PureConnect®

2021 R4

Generated:

04-November-2021

Content last updated:

06-November-2020

See Change Log for summary of changes.

GENESYS

CIC Integration with SAP CRM

Installation and Configuration Guide

Abstract

This document describes installation, setup, configuration, and administrative procedures for CIC Integration with SAP CIC Web Client.

For the latest version of this document, see the PureConnect Documentation Library at: http://help.genesys.com/pureconnect.

Table of Contents

Introduction to CIC Integration

The CIC (Customer Interaction Center®) Integration with SAP CRM integrates the functionality of Interaction Desktop and Interaction Connect with the SAP IC Web Client (SAP CRM 7.X) using a combination of APIs, web tools, and remoting. The SAP agent performs all typical phone and web chat operations without leaving the SAP IC Web Client.

The interaction details from CIC display in the toolbar within the SAP IC Web Client. When the agent clicks a function button in the toolbar, SOAP messages pass commands pass to CIC.
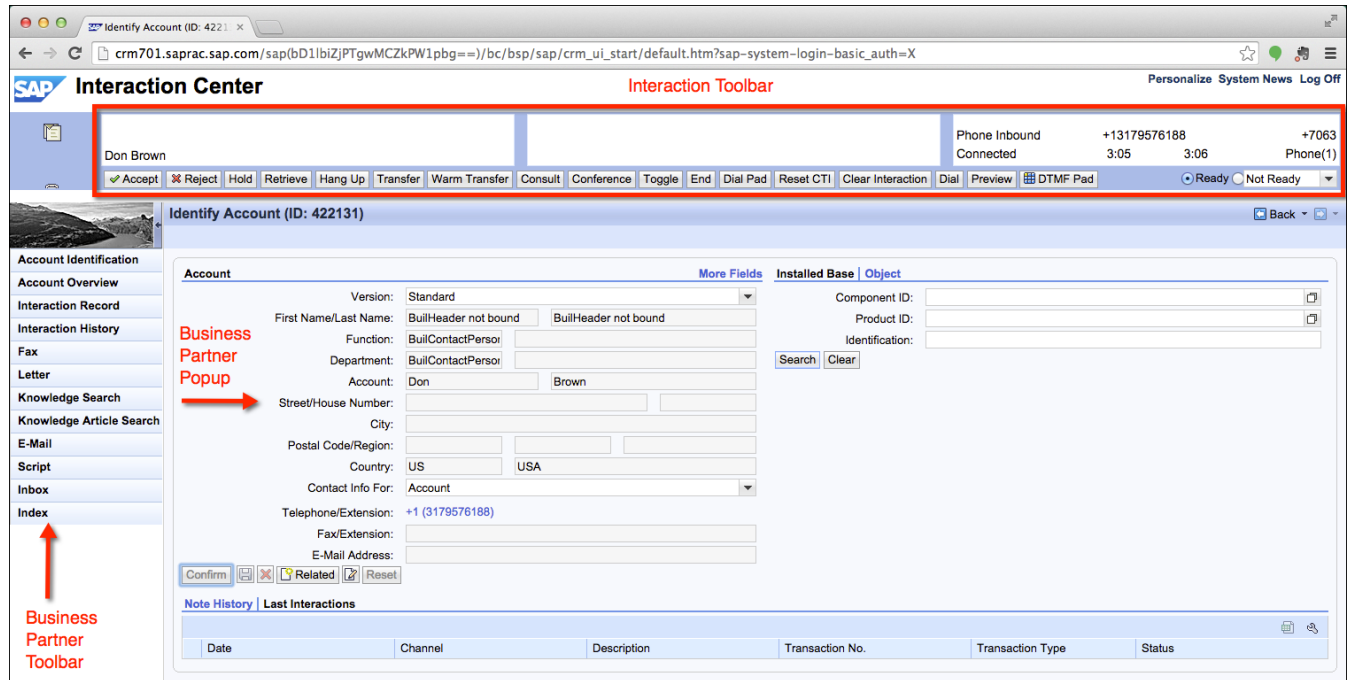
> **Note:**
> See the FAQ section on Genesys' product website for more details.

