction Media Streaming Server to retrieve voice mail messages from an email server and inject the audio into calls in the Customer Interaction Center environment. |

16. Select the **Next** button.

If you do not have other Interactive Intelligence products on the computer, the installation program displays **Logging File Path** screen. Otherwise, proceed to step 19.
17. Use the controls on the **Logging File Path** screen to either enter or select a directory path where you want Interaction Media Streaming Server to store logging files.

18. Select the **Next** button.

The installation program displays the **Ready to install Interaction Media Streaming Server** screen.

19. You can review or modify your entries on previous screen by using the **Back** button. Otherwise, use the **Install** button to accept the entries and proceed.

The installation program displays the progress of the installation process.

When the installation process completes, the installation program displays a final screen.

20. Select the **Finish** button.

The installation program prompts you to restart the computer to complete the process.

21. Select the **Yes** button to restart the computer.

### Repair or Change installations

If, after installing Interaction Media Streaming Server, you attempt to do a Repair or Change installation, the installation program enables you to modify all settings, such as port and domain authentication, except for tracing. Changing the tracing could affect other Interactive Intelligence products installed on the same host.

If you need to change the tracing option and no other Interactive Intelligence products are installed on the host, delete the `ININ_TRACE_ROOT` entry from your Windows environment variables. The installation program will then display the tracing option and enable you to set it during a Repair or Change installation.
Configure Interaction Media Streaming Server

This section contains the following topics:

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  Configure external audio settings ............................................................21
  Configure text to speech settings ............................................................21
  Configure administration settings ...........................................................22

Configuration overview

After you install Interaction Media Streaming Server, configuration involves the following systems:

- The host computer on which Interaction Media Streaming Server is installed
- Interaction Media Streaming Server web interface
- Interaction Administrator

Configure host computer for Interaction Media Streaming Server

This section contains procedures for configuring the Windows computer on which Interaction Media Streaming Server is installed.

Enable audio sources in Windows

1. With a user account that has Administrator permissions, log on to the Windows computer where you installed Interaction Media Streaming Server.
2. Open the Run dialog box by pressing Win + R on the keyboard.
3. In the Open box, enter the following command:
   control /name Microsoft.Sound

   If the Windows Audio Service is not enabled, the following message is displayed:
Select the **Yes** button to enable and start Windows Audio Service, which will now start automatically when Windows starts.

The **Sound** dialog box is displayed.

4. Select the **Recording** tab.
   
   The **Recording** tab is displayed.

5. Ensure that the devices that you want to use as audio sources for Interaction Media Streaming Server are connected and enabled by right-clicking a listed device and selecting the appropriate option from the resulting shortcut menu.

6. After you have ensured that the necessary audio sources are connected and enabled, select the **OK** button to close the **Sound** dialog box.
Configure the default Text to Speech voice and speed

1. With a user account that has Administrator permissions, log on to the Windows computer where you installed Interaction Media Streaming Server.
2. Open the Run dialog box by pressing Win + R on the keyboard.
3. In the Open box, enter the following command:
   control /name Microsoft.TextToSpeech
   The Text to Speech tab of the Speech Properties dialog box is displayed.

   Windows 7
   Windows Server 2008 R2

   ![Speech Properties window]

   ![Speech Properties window]

4. In the Voice selection list box, select the voice that you want to use for speech synthesis.
5. Select the OK button.

   Note:
   You can configure the speed of the speech synthesis through Interaction Media Streaming Server. Change the Voice speed slider control only if you want to set the default setting that Interaction Media Streaming Server uses.

Configure Interaction Media Streaming Server through the web interface

Log on to Interaction Media Streaming Server interface

1. On any Windows computer that can access the computer hosting Interaction Media Streaming Server, open a web browser.
2. Navigate to the Uniform Resource Locator (URL) address of Interaction Media Streaming Server.

**Tip:**
The URL address of Interaction Media Streaming Server must include the port number.

The following examples display the formatting of the URL address for Interaction Media Streaming Server:
- `http://192.168.0.1:8190`
- `http://mss.mycompany.com:8190`

Ensure that you use the correct IP address or computer name; not the identifiers used in the examples.

The web browser displays a dialog box that prompts you to enter a user name and password.

3. In the dialog box, enter the administrator credentials that you specified during installation and submit the credential for authentication.

   The **Status-About** page of the Interaction Media Streaming Server interface is displayed.

### Configure general settings

For Interaction Media Streaming Server, general settings include the configuration of Session Initiation Protocol (SIP), Media Resource Control Protocol (MRCP), temporary directory, and which network interface listens for MRCP requests.

1. Log on to Interaction Media Streaming Server interface.
2. In the upper right corner of the page, select the **Config** icon.
   
   The **Config-General** page is displayed.
3. Set the controls on this page to the necessary values for your environment.
   
   For more information about each control, see **General page**.
4. After you have set the necessary values, select the **Apply Changes** button.

### Configure audio settings

For Interaction Media Streaming Server, audio settings include the configuration of Real-time Transport Protocol (RTP), Real-time Transport Control Protocol (RTCP), diagnostic recordings, cache directories, and **Prosody**.

1. Log on to Interaction Media Streaming Server interface.
2. In the upper right corner of the page, select the **Config** icon.
   
   The **Config-General** page is displayed.
3. On the left side of the page, select the **Audio** tab.
   
   The **Config-Audio** page is displayed.
4. Set the controls on this page to the necessary values for your environment.
   
   For more information about each control, see **Audio page**.
5. After you have set the necessary values, select the **Apply Changes** button.
Configure mail server settings

For Interaction Media Streaming Server to retrieve voice mail messages from an email server and play them in calls in a Customer Interaction Center environment, do the following actions for the selected method in the Mail container in Interaction Administrator:

- **IMAP**
  - Define an IMAP-compatible email server.

- **Interaction Message Store**
  - Using Interaction Administrator, define the drive and path where Customer Interaction Center will create mail boxes to store voice mail messages.
  - Using Interaction Administrator, define Interaction Message Store mailboxes for each user and workgroup that will receive voice mail messages.

For more information about configuring an email server for the Customer Interaction Center environment, see the "Providers" topic in the Interaction Administrator Help.

