Customer Guide to SIP Trunk Integrations

www.incontact.com
Customer Guide to SIP Trunk Integrations

• **Revision** — March 2016

• **About inContact** — inContact (NASDAQ: SAAS) is leader in cloud contact center software, helping organizations around the globe create customer and contact center employee experiences that are more personalized, more empowering and more engaging today, tomorrow and in the future. inContact focuses on continuous innovation and is the only provider to offer core contact center infrastructure, workforce optimization plus an enterprise-class telecommunications network for the most complete customer journey management. inContact offers customers a choice of deployment options. To learn more, visit www.inContact.com.

• **Copyright** — ©2016 inContact, Inc.

• **Disclaimer** — inContact reserves the right to update or append this document, as needed.

• **Contact** — Send suggestions or corrections regarding this guide to documentationsrequest-discover@incontact.com.
# Table of Contents

**Introduction** ............................................................................................ 5
  Audience................................................................................................................5
  Goals.........................................................................................................................5
  Assumptions..............................................................................................................5
  Need-to-Knows ........................................................................................................5
  Customer Responsibilities.......................................................................................6

**SIP Trunk Integration Overview** ............................................................... 7
  Known Limitations ..................................................................................................8
  Audio Codec Support ...............................................................................................8
  Telephony Requirements..........................................................................................9
  inContact WFO Requirements...............................................................................9
    Network..................................................................................................................9
    Hardware...............................................................................................................9
    Software...............................................................................................................9
    Licensing..............................................................................................................9

**Customer Integration Tasks** ......................................................... 10
  SIP Trunk Integration in Cisco Environments.................................................. 10
    Customer Configuration Overview for Cisco SIP Trunk Integrations.................. 11
    Configure a SIP Trunk Security Profile for the Cisco Recording Trunk................. 11
    Configure a SIP Profile for the Cisco Recording Trunk......................................... 12
    Create a Cisco SIP Recording Trunk..................................................................... 15
    Configure Cisco Phones.......................................................................................17
Customer Guide to SIP Trunk Integrations

Customer Administration Tasks ............................................................. 19
Voice Boards Overview ..................................................................................................... 19
Voice Board Configuration ............................................................................................... 19

Document Revision History ................................................................................................................. 20
Customer Guide to SIP Trunk Integrations

Introduction

Audience

This document is written for customers and prospective customers interested in using inContact Call Recording in an IP telephony environment using SIP trunks. Readers who will perform procedures in this guide should have a basic level of familiarity with IP telephony, SIP trunks, general networking, the Windows operating system, their specific IP PBX, and inContact WFO.

Goals

The goal of this document is to provide knowledge, reference, and procedural information necessary to understand a proposed inContact WFO integration using one or more SIP trunks as an audio source, and to configure the telephony equipment to support the integration.

This document is NOT intended as a specific system or network design document. If further clarification is needed, consult with your telephony vendor(s).

Assumptions

This document assumes the reader has access to an inContact WFO Sales Engineer, Project Manager, or other resource to assist in applying this information to the reader's environment.

Need-to-Knows

To facilitate ease of use, this document takes advantage of PDF bookmarks. By opening the bookmark pane, readers can easily refer to the portion(s) of the guide that are relevant to their needs. For example, the inContact WFO application administrator can click on the Customer Administration Tasks bookmark to jump directly to that section.

To expand and collapse the bookmark pane, click on the bookmark icon on the left side of the document window.

For information and procedures related to inContact WFO configuration, talk to your inContact WFO installation team.
Customer Guide to SIP Trunk Integrations

This integration provides a means of audio capture only; if a CTI source will be leveraged for call control and metadata, additional steps may be required. Consult the inContact WFO customer guide for the applicable CTI integration.

This integration supports live monitoring capability, can be used with inContact WFO Screen Recording, and should work with any standard SIP trunk. It has been tested with Cisco Unified Communications Manager and the inContact Cloud PBX.