Multimedia interactions

The integration allows the agent to handle multimedia interactions. Current types include call, callback, web chat, and SAP action items.

Agent status

The CIC agent status is displayed in the SAP IC Web Client.
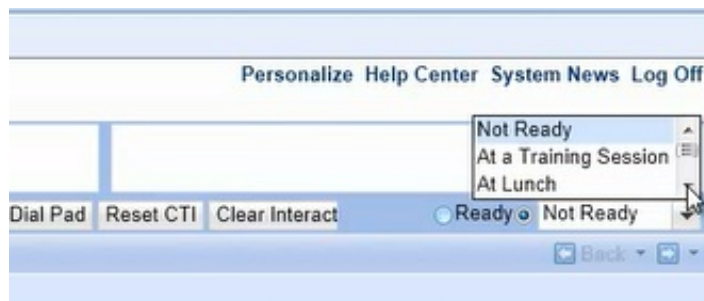
Embedded call controls

The toolbar in the SAP IC Web Client acts as a remote control for CIC call functions. Notice the caller information and call details along with call control buttons.

Click-to-dial and CIC call controls are available inside the SAP IC Web Client.

Phone number formatting

Phone numbers must be in E.164 format for SAP to process them. The integration reformats phone numbers before passing them to SAP.

The integration:

- Removes `sip:`, `@`, and everything after the `@` symbol from phone numbers. (For example, `sip:1234@example.com` becomes `1234`.)
- Removes `/` from extensions. (For example, `/1234` becomes `1234`.)
- Changes strings that begin with a letter to the number 0. (For example, `aaa111` and `PrivateNumber` become 0.)
- Adds `+` to the beginning of all numbers. (For example, `1234` becomes `+1234`.)

Original format	Final format
sip:555@example.com	+555
sip:bob@example.com	+0
/1234	+1234
1234	+1234
+1234	+1234
PrivateNumber	+0

Screen pop

The integration passes information from the IVR on the CIC server to SAP in the form of item attached data. Item attached data is an SAP-defined XML structure that sends information to customized application functions within SAP that are dependent upon your business processes. Records in SAP pop in a browser window based on the data pulled from the IVR.

Following are examples of screen pops.