To configure Interaction Media Streaming Server to retrieve voice mail messages from an email server, do the following steps:

1. Log on to Interaction Media Streaming Server interface.
2. In the upper right corner of the page, select the Config icon.
   - The Config-General page is displayed.
3. On the left side of the page, select the Mail Server tab.
   - The Config-Mail Server page is displayed.
4. Set the controls on this page to the necessary values for your environment.
   - For more information about each control, see Mail Server page.
5. After you have set the necessary values, select the Apply Changes button.

Configure external audio settings

For Interaction Media Streaming Server, external audio includes the enabling of the streaming audio feature and defining the audio devices of the host computer.

1. Log on to Interaction Media Streaming Server interface.
2. In the upper right corner of the page, select the Config icon.
   - The Config-General page is displayed.
3. On the left side of the page, select the External Audio tab.
   - The Config-External Audio page is displayed.
4. Set the controls on this page to the necessary values for your environment.
   - For more information about each control, see External Audio page.
5. After you have set the necessary values, select the Apply Changes button.

Configure text to speech settings

For Interaction Media Streaming Server, text-to-speech (TTS) includes the enabling of the TTS feature.

1. Log on to Interaction Media Streaming Server interface.
2. In the upper right corner of the page, select the Config icon.
   - The Config-General page is displayed.
3. On the left side of the page, select the Text to Speech tab.
The **Config-Text to Speech** page is displayed.

4. Set the controls on this page to the necessary values for your environment.
   
   For more information about the controls on this page, see [Text to Speech page](#).

5. After you have set the necessary values, select the **Apply Changes** button.

**Configure administration settings**

For Interaction Media Streaming Server, administration includes changing the administrative user name and password for logging on to the web interface.

1. **Log on to Interaction Media Streaming Server interface.**
2. In the upper right corner of the page, select the **Config** icon.
   
   The **Config-General** page is displayed.

3. On the left side of the page, select the **Administration** tab.
   
   The **Config-Administration** page is displayed.

4. Set the controls on this page to the necessary values for your environment.
   
   For more information about the controls on this page, see [Administration page](#).

5. After you have set the necessary values, select the **Apply** button.
Configure the CIC environment to use Interaction Media Streaming Server

After you configure Interaction Media Streaming Server, configure other systems in the Customer Interaction Center environment to use the resources of the Interaction Media Streaming Server.

This section contains the following topics:

Define Interaction Media Streaming Server through Interaction Administrator ................................................................. 23

Configure music on hold from Interaction Media Streaming Server external audio source .......................................................... 26

Use Interaction Media Streaming Server external audio sources with handlers ........................................................................ 28

Configure Interaction Attendant to use Interaction Media Streaming Server external audio sources .................................................. 29

Define Interaction Media Streaming Server through Interaction Administrator

To use Interaction Media Streaming Server in your Customer Interaction Center environment, you must define it as a Media Resource Control Protocol (MRCP) server through Interaction Administrator.

1. Start Interaction Administrator.

2. If prompted, log on to Interaction Administrator with credentials that have administrator permissions.

   The Interaction Administrator window is displayed.

3. In the left pane under System Configuration, select the MRCP Servers object.

4. In the right pane, double-click the Configuration item.
The MRCP Servers Configuration dialog box is displayed.

5. If you will use Interaction Media Streaming Server to perform Text-to-Speech operations, enable the **Use MRCP for TTS** check box.

6. If you will use Interaction Media Streaming Server to play voice mail messages in Customer Information Center calls, enable the **Use Media Streaming Server to play voicemails** check box.

**Important!**

Enabling the **Use Media Streaming Server to play voicemails** feature overrides the previous voice mail retrieval method for the entire Customer Interaction Center environment.

When this feature is enabled, the Customer Interaction Center server sends voice mail play requests to Interaction Media Streaming Server.
When this feature is not enabled, the Customer Interaction Center server downloads the voice mail message and Interaction Media Server retrieves and plays the voice mail message from the Prompt Server component.

7. Select the OK button to save any changes and close the dialog box.

8. In the left pane of the Interaction Administrator window, expand the MRCP Servers object.

9. Under MRCP Servers, select the Servers object.

10. In the right pane, right-click an open area and select New from the resulting shortcut menu.

   The New MRCP Server dialog box is displayed.

11. In the Name box, enter a unique name for the Interaction Media Streaming Server.

12. In the Vendor group, select the ININ option.

13. Select the OK button.

   The Servers Configuration dialog box is displayed.

14. In the SIP Address box, enter a Session Initiation Protocol (SIP) address specifying the Interaction Media Streaming Server.

   SIP addresses must follow the following format:

   sip:<entity>@<server address>:<port>
Examples:

- sip:mss1@192.168.1.10:6060
- sip:mss1@myserver.domain.com:6060

You can supply any string as the <entity> variable.

15. In the **Location** list box, select the existing location to which you want to assign this Interaction Media Streaming Server.

    **Note:**
    You can use MRCP selection rules to configure CIC to select Interaction Media Streaming Servers in specific locations to service calls in the same or other locations. For more information about MRCP selection rules, see [MRCP Technical Reference](#) in the CIC Documentation Library.

16. In the **Priority** list box, select a value to indicate if Customer Interaction Center selects this Interaction Media Streaming Server to service a call.

    The values for the **Priority** list box range from **1** (highest priority) to **5** (lowest priority). To service a call with MRCP requests, CIC first sends the request to a server with a priority level of **1**. If none are available, CIC then searches for any servers with a priority level of **2**. CIC continues this process of searching for servers of specific priority levels until it finds one that accepts the request. If none are found, the MRCP operation fails.

    **Note:**
    A Customer Interaction Center server considers the **Priority** of an Interaction Media Streaming Server after MRCP selection rules.

17. If you enabled and configured all features of Interaction Media Streaming Server through its web interface, you can leave the **Retrieve from Server** option selected. If you want to limit this server definition to one or two specific features, select the **Use custom** option and enable the appropriate check boxes.

18. Select the **OK** button to save this entry and close the dialog box.

    The Interaction Media Streaming Server can now service calls in the CIC environment.