Customer Responsibilities

You are responsible for supplying the SIP trunk(s) and the physical and/or IP connection(s) to your telephone system and LAN, and for obtaining and loading any licensing required by your IP PBX vendor. You are also responsible for configuring PBX system components to support the recording integration. See the Customer Integration Tasks section for additional information.
SIP Trunk Integration Overview

SIP trunks are a standard means of delivering IP telephone services and unified communications to customers with a SIP-based IP-PBX. This integration can be used to record any traffic routed over a SIP trunk. It can also be used to provide ad hoc recording of calls that are not otherwise captured by inContact WFO. Agents create a conference between themselves, the customer, and the SIP trunk. inContact WFO records the trunk and thus the conference call.

General architectural example of the SIP trunk integration
### Customer Guide to SIP Trunk Integrations

<table>
<thead>
<tr>
<th>Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIP Trunk(s)</strong></td>
<td>Provides the audio connection to inContact WFO; may also provide call control events in the form of SIP signaling.</td>
</tr>
<tr>
<td><strong>IP PBX</strong></td>
<td>The IP PBX negotiates audio stream network ports and codec between the phone and inContact WFO. Audio is redirected to the inContact WFO Server through the SIP Trunk(s). May also provide call control events in the form of CTI data.</td>
</tr>
</tbody>
</table>
| **inContact WFO Server** | Receives call control events and business data and provides a CTI interface to the inContact WFO recording node. The inContact WFO server has these responsibilities:  
  - Sending call start/call stop messages using the inContact WFO API.  
  - Starting and stopping recordings.  
  - Providing a SIP Trunk endpoint for recording.  
  - Copying the finished recordings to the inContact WFO storage location. |

### Known Limitations

- With Cisco Unified Communications Manager (CUCM), monitoring and recording the calls of secure capable agents are not allowed. This limitation is imposed by the CM. (See "Security Handling in Monitoring and Recording" in the *Cisco Unified CM Features and Services Guide*).

- The CUCM does not allow monitoring or recording of whisper intercom and talkback intercom calls. (See "Intercom" in the *Cisco Unified CM Features and Services Guide*).

- DSP limitations in some phone models require both inbound and outbound audio streams on a phone to utilize the same codec.

- With CUCM, this integration does not support Digest Authentication on the SIP trunk or SRTP/Media Encryption.

### Audio Codec Support

The following codecs are supported by inContact WFO for recording. Depending on the phone model used and DSP resources available, not all codecs may be supported by your PBX/ACD. If you have any difficulties enabling a specific codec, please contact your telephony vendor for assistance.

- G.711
- G.722
- G.729a
- iLBC
Telephony Requirements

SIP trunk integration is dependent on the PBX and network topologies employed in the phone system. Due to the varying configurations and complexities possible, an inContact WFO Sales Engineer must determine whether SIP trunk integration is viable, and if so, how to deploy it properly.

inContact WFO Requirements

Network

Sufficient network bandwidth is required to support audio traffic between each agent phone(s), the SIP trunk(s), and inContact WFO.

Hardware

inContact WFO hardware requirements vary depending on system configurations. Appropriate hardware is identified during the system implementation process.

Software

- inContact WFOv 5.6 or higher.

Additional third-party software is required for this integration:
- CACE WinPcap version 4.1.x, available from inContact WFO or from the WinPcap website

Licensing

- One (1) Voice seat license per named agent or
- One (1) Voice concurrent session license for each simultaneous call that will be recorded.
- One (1) Screen Capture license per workstation being captured if feature is desired.
SIP Trunk Integration in Cisco Environments

The information in this section is provided for your reference only. Detailed steps for Cisco configuration can be found in Cisco’s documentation, which is available on the Cisco website. You should always use the appropriate manuals, guides, or both from Cisco to install and configure Cisco components.

Instructions in these procedures assume that that your Cisco environment uses the default settings. You should note any non-default settings and discuss them with your inContact WFO Installation team.