Screen pop on inbound call based on ANI

Screen pop for callback interaction based on callback number
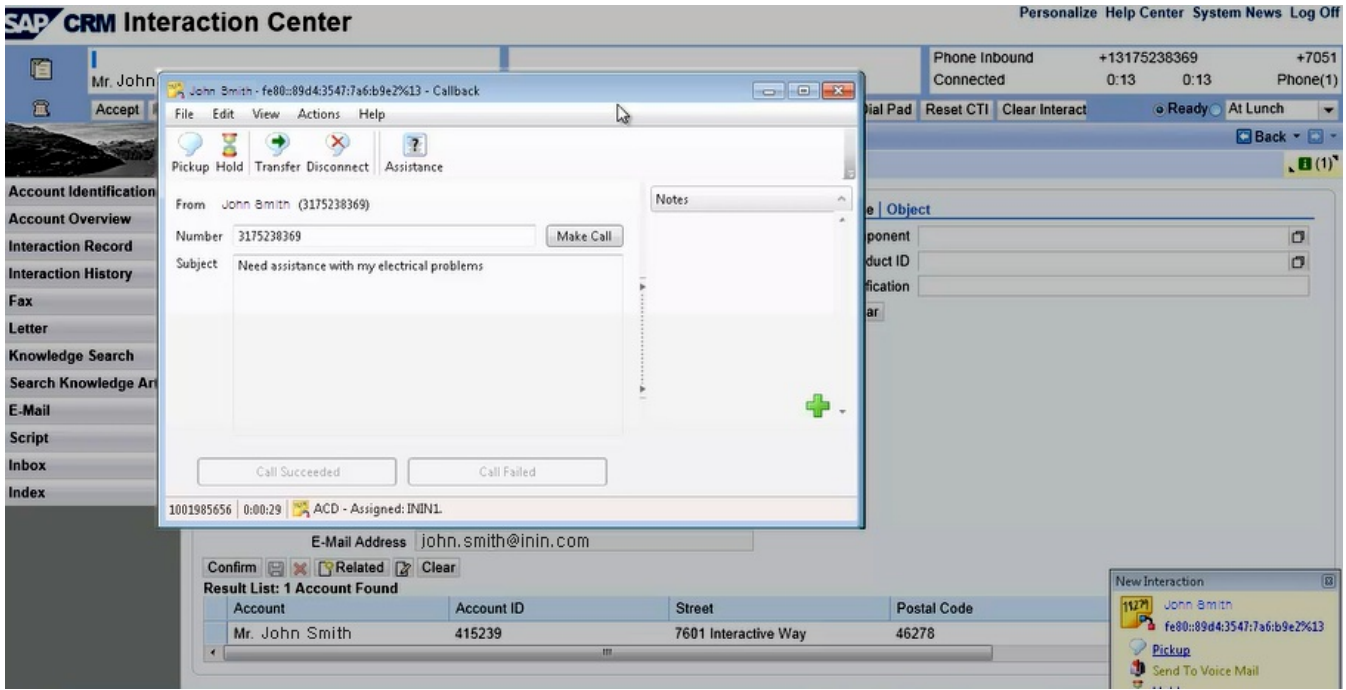
Screen pop with embedded chat functionality for chat interaction