    **Tip:**
    Do not select the button to the right of the **Retrieve from server** check box during this procedure. Doing so causes the dialog box to discard all configuration data from the controls.

    **Note:**
    If you select the button to the right of the **Retrieve from server** check box, the items on the **External Audio Sources** tab are not updated. To see any device changes on that tab, close and reopen the **Servers Configuration** dialog box for that specific MRCP server.

## Configure music on hold from Interaction Media Streaming Server external audio source

After you define external audio sources through the web interface of Interaction Media Streaming Server and define the server through the MRCP Servers object in Interaction Administrator, you can use the external audio sources as music on hold for workgroups.
1. Start Interaction Administrator.
2. If prompted, log on to Interaction Administrator with credentials that have administrator permissions.
   The Interaction Administrator window is displayed.
3. In the left pane under the People container, select the Workgroups object.
4. In the right pane, double-click an existing workgroup for which you want to configure the music on hold source.
   The Workgroup Configuration dialog box is displayed.

5. Select the Files tab.
6. On the Files tab, select the Configure button.

The Audio Configuration dialog box is displayed.
7. Select the Use external audio source option.
8. In the associated list box, select the Interaction Media Streaming Server external audio source that you want callers to hear when placed on hold.

Optionally, you can enable the **Only play the audio source for** check box to specify that the audio from the external audio source is played for a specific number of seconds.

For example, you could use the external audio source for 120 seconds, play an On Hold Message, and then continue using the external audio source.

9. Select the **OK** button to save your changes and return to the **Workgroup Configuration** dialog box.

**Use Interaction Media Streaming Server external audio sources with handlers**

You can configure the **Play Audio File** tool step in a handler to use an external audio source from an Interaction Media Streaming Server.
You specify the Interaction Media Streaming Server external audio source in the **Audio File Name (.wav)** box on the **Inputs** tab of the **Properties of Play Audio File** dialog box.

You specify the Interaction Media Streaming Server external audio source in the following format:

"x-inin-audiosrc:systemaudio/<external audio source>"

<external audio source> is the name of the Interaction Media Streaming Server external audio source that you define on the **External Audio** tab of the Interaction Media Streaming Server web interface. For more information about access the External Audio tab, see **Configure external audio settings**.

For more information about the Play Audio File tool step, see the "Play Audio File" topic in Interaction Designer Help. You can access this information in the CIC Documentation Library at the following URL address:

https://my.inin.com/products/cic/documentation/index.htm

**Configure Interaction Attendant to use Interaction Media Streaming Server external audio sources**

**Specify an external audio source for a Play Audio operation**

For a Play Audio operation in Interaction Attendant, you can specify that it uses an external audio source from an Interaction Media Streaming Server.

**Note:**

Before you can specify the external audio source in Interaction Attendant, you must first define the external audio sources through the Interaction Media Streaming Server web interface and define the server through the **MRCP Servers** object in Interaction
1. In Interaction Attendant, insert a Play Audio operation.
2. In the right pane, select the External audio source option in the Audio group.
3. In the Name list box, select an available external audio source.

4. From the menu bar, select File > Publish to save your changes to the Customer Interaction Center server.

Specify an external audio source for Queue Audio in a Group Transfer operation

1. In Interaction Attendant, insert a Transfer to a Workgroup or a Station Group operation.
2. In the left pane of the Interaction Attendant window, select the Group Transfer object that you just inserted.
3. Right-click the Group Transfer object and select Insert > New Operation > Queue Operation > Play a Message to the caller from the resulting shortcut menu.

A Queue Audio object is inserted under the Group Transfer object in the left pane.
4. In the left pane, select the new **Queue Audio** object.

5. In the right pane, select the **External audio source** option in the **Audio Message to play to the caller** group.

6. In the **Audio** group, select the external audio source in the **Name** list box.

7. From the menu bar, select **File > Publish** to save your changes to the Customer Interaction Center server.
Maintain Interaction Media Streaming Server

Interaction Media Streaming Server is a robust MRCP server that requires little maintenance or administration after initial configuration. However, to ensure that Interaction Media Streaming Server is functioning at an optimum level, you can do some optional maintenance tasks.

Copy the configuration file to an archive

Interaction Media Streaming Server stores its internal configuration to the following path:

<installation directory>\Resources\MSSConfig\config_mss.xml

<installation directory>, by default, is C:\Program Files (x86)\Interactive Intelligence. You can copy this file to other storage systems for archiving purposes. In the unlikely event that you must reinstall Interaction Media Streaming Server or if you must restore the configuration, you can copy this file back to the host computer.

Monitor performance and system availability

It is a good practice to check servers periodically for performance, availability, and resource usage. This practice can ensure that Interaction Media Streaming Server can service the necessary call volume levels in your Customer Interaction Center environment.

There are several methods of determining the health of your Interaction Media Streaming Server. The following list provides some examples:

- View the Status-Audio Engine page of the Interaction Media Streaming Server web interface to see the current and average CPU usage percentages.
- Use Event Viewer on the Windows host computer to find any errors or warnings.
- Use Resource Monitor to ensure that the Windows host computer does not have any problems with taxed CPU, disk, network, or memory resources.
- View the properties of the fixed storage drives on the host computer to ensure that free space is available for temporarily storing voice mail messages and caching of streamed media.

Examine Customer Interaction Center event log

The Customer Interaction Center server records not only events that occur on its host computer but some events on its subsystems as well. Use Event Viewer on the Customer Interaction Center to ensure that no Interaction Media Streaming Server events are present.

Antivirus requirements and best practices for Customer Interaction Center and subsystem servers

This section provides the best practices and more 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
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 more 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
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
- .dxs
- .db
- .ihd
- .i3pub
- .ininlog (CIC log file format)
- .ininlog_idx (CIC log index file format)

Directories and subdirectories to exclude

Important!
When you exclude a directory, ensure that 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 Streaming Server log files.
The directory containing log files is set through an Interactive Intelligence installation program. If Interaction Media Streaming Server is the only Interactive Intelligence product installed on this computer, you set the directory in the Logging File Path box when you installed Interaction Media Streaming Server.