Most of the instructions in this section are based on CUCM Administrator v9.1. Other versions may have different settings.

inContact WFO supports buddy core failover/resiliency, in which multiple trunks are configured on the CUCM and added to a route Group. A route group can be added to a route list, and the route list would be selected inside the route pattern instead of pointing it directly at a trunk. For detailed information on configuring these specific items, refer to the Cisco Unified Communications Manager Administration Guide.

inContact strongly recommends that administrators performing the configuration tasks for any Cisco integration print the relevant Customer Configuration Overview table(s) and check each customer step as it is completed. You may also wish to print each configuration procedure and check each step in the procedure as you complete it. The majority of inContact WFO deployments which experience initial errors do so because of a Cisco setting being missed.

If you are combining the SIP trunk integration with an additional CTI integration, complete the customer procedures for this integration first. Then complete the tasks in the additional appropriate guide(s).
Customer Configuration Overview for Cisco SIP Trunk Integrations

The following table provides a high-level overview of the customer configuration steps in Cisco SIP trunk integrations. Links are provided for tasks that are covered in this guide.

<table>
<thead>
<tr>
<th>Customer Configuration Steps for Cisco SIP Trunk Integrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Configure a SIP Trunk Security Profile for the Cisco Recording Trunk.</td>
</tr>
<tr>
<td>2. Configure a SIP Profile for the Cisco Recording Trunk.</td>
</tr>
<tr>
<td>3. Create a Cisco SIP Recording Trunk.</td>
</tr>
<tr>
<td>4. Configure Cisco Phones.</td>
</tr>
</tbody>
</table>

Configure a SIP Trunk Security Profile for the Cisco Recording Trunk

inContact recommends creating a separate SIP trunk security profile for the trunk between the Cisco UCM and the inContact WFO server. This profile prevents changes made to other security profiles from interfering with call recording. Since changing security settings requires a restart of any trunks using these settings, creating a separate security profile also minimizes the need to reset existing SIP trunks.
Customer Guide to SIP Trunk Integrations

To configure a SIP trunk security profile:

1. Log in to the Cisco Unified CM Administration portal with an administrative account.
2. From the menu bar, click System, then Security, and then SIP Trunk Security Profile.
3. Click Add New and enter a Name and a Description for this trunk.
4. For Device Security Mode, select Non Secure from the drop-down list.
5. For Incoming Transport Type, select TCP+UDP from the drop-down list.
6. For Outgoing Transport Type, select UDP from the drop-down list.
7. Do not select (or clear if selected) the check box for Enable Digest Authentication.

Leave all other settings at their default values. After you complete this procedure, return to the Customer Configuration Overview for Cisco SIP Trunk Integrations.

Configure a SIP Profile for the Cisco Recording Trunk

inContact recommends creating a separate SIP profile for the recording trunk, which protects it from changes made to SIP profiles for other trunks. All SIP devices using this profile must be restarted before any changes will take effect. This SIP profile should use the default settings shown in the images included in this section. If any settings in your SIP profile do not match, discuss this with your inContact WFO Installation team.

To configure a SIP profile for the recording trunk:

1. Log in to the Cisco Unified CM Administration portal with an administrative account.
2. Select the Device menu, then select Device Settings, and click on SIP Profile.
3. Click Add New and enter a Name and Description for the SIP profile.
4. Verify the settings as shown in the following three images and then click Save.