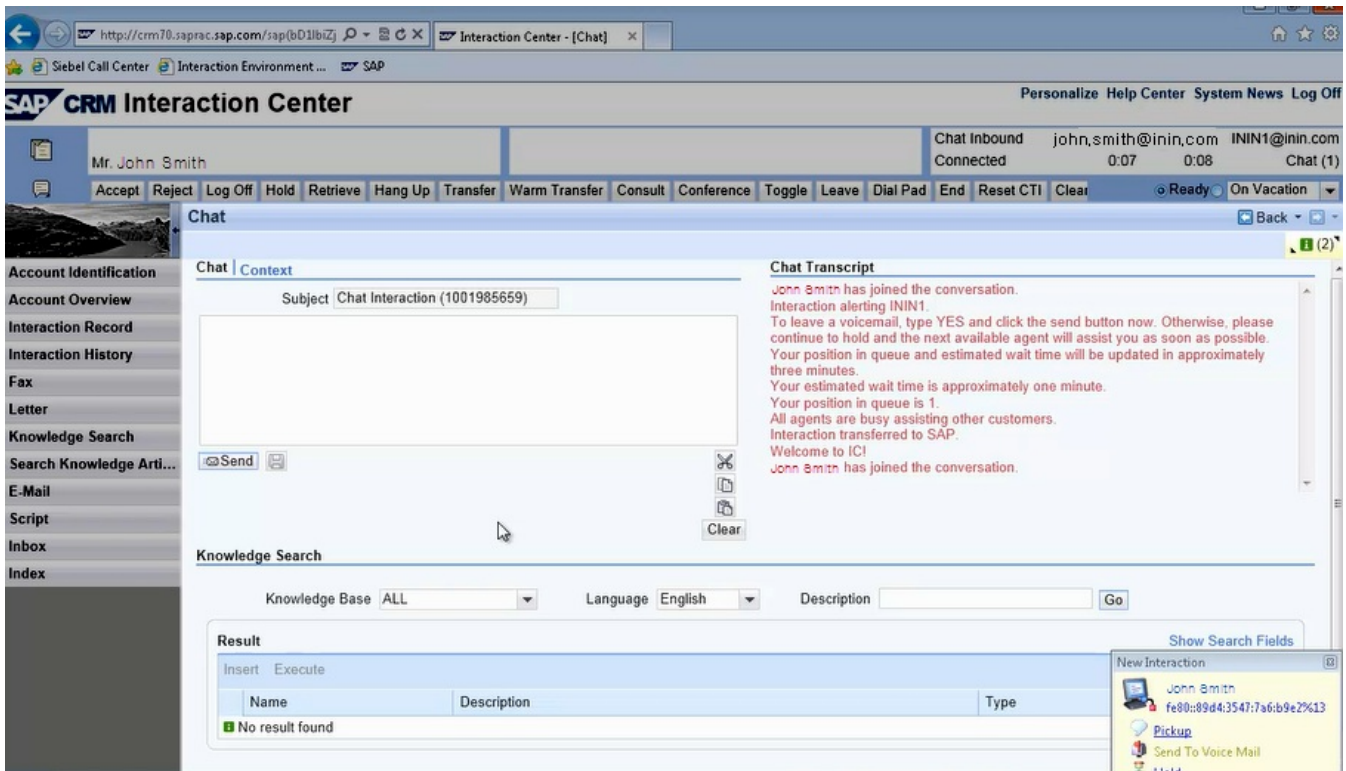
Screen pop for action item based on email address
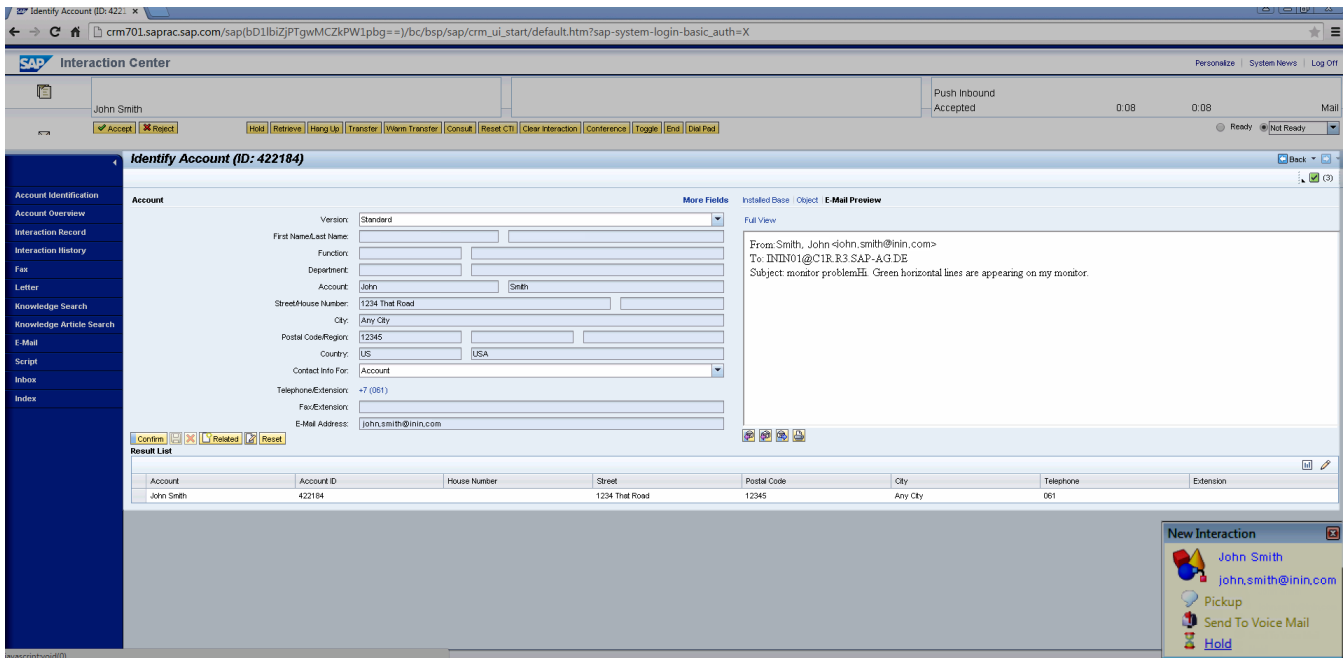
Following are examples of screen pops for different call scenarios.