- The directory specified in the Temporary directory box on the Config-General page of the Interaction Media Streaming Server web interface.
- The directory specified in the HTTP client cache directory box on the Config-Audio page of the Interaction Media Streaming Server web interface.

**Important!**

Your specific antivirus software product may require more 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 regularly**

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.
Interaction Media Streaming Server interface reference

This section contains the following topics:

**Status pages**
- About page
- Server Status page
- Audio Engine page

**Config pages**
- General page
- Audio page
- Mail Server page
- External Audio page
- Text to Speech page
- Administration page

---

**Status pages**

This set of pages is displayed when you log on to the Interaction Media Streaming Server web interface. You can also select the **Status** icon in the upper right corner of the webpage.

**About page**

The **About** page displays the following information:

<table>
<thead>
<tr>
<th>Machine Name</th>
<th>This control displays the name of the computer on which Interaction Media Streaming Server is installed and operational.</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Version</td>
<td>This control displays the version of Interaction Media Streaming Server main executable file.</td>
</tr>
<tr>
<td>Your IP Address</td>
<td>This control displays the IP address of the computer on which you are viewing the Interaction Media Streaming Server user interface.</td>
</tr>
</tbody>
</table>

**Server Status page**

The **Server Status** page displays the following information:

<table>
<thead>
<tr>
<th>SIP Session ID</th>
<th>This column displays the unique identifier of a specific SIP session.</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>This column displays the action that Interaction Media Streaming Server is using for this SIP session.</td>
</tr>
<tr>
<td>Resource Channel ID</td>
<td>This column displays the channel identifier of the MRCP entity that is receiving the audio from Interaction Media Streaming Server.</td>
</tr>
<tr>
<td>Details button</td>
<td>Use this button to display a subsequent page that contains more information about this SIP session.</td>
</tr>
</tbody>
</table>
**Auto-refresh every 10 s check box**
Enable this check box if you want this webpage to update the data on this page every 10 seconds.

**Refresh button**
Use this button to gather and display current information.

---

Session Details page

The **Session Details** page displays the following information:

<table>
<thead>
<tr>
<th>Control</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Channel ID</strong></td>
<td>This control displays the channel identifier of the MRCP entity with which Interaction Media Streaming Server is communicating for this session.</td>
</tr>
<tr>
<td><strong>Resource ID</strong></td>
<td>This control displays an identifier for this session. This identifier applies to only active sessions.</td>
</tr>
<tr>
<td><strong>Local RTP Address</strong></td>
<td>This control displays the IP address that Interaction Media Streaming Server is using for RTP communications with the requesting MRCP entity for this session.</td>
</tr>
<tr>
<td><strong>Local RTP Port</strong></td>
<td>This control displays the network port that Interaction Media Streaming Server is using for RTP communications with the requesting MRCP entity for this session.</td>
</tr>
</tbody>
</table>
| **Local RTP Mode** | This control displays the communication method that Interaction Media Streaming Server is using for RTP communications with the requesting MRCP entity for this session. The following list displays the possible values:  
  - sendonly - This setting indicates that Interaction Media Streaming Server disregards any RTP messages that it receives from the MRCP entity.  
  - recvonly - This setting indicates that Interaction Media Streaming Server cannot send any RTP messages to the MRCP entity.  
  - sendrecv - This setting indicates that Interaction Media Streaming server sends and receives messages in communications with the MRCP entity.                        |
| **Remote RTP Address** | This control displays the IP address of the MRCP entity that Interaction Media Streaming Server is using for RTP communications for this session. |
| **Remote RTP Port** | This control displays the network port of the MRCP entity that Interaction Media Streaming Server is using for RTP communications for this session. |
| **Current State**  | This control displays the action that Interaction Media Streaming Server is using for this SIP session.                                     |
| **Current SPEAK Request** | This control displays the identifier of the current MRCP SPEAK request that Interaction Media Streaming Service is servicing. MRCP SPEAK requests contain voice parameters, such as gender, category, and volume, for TTS requests. |
Auto-refresh every 10s check box

Enable this check box if you want this webpage to update the data on this page every 10 seconds.

Back button

Use this button to return to the Server Status page.

Refresh button

Use this button to gather and display current information.

Resource Details page

The Resource Details page displays the following controls:

<table>
<thead>
<tr>
<th>Control</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource ID</td>
<td>This control displays an identifier for this session. This identifier applies to only active sessions.</td>
</tr>
<tr>
<td>Type</td>
<td>This control displays the type of operation that Interaction Media Streaming Server is using for this resource.</td>
</tr>
<tr>
<td>Creation Time</td>
<td>This control displays the date and time when Interaction Media Streaming Server created this resource.</td>
</tr>
<tr>
<td>Age</td>
<td>This control displays the amount of time that this resource has been active.</td>
</tr>
<tr>
<td>Idle</td>
<td>This control displays an indication if this resource is actively servicing a call.</td>
</tr>
<tr>
<td>Engine Thread ID</td>
<td>This control displays the identifier of the audio engine thread that is servicing this resource. Interactive Intelligence support representatives can use this information in troubleshooting and diagnostic investigation.</td>
</tr>
<tr>
<td>Graph ID</td>
<td>This control displays an identifier for this resource that is related to the number of sessions that the associated audio engine is processing. Interactive Intelligence support representatives can use this information in troubleshooting and diagnostic investigation.</td>
</tr>
<tr>
<td>XML data</td>
<td>The lower part of this page displays technical information for this resource in an Extensible Markup Language (XML) format. Interactive Intelligence support representatives can use this information in troubleshooting and diagnostic investigation.</td>
</tr>
<tr>
<td>Auto-refresh every 10s check box</td>
<td>Enable this check box if you want this webpage to update the data on this page every 10 seconds.</td>
</tr>
</tbody>
</table>

Audio Engine page

Interaction Media Streaming Server uses audio engines to process communications for interactions. Each audio engine is associated with a specific core of the CPU on the host
A single audio engine can process communications for multiple interactions but is limited to the available resources of the CPU core. The **Audio Engine** webpage displays the current statistics of each audio engine for this installation of Interaction Media Streaming Server.