After you complete this procedure, return to the Customer Configuration Overview for Cisco SIP Trunk Integrations.
### Customer Guide to SIP Trunk Integrations

#### SIP Profile Information

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Schmidt Dev SIP Profile</td>
</tr>
<tr>
<td>Description</td>
<td>Schmidt Dev SIP Profile</td>
</tr>
<tr>
<td>Default MTP Telephony Event Payload Type</td>
<td>101</td>
</tr>
<tr>
<td>Early Offer for G.729 Calls</td>
<td>Disabled</td>
</tr>
<tr>
<td>SDP Session-level Bandwidth Modifier for Early Offer and Re-invites</td>
<td>TIAS and AS</td>
</tr>
<tr>
<td>User-Agent and Server header information</td>
<td>Send Unified CM Version Information as User-Agent</td>
</tr>
<tr>
<td>Accept Audio Codec Preferences in Received Offer</td>
<td>Default</td>
</tr>
<tr>
<td>Dial String Interpretation</td>
<td>Phone number consists of characters 0-9, *, #, and +</td>
</tr>
</tbody>
</table>

- Redirect by Application
- Disable Early Media on 180
- Outgoing T.38 INVITE include audio media
- Enable ANAT
- Require SDP Inactive Exchange for Mid-Call Media Change
- Use Fully Qualified Domain Name in SIP Requests
- Assured Services SIP conformance
### Customer Guide to SIP Trunk Integrations

<table>
<thead>
<tr>
<th>Parameters used in Phone</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timer Invite Expires (seconds)*</td>
<td>100</td>
</tr>
<tr>
<td>Timer Register Delta (seconds)*</td>
<td>5</td>
</tr>
<tr>
<td>Timer Register Expires (seconds)*</td>
<td>3600</td>
</tr>
<tr>
<td>Timer T1 (msec)*</td>
<td>500</td>
</tr>
<tr>
<td>Timer T2 (msec)*</td>
<td>4000</td>
</tr>
<tr>
<td>Retry INVITE*</td>
<td>6</td>
</tr>
<tr>
<td>Retry Non-INVITE*</td>
<td>10</td>
</tr>
<tr>
<td>Start Media Port*</td>
<td>15384</td>
</tr>
<tr>
<td>Stop Media Port*</td>
<td>32766</td>
</tr>
<tr>
<td>Call Pickup URI*</td>
<td>x=cisco-serviceuri-pickup</td>
</tr>
<tr>
<td>Call Pickup Group Other URI*</td>
<td>x=cisco-serviceuri-pickup</td>
</tr>
<tr>
<td>Call Pickup Group URI*</td>
<td>x=cisco-serviceuri-pickup</td>
</tr>
<tr>
<td>Meet Me Service URI*</td>
<td>x=cisco-serviceuri-meetme</td>
</tr>
<tr>
<td>User Info*</td>
<td>None</td>
</tr>
<tr>
<td>DTMF DB Level*</td>
<td>Nominal</td>
</tr>
<tr>
<td>Call Hold Ring Back*</td>
<td>Off</td>
</tr>
<tr>
<td>Anonymous Call Block*</td>
<td>Off</td>
</tr>
<tr>
<td>Caller ID Blocking*</td>
<td>Off</td>
</tr>
<tr>
<td>Do Not Disturb Control*</td>
<td>User</td>
</tr>
<tr>
<td>Telnet Level for 7940 and 7960*</td>
<td>Disabled</td>
</tr>
<tr>
<td>Resource Priority Namespace</td>
<td>&lt; None &gt;</td>
</tr>
<tr>
<td>Timer Keep Alive Expires (seconds)*</td>
<td>120</td>
</tr>
<tr>
<td>Timer Subscribe Expires (seconds)*</td>
<td>120</td>
</tr>
<tr>
<td>Timer Subscribe Delta (seconds)*</td>
<td>5</td>
</tr>
<tr>
<td>Maximum Redirections*</td>
<td>70</td>
</tr>
<tr>
<td>Off Hook To First Digit Timer (millisseconds)*</td>
<td>15000</td>
</tr>
<tr>
<td>Call Forward URI*</td>
<td>x=cisco-serviceuri-.cfwdall</td>
</tr>
<tr>
<td>Speed Dial (Abbreviated Dial) URI*</td>
<td>x=cisco-serviceuri-abbrdial</td>
</tr>
</tbody>
</table>