No available ANI

If the call has no ANI, any known call details display on the right side of the CTI control bar as the call is alerting. If the integration configuration retrieves the ANI from a defined interaction attribute, calls with no ANI can suppress screen pops.
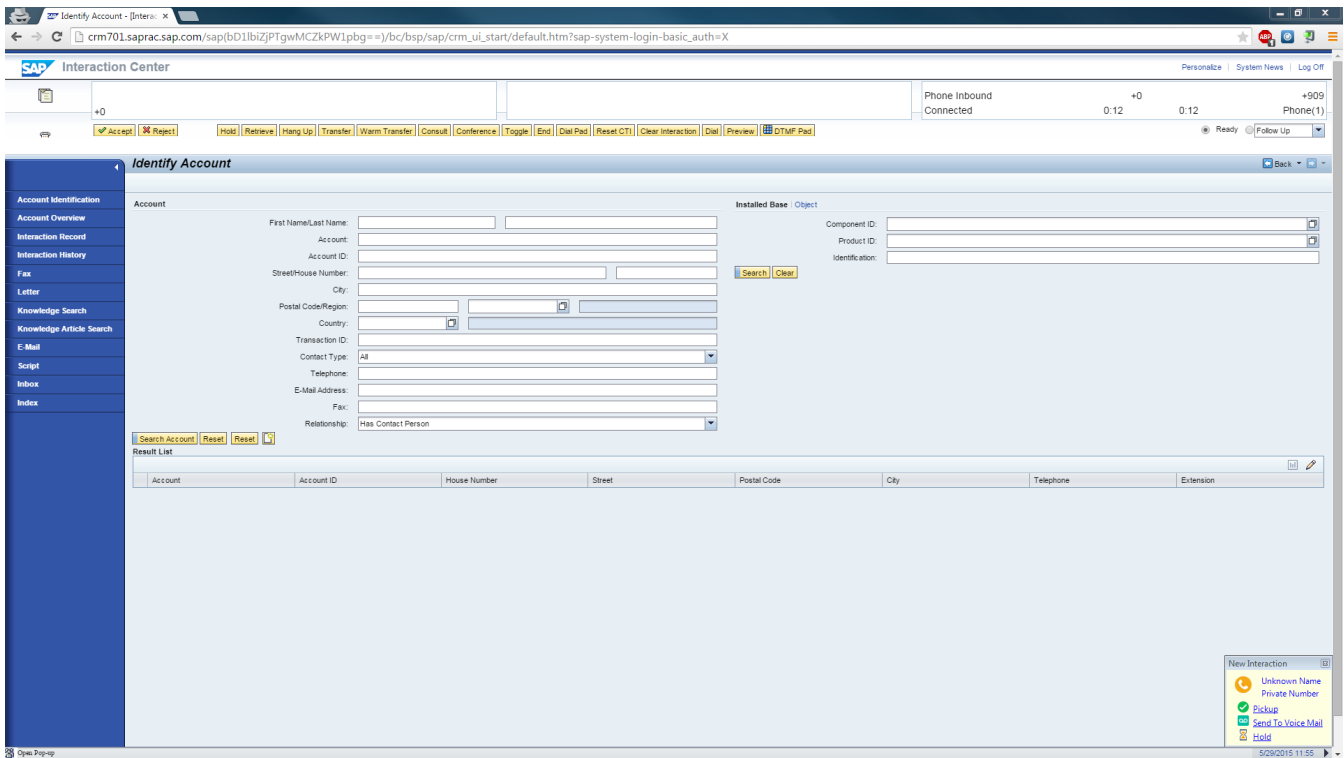
No match on ANI