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thread ID</strong></td>
<td>This column displays the identifier of each audio engine that Interaction Media Streaming Server can use to serve audio to VoIP calls.</td>
</tr>
<tr>
<td><strong>CPU ID</strong></td>
<td>This column displays the identifier of the CPU core (physical or hyperthreaded) that runs the associated audio engine.</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>This column displays the Windows hardware identifier of the CPU core (physical or hyperthreaded) that runs the associated audio engine. Interactive Intelligence support representatives can use this information in troubleshooting and diagnostic investigation.</td>
</tr>
<tr>
<td><strong>Current Load</strong></td>
<td>This column displays the percentage of the available resources of the CPU core that the associated audio engine is using.</td>
</tr>
<tr>
<td><strong>Average Load</strong></td>
<td>This column displays the average percentage of CPU core resources that the associated audio engine is using. This percentage is averaged over the last 30 seconds. Interaction Media Streaming Server does not calculate the percentage over a set 30-second window. Instead, it calculates the percentage for the 30 second period before the page is displayed or the data is refreshed.</td>
</tr>
<tr>
<td><strong>Graphs</strong></td>
<td>This column is related to the number of sessions that the associated audio engine is processing. Interactive Intelligence support representatives can use this information in troubleshooting and diagnostic investigation.</td>
</tr>
<tr>
<td><strong>Elements</strong></td>
<td>This column is related to the number of separate tasks that the associated audio engine is processing for all of its current graphs. Interactive Intelligence support representatives can use this information in troubleshooting and diagnostic investigation.</td>
</tr>
<tr>
<td><strong>Auto-refresh every 10s check box</strong></td>
<td>Enable this check box if you want this webpage to update the data on this page every 10 seconds.</td>
</tr>
<tr>
<td><strong>Refresh button</strong></td>
<td>Use this button to gather and display current information.</td>
</tr>
</tbody>
</table>
## Config pages

### General page

The **General** page enables you to configure settings for network control message protocols and temporary files.

<table>
<thead>
<tr>
<th><strong>Listen address type</strong></th>
<th>Use this list box to select the version of IP addressing that Interaction Media Streaming Server supports for incoming communications.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Any</strong> (default) - This item configures Interaction Media Streaming Server to support either the IPv4 or IPv6 protocol.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> For this item, you can assign an IPv4 address, an IPv6 address, or both for the network interface specified in the <strong>Listen interface</strong> control.</td>
</tr>
<tr>
<td></td>
<td><strong>IP4</strong> - This item configures Interaction Media Streaming Server to support only the IPv4 protocol.</td>
</tr>
<tr>
<td></td>
<td><strong>IP6</strong> - This item configures Interaction Media Streaming Server to support only the IPv6 protocol.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Listen interface</strong></th>
<th>Use this list box to select the network interface through which Interaction Media Streaming Server will process SIP and MRCP requests. The default value is <strong>Any</strong>.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The <strong>Any</strong> item causes Interaction Media Streaming Server to listen for SIP and MRCP messages on all defined network interfaces in the operating system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Temporary directory</strong></th>
<th>Use this box to specify the local drive and directory path where Interaction Media Streaming Server will store .wav files when it plays voice mail messages and Text-to-Speech (TTS) requests.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The default value for this control is the directory specified during installation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Keep temporary files</strong></th>
<th>Use this list box to specify if Interaction Media Streaming Server preserves temporary files that it creates when serving audio file for voice mail and TTS requests.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When this control is set to <strong>false</strong>, Interaction Media Streaming Server deletes temporary files immediately after use.</td>
</tr>
</tbody>
</table>

**Note:**
Enable this feature only when troubleshooting audio problems with voice mail and TTS.
<table>
<thead>
<tr>
<th>MRCP - maximum number of concurrent requests</th>
<th>Use this box to enter the maximum number of concurrent MRCP sessions that Interaction Media Streaming Server will support. The default value for this control is 32.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong></td>
<td>Ensure that you enter an appropriate amount of MRCP sessions. Using a low number can result in Interaction Media Streaming Server refusing to insert audio into VoIP calls during periods of high call volume. Using a high number can result in Interaction Media Streaming Server exhausting CPU resources.</td>
</tr>
<tr>
<td>MRCP - port</td>
<td>Use this box to set the network port that Interaction Media Streaming Server uses for sending and receiving MRCP messages.</td>
</tr>
<tr>
<td><strong>Important!</strong></td>
<td>If you use port numbers other than the default values, ensure that you configure any necessary firewalls to allow those port numbers.</td>
</tr>
<tr>
<td>MRCP - protocol</td>
<td>Use this list box to select the transport layer protocol that Interaction Media Streaming Server uses for sending MRCP messages.</td>
</tr>
<tr>
<td>MRCP - QoS DSCP value</td>
<td>Use this list box to select the Differentiated Service Code Point (DSCP) value that Interaction Media Streaming Server assigns in the Quality of Service (QoS) header of MRCP packets.</td>
</tr>
<tr>
<td>MRCP - QoS enabled</td>
<td>Use this check box to enable or disable Interaction Media Streaming Server marking MRCP packets with QoS data.</td>
</tr>
<tr>
<td>SIP - port</td>
<td>Use this box to set the network port that Interaction Media Streaming Server uses for sending and receiving SIP messages.</td>
</tr>
<tr>
<td><strong>Important!</strong></td>
<td>If you use port numbers other than the default values, ensure that you configure any necessary firewalls to allow those port numbers.</td>
</tr>
<tr>
<td>SIP - protocol</td>
<td>Use this list box to select the transport layer protocol that Interaction Media Streaming Servers uses for sending SIP messages.</td>
</tr>
<tr>
<td>SIP - QoS DSCP value</td>
<td>Use this list box to select the DSCP value that Interaction Media Streaming Server assigns in the QoS header of SIP packets.</td>
</tr>
<tr>
<td>Apply Changes button</td>
<td>Use this button to save any changes you made on this page and have Interaction Media Streaming Server use the new values.</td>
</tr>
<tr>
<td>Cancel button</td>
<td>Use this button to discard any changes to values on this page.</td>
</tr>
<tr>
<td><strong>Important!</strong></td>
<td>Using the Cancel button after using the Apply Changes button does not restore the previous values on this page. You can only use the Cancel button after changing values only if you have not used the Apply Changes button.</td>
</tr>
</tbody>
</table>
Audio page