- Conference Join Enabled
- RFC 2543 Hold
- Semi Attended Transfer
- Enable VAD
- Stutter Message Waiting
- MLPP User Authorization
Create a Cisco SIP Recording Trunk

To create a SIP trunk to the inContact WFO Server:

1. Log in to the **Cisco Unified CM Administration** portal with an administrative account.
2. From the menu bar, select the **Device** menu and click **Trunk**.
3. On the Find and List Trunks page, click the **Add New** button.
4. On the Trunk Information section of the form, configure the settings as shown here:
Customer Guide to SIP Trunk Integrations

5. Click **Next** to continue.

6. Enter a **Device Name**. From the **Device Pool** menu, select **Default**. Unless otherwise specified in the steps below, the default settings on the Trunk Configuration page can be used. Make a note of any differences between the defaults shown below and the settings in your environment.

7. In the Outbound Calls section of the Trunk Configuration page, the following options should be configured:
   - **Calling Line ID Presentation**: Set to **Allowed**.
   - **Calling Line Name Presentation**: Set to **Allowed**.
8. In the SIP Information section of the Trunk Configuration page, the following options should be configured:

- **Destination Address**: should be the IP of the inContact WFO server where the inContact WFO Cisco Active Recording module is installed.
- **Destination Port**: should be set to 5060.
- **SIP Trunk Security Profile**: should be set to the profile configured earlier.
- **SIP Profile**: should be set to the profile set earlier.

![SIP Information Configuration](image)

9. Click **Save**.

10. Reset the SIP trunk.

After you complete this procedure, return to the [Customer Configuration Overview for Cisco SIP Trunk Integrations](#).

### Configure Cisco Phones

If there are Cisco phones to be recorded with this integration, they must support and be configured for automatic call recording. You will typically need to run a query to locate devices you wish to record. Queries can be run against many parameters, such as the Device Name or a particular Directory Number associated with a device.
Customer Guide to SIP Trunk Integrations

To configure phones for recording:
1. Log into Cisco Unified CM Administration with an appropriately-permissioned account.
2. Click Device and select Phone from the drop-down menu.
3. Enter the desired query parameters and click Find.
4. From the resulting list of phones, click the desired entry in the Device Name column.
5. Under Association Information, click the desired Line (extension).
6. Scroll to the section labeled "Line # on Device #."
7. For Recording Option, select Automatic Call Recording Enabled from the drop-down list.

Repeat this procedure for any lines that will be recorded.
Customer Guide to SIP Trunk Integrations

Customer Administration Tasks

During ongoing use of the system, your inContact WFO administrator may need to configure new channels or reconfigure existing channels. This integration requires changes to the Voice Boards page in the inContact WFO Web Portal only when channels are added.

Voice Boards Overview

Voice Boards control how inContact WFO acquires audio. This component provides what inContact WFO is to record. At least one Voice Board is required for most integrations. While Voice Boards can correspond to physical audio capture boards in some integrations, they are not those boards.

inContact WFO uses per-channel licensing, and each Voice Board software component maintains the count of licensed, used and available channels associated with it. The system will not use any Voice Boards or channels for which it is not licensed.

Voice Board Configuration

The SIP trunk integration records conferences established between the agent phone, the SIP trunk, and inContact WFO. The integration supports multiple calls on the same line or multiple lines on the same phone simultaneously. Therefore, it is important not to specify any devices on the inContact WFO Voice Board.

If channels are added to your system, you must increase the channel count on the associated Voice Board. You must restart the Recorder service (cc_cticore.exe) after any Voice Board and/or channel changes.

Any other Voice Board changes should only be done under direct supervision from inContact WFO Support. Done incorrectly, Voice Board modifications can have serious negative impact to your system. In addition, altering the hardware configuration of your system may void your warranty.
# Document Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Change Description</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Initial version for this release</td>
<td>2016-04-08</td>
</tr>
</tbody>
</table>