The **Audio** page enables you to configure settings for network media protocols and audio processing.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HTTP client cache directory</strong></td>
<td>This feature is reserved for future use.</td>
</tr>
<tr>
<td></td>
<td><strong>Important!</strong> This box must contain a valid path on the host computer. Do not specify the value using the Universal Naming Convention (UNC) paradigm of <code>\&lt;server name&gt;\&lt;resource&gt;</code>.</td>
</tr>
<tr>
<td><strong>Maximum number of active diagnostic captures</strong></td>
<td>Use this box to set the maximum number of concurrent diagnostic recordings that Interaction Media Streaming Server can service. The default value for this control is <strong>32</strong>.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Ensure that you enter an appropriate number of sessions. Using a high number can result in Interaction Media Streaming Server exhausting CPU resources during periods of high call volume.</td>
</tr>
<tr>
<td><strong>Default Prosody Rate</strong></td>
<td>Use this list box to set the default speed of voice mail and TTS audio that Interaction Media Streaming Server inserts into calls. Interaction Media Streaming Server cannot increase the speed of audio playback for streaming audio sources, such as line-in devices and Internet-based sources.</td>
</tr>
<tr>
<td><strong>Default Prosody Volume</strong></td>
<td>Use this list box to set the default volume of audio that Interaction Media Streaming Servers inserts into calls.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> This feature cannot overcome the problem of an audio source that is configured with a low volume setting in Windows. Using this feature in such a way can result in distorted audio and decreased quality. Ensure that each audio source that you use for Interaction Media Streaming Server has an acceptable volume level.</td>
</tr>
<tr>
<td><strong>RTCP - QoS DSCP value</strong></td>
<td>Use this list box to select the Differentiated Service Code Point (DSCP) value that Interaction Media Streaming Server assigns in the Quality of Service (QoS) header of RTCP packets.</td>
</tr>
<tr>
<td><strong>RTCP - QoS enabled</strong></td>
<td>Use this check box to enable or disable Interaction Media Streaming Server marking RTCP packets with QoS data.</td>
</tr>
</tbody>
</table>
| **RTP - address type** | Use this list box to select the version of IP addressing that Interaction Media Streaming Server supports for RTP communications.  
- **Any** (default) - This item configures Interaction Media Streaming Server to support either the IPv4 or IPv6 protocol.  
  - **Note:**  
    For this item, you can assign an IPv4 address, an IPv6 address, or both.  
  - **IP4** - This item configures Interaction Media Streaming Server to support only the IPv4 protocol.  
  - **IP6** - This item configures Interaction Media Streaming Server to support only the IPv6 protocol.  
  - **IP4IP6** - This item configures Interaction Media Streaming Server to support both the IPv4 and IPv6 protocols.  
    - **Important!**  
      To use this setting, configure both an IPv4 and an IPv6 address for the network interface that is specified in the **RTP - interface** control. If the specified network interface does not contain both address formats, all communications from Interaction Media Streaming Server fail. |
| **RTP - captures enabled** | Use this list box to enable Interaction Media Streaming Server to create packet capture (PCAP) files for diagnosing problems of audio playback. These files are stored in the logging directory that you specified during installation. |
| **RTP - port range** | Use this set of boxes to enter one or more ranges of network ports that Interaction Media Streaming Server uses for sending RTP (audio) packets.  
In the box on the left, specify the starting port number for the range. In the box on the right, specify the ending port number for the range.  
The default values are **16384** and **32767**.  
- **Note:**  
  You can create multiple port ranges. For example, if you want to use ports 15000 through 15500 and 15700 through 15999, you can use the **Add Value** button to create the second range.  
- **Important!**  
  If you use port numbers other than the default values, ensure that you configure any necessary firewalls to allow those port numbers. |
<table>
<thead>
<tr>
<th><strong>Add Value button</strong></th>
<th>Use this button to add another range of network ports that Interaction Media Streaming Server can use to send RTP (audio) packets.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Del button</strong></td>
<td>Use this button to remove the associated range of ports from the Interaction Media Streaming Server configuration.</td>
</tr>
<tr>
<td><strong>RTP - QoS DSCP value</strong></td>
<td>Use this list box to select the Differentiated Service Code Point (DSCP) value that Interaction Media Streaming Server assigns in the Quality of Service (QoS) header of RTP packets.</td>
</tr>
<tr>
<td><strong>RTP - QoS enabled</strong></td>
<td>Use this check box to enable or disable Interaction Media Streaming Server marking RTCP packets with QoS data.</td>
</tr>
<tr>
<td><strong>RTP - interface</strong></td>
<td>Use this list box to select the network interface that Interaction Media Streaming Server uses to send RTP packets.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you select the Any item, the Interaction Media Streaming Server service selects an available network interface, which it then continues to use until the service restarts.</td>
</tr>
<tr>
<td><strong>Apply Changes button</strong></td>
<td>Use this button to save any changes you made on this page and have Interaction Media Streaming Server use the new values.</td>
</tr>
<tr>
<td><strong>Cancel button</strong></td>
<td>Use this button to discard any changes to values on this page.</td>
</tr>
<tr>
<td></td>
<td><strong>Important!</strong> Using the Cancel button after using the Apply Changes button does not restore the previous values on this page. You can only use the Cancel button after changing values only if you have not used the Apply Changes button.</td>
</tr>
</tbody>
</table>
## Mail Server page

The **Mail Server** page enables you to configure the settings that Interaction Media Streaming Server requires to retrieve voice mail messages from an email server.

**Important!**

This version of Interaction Media Streaming Server supports only IMAP email servers and the Interaction Message Store for storing and retrieving voice mail messages.

<table>
<thead>
<tr>
<th>Mail retrieval enabled</th>
<th>Use this list box to enable or disable the ability of Interaction Media Streaming Server to retrieve voice mail audio files from an email server and insert the audio into a call.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMAP - timeout</strong></td>
<td>Use this box to specify the number of seconds that elapse before Interaction Media Streaming Server closes the current IMAP connection to the server. A value of -1 specifies that the connection does not expire. The maximum value is 32767.</td>
</tr>
</tbody>
</table>
| **IMS - root directory** | Use this box to specify the directory where the Customer Interaction Center server stores voice mail and fax messages. Depending on where the files are stored requires different methods of specifying the root IMS directory:  
  - Customer Interaction Center server - Enter the drive and directory path, such as D:\I3\IC\FBMC.  
  - Remote file server - Enter the Universal Naming Convention (UNC) path, such as \\<server name>\FBMC.  
**Important!**

The user account under which you configured the Interaction Media Streaming Server service to run must have read and write permissions to the IMS root directory. |
| **Apply Changes button** | Use this button to save any changes you made on this page and have Interaction Media Streaming Server use the new values. |
| **Cancel button** | Use this button to discard any changes to values on this page.  
**Important!**

Using the Cancel button after using the Apply Changes button does not restore the previous values on this page. You can only use the Cancel button after changing values only if you have not used the Apply Changes button. |
External Audio page

The External Audio page enables you to specify the audio sources that Interaction Media Streaming Server can use to insert audio into VoIP calls. These sources include defined Windows devices and a .wav file.

<table>
<thead>
<tr>
<th><strong>External audio enabled</strong></th>
<th>Use this list box to enable or disable the ability for Interaction Media Streaming Server to use audio sources in the Device/Name Mapping set of controls.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Device/Name Mapping</strong></td>
<td>Use this set of boxes to provide a custom label to audio devices that are defined on the computer.</td>
</tr>
<tr>
<td></td>
<td>• Device Description - This text is the name of the device as it appears in Windows.</td>
</tr>
<tr>
<td></td>
<td>• Name - In this box, specify a unique name to represent this device. Interaction Media Streaming Server and Customer Interaction Center use this name to reference the associated device.</td>
</tr>
<tr>
<td></td>
<td><strong>Important!</strong> Provide a value in the Name box for any device that you want to use as an audio source with Interaction Media Streaming Server. If you do not provide a name, Interaction Media Streaming Server cannot insert audio from the device into calls.</td>
</tr>
<tr>
<td><strong>Tip:</strong></td>
<td>If you want to use streaming Internet sources or multimedia files on the PC as audio for Interaction Media Streaming Server, select an output device, such as Speakers, and use the appropriate application on the PC to play the audio source. For example, to use audio from a streaming Internet source, open a web browser, navigate to the website, and play the audio as you would to listen to it on the PC.</td>
</tr>
<tr>
<td><strong>Fallback Audio File</strong></td>
<td>This box displays the .wav file that Interaction Media Streaming Server plays if no audio devices are available on the host computer. The default value is C:\Program Files (x86) \Interactive Intelligence \Resources \SystemDefaultAudioOnHold.wav. For example, if you disconnect a USB audio device that Interaction Media Streaming Server is configured to use as an audio source, it determines that the device is not present and, instead, plays this .wav file.</td>
</tr>
<tr>
<td><strong>Apply Changes button</strong></td>
<td>Use this button to save any changes you made on this page and have Interaction Media Streaming Server use the new values.</td>
</tr>
<tr>
<td><strong>Cancel</strong> button</td>
<td>Use this button to discard any changes to values on this page.</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td><strong>Important!</strong></td>
</tr>
<tr>
<td></td>
<td>Using the <strong>Cancel</strong> button after using the <strong>Apply Changes</strong> button does not restore the previous values on this page. You can only use the <strong>Cancel</strong> button after changing values only if you have not used the <strong>Apply Changes</strong> button.</td>
</tr>
</tbody>
</table>
The **Text to Speech** page enables you to enable or disable the TTS feature.

<table>
<thead>
<tr>
<th><strong>Text-to-speech enabled</strong></th>
<th>Use this list box to enable or disable Interaction Media Streaming Server from servicing Text-to-Speech (TTS) requests.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Available Voices (read only)</strong></td>
<td>This control displays the Text-to-Speech (TTS) voices that are available on the host Windows operating system.</td>
</tr>
<tr>
<td><strong>Apply Changes button</strong></td>
<td>Use this button to save any changes you made on this page and have Interaction Media Streaming Server use the new values.</td>
</tr>
<tr>
<td><strong>Cancel button</strong></td>
<td>Use this button to discard any changes to values on this page.</td>
</tr>
</tbody>
</table>

**Important!**
Using the **Cancel** button after using the **Apply Changes** button does not restore the previous values on this page. You can only use the **Cancel** button after changing values only if you have not used the **Apply Changes** button.
Administration page

The Administration page enables you to change the user name and password that you use to log on to the Interaction Media Streaming Server web interface.

Caution!
This page does not use HTTPS for secure transmission of data. Interactive Intelligence strongly recommends that you change the user name and password only from the host computer and not from a remote computer.

<table>
<thead>
<tr>
<th>Old User Name</th>
<th>Use this box to specify the current user account that you want to change.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Password</td>
<td>Use this box to enter the password of the user account specified in the Old User Name box.</td>
</tr>
<tr>
<td>New User Name</td>
<td>Use this box to specify the new name for the user account specified in the Old User Name box.</td>
</tr>
<tr>
<td>New Password</td>
<td>Use this box to enter the new password of the user account specified in the New User Name box.</td>
</tr>
<tr>
<td>Confirm New Password</td>
<td>Use this box to enter and confirm the password that you supplied in the New Password box.</td>
</tr>
<tr>
<td>Apply button</td>
<td>Use this button to save any changes you made on this page and have Interaction Media Streaming Server use the new values.</td>
</tr>
<tr>
<td>Revert button</td>
<td>Use this button to discard any changes to values on this page.</td>
</tr>
</tbody>
</table>

Important!
Using the Revert button after using the Apply button does not restore the previous values on this page. You can only use the Revert button after changing values only if you have not used the Apply button.
Troubleshoot Interaction Media Streaming Server

Choppy audio

- Ensure that Quality of Service (QoS) is enabled throughout your network.
- Ensure that the network has sufficient bandwidth.
- Ensure that both the Interaction Media Streaming Server and the Interaction Media Server servicing the call have sufficient CPU, disk, network, and memory resources available.

No music-on-hold

- Ensure that Interaction Media Streaming Server is operational and connected to the network.
- Ensure that the audio source connected to Interaction Media Streaming Server is actually providing an audio stream and not silence. Use the Sound applet (mmsys.cpl) in Control Panel to view or configure the volume settings for multiple devices.

Interaction Media Streaming Server service no longer starts

If you change the domain password for the account that you used to install Interaction Media Streaming Server, the service can no longer authenticate and start successfully.

To solve this problem, open the Services window, edit the properties of the Interaction Media Streaming Server service, and provide the new password for the account. Start the service manually. Upon the next restart of the host computer, the service again starts automatically.

Customer Interaction Center is playing the wrong external audio source

If you use the same name for external audio devices on multiple Interaction Media Streaming Servers, Customer Interaction Center distributes usage between the devices.

To stop Customer Interaction Center from selecting the incorrect external audio source, determine which Interaction Media Streaming Server has the device, log on through its web interface, and rename the device on the Config-External Audio tab.
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio engine</td>
<td>A process that uses a single CPU core to service audio for VoIP calls. Based on licensing, Interaction Media Streaming Server has multiple audio engines, each of which can service multiple VoIP calls simultaneously.</td>
</tr>
<tr>
<td>FBMC (File Based Mail Connector)</td>
<td>A feature of Customer Interaction Center for communication and functionality with an email server. This feature enables Interaction Media Streaming Server to retrieve voice mail messages if the email server does not support the IMAP protocol. FBMC uses a proprietary file format.</td>
</tr>
<tr>
<td>IMS (Interaction Message Store)</td>
<td>Interaction Message Store stores voice mail and faxes as files on the CIC server (small implementations) or a network file server (large implementations). Users are associated with mailboxes in a file directory structure, and voice mail and fax messages are routed to these mailboxes. Users can access voice mail messages with a CIC client or the telephone user interface (TUI). Users can view fax messages in a CIC client or forward the fax to another fax number.</td>
</tr>
<tr>
<td>MRCP (Media Resource Control Protocol)</td>
<td>A standard (v1 - RFC 4463) protocol for establishing and controlling speech services in VoIP communications. MRCP does not support audio data.</td>
</tr>
<tr>
<td>Prosody</td>
<td>Acoustically, the rhythm, pitch, and loudness of speech. For Interaction Media Streaming Server, you can adjust the speed and volume of speech that is synthesized from text.</td>
</tr>
<tr>
<td>QoS (Quality of Service)</td>
<td>A standard (RFC 2474, 2205, 2990, 3714) method of specifying prioritization for network communications. This standard is prevalent in the transmission of audio on IP-based networks.</td>
</tr>
<tr>
<td>RTCP (Real-time Transport Control Protocol)</td>
<td>A standard (RFC 3550) protocol for establishing, monitoring, and controlling communications that transmit media, such as audio and video, on IP-based networks through Real-time Transport Protocol (RTP).</td>
</tr>
<tr>
<td>RTP (Real-time Transport Protocol)</td>
<td>A standard (RFC 3550) protocol for delivering media, such as audio and video, on IP-based networks.</td>
</tr>
<tr>
<td>SAPI (Speech Application Programming Interface)</td>
<td>An application programming interface (API) developed by Microsoft for speech recognition and synthesis.</td>
</tr>
<tr>
<td>SIP (Session Initiation Protocol)</td>
<td>A standard (RFC 3261) protocol for establishing and controlling real-time communications over IP-based networks.</td>
</tr>
<tr>
<td>Streaming</td>
<td>The continuous transmission of media, such as audio, video, or both, over a network.</td>
</tr>
<tr>
<td>Protocol (Name)</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>TCP (Transmission Control Protocol)</td>
<td>A standard (RFC 675, 793, 1122, 1323, 1379, 1948, 2018, 4614, 5681, 6298) protocol for transmitting data over an IP-based network. TCP focuses on the quality of network transmissions, such as network congestion, retransmission of dropped packets, and reordering of packets that are received out of the sequence in which they were transmitted.</td>
</tr>
<tr>
<td>TLS (Transport Layer Security)</td>
<td>A standard (RFC 5246) method of encrypting communications for transmission on an IP-based network. This protocol is an application layer protocol, which other network layer protocols, such as SIP, TCP, and UDP, can use.</td>
</tr>
<tr>
<td>TTS (Text to Speech)</td>
<td>A computer-based method of synthesizing text from a file or data object into an audio representation of language as spoken by humans.</td>
</tr>
<tr>
<td>UDP (User Datagram Protocol)</td>
<td>A standard (RFC 768, 2460, 2675, 4113, 5405) protocol for transmitting data over an IP-based network. UDP focuses on the speed of network transmissions and does not address network congestion, packet receipt messages, or packet sequencing. For real-time, IP-based communications, small irregularities in UDP packet streams do not produce significant quality issues.</td>
</tr>
</tbody>
</table>
## Change Log

<table>
<thead>
<tr>
<th>Change Log Date</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 28, 2013</td>
<td>Initial release</td>
</tr>
<tr>
<td>March 1, 2013</td>
<td>Removed content stating that Windows 7 (32-bit) operating system was supported</td>
</tr>
<tr>
<td>March 8, 2013</td>
<td>Added a tip in <a href="#">External Audio page</a> that specifies how to use audio from other sources, such as Internet audio streams and multimedia</td>
</tr>
<tr>
<td>August 6, 2013</td>
<td>Removed references to an obsolete product</td>
</tr>
</tbody>
</table>
| August 29, 2014   | • Updated documentation to reflect changes required in the transition from version 4.0 SU# to CIC 2015 R1, such as updates to product version numbers, system requirements, installation procedures, references to Interactive Intelligence Product Information site URLs, and copyright and trademark information  
                      • Updated content for MRCP selection rules feature in Interaction Administrator                                                   |
| April 9, 2015     | • Added a topic on Repair or Change installations and modification of the previously-configured tracing option                            
                      • Replaced references to a specific product with "CIC client"                                                                         |
| October 13, 2015  | • Updated cover page to reflect corporate branding                                                                                      
                      • Updated "Copyright and trademark information" page                                                                                  
                      • Minor edits                                                                                                                         |