If the ANI does not match any data, the number displays on the left side of the CTI control bar as the call is alerting.
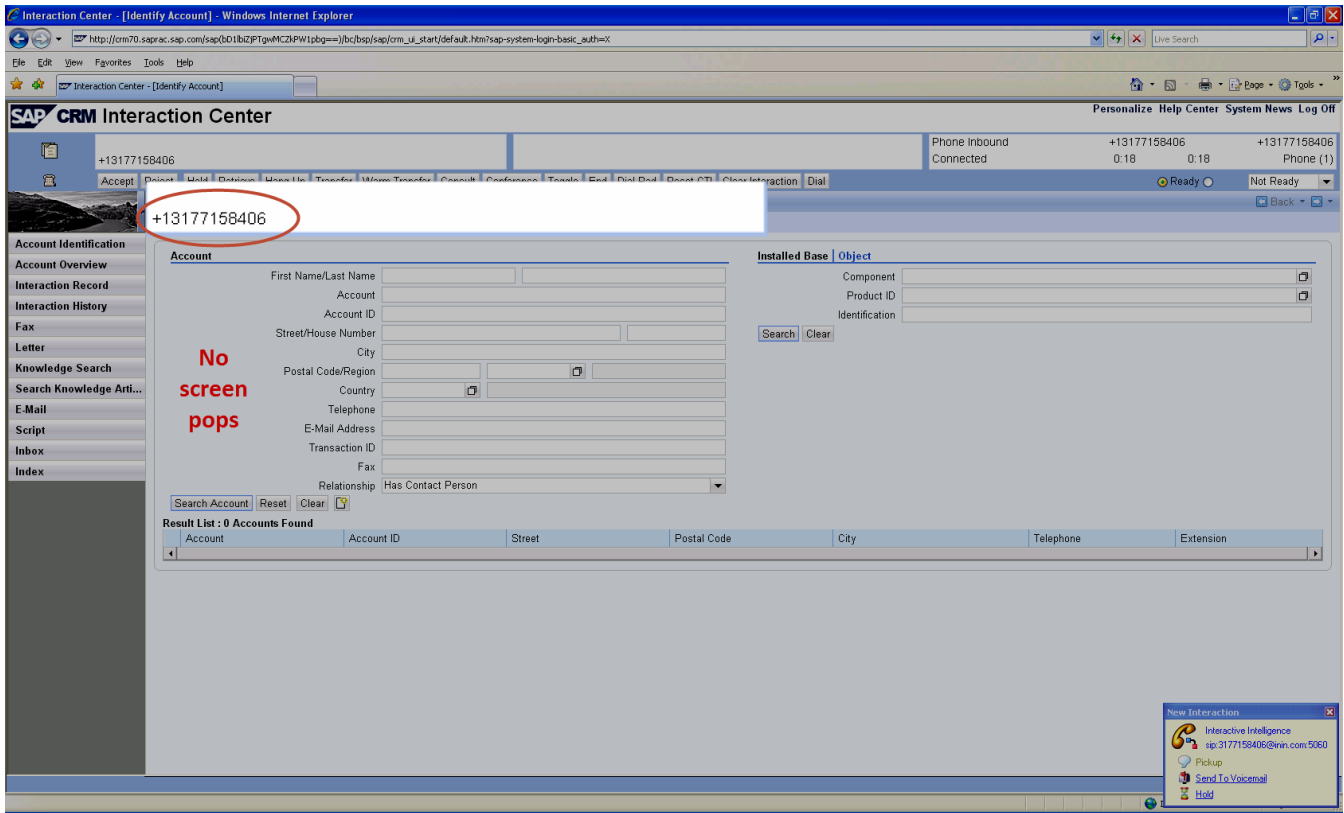
Matching ANI to one account

If the ANI matches exactly one SAP business partner, the CTI control bar displays the name on the account on the left side as the call is alerting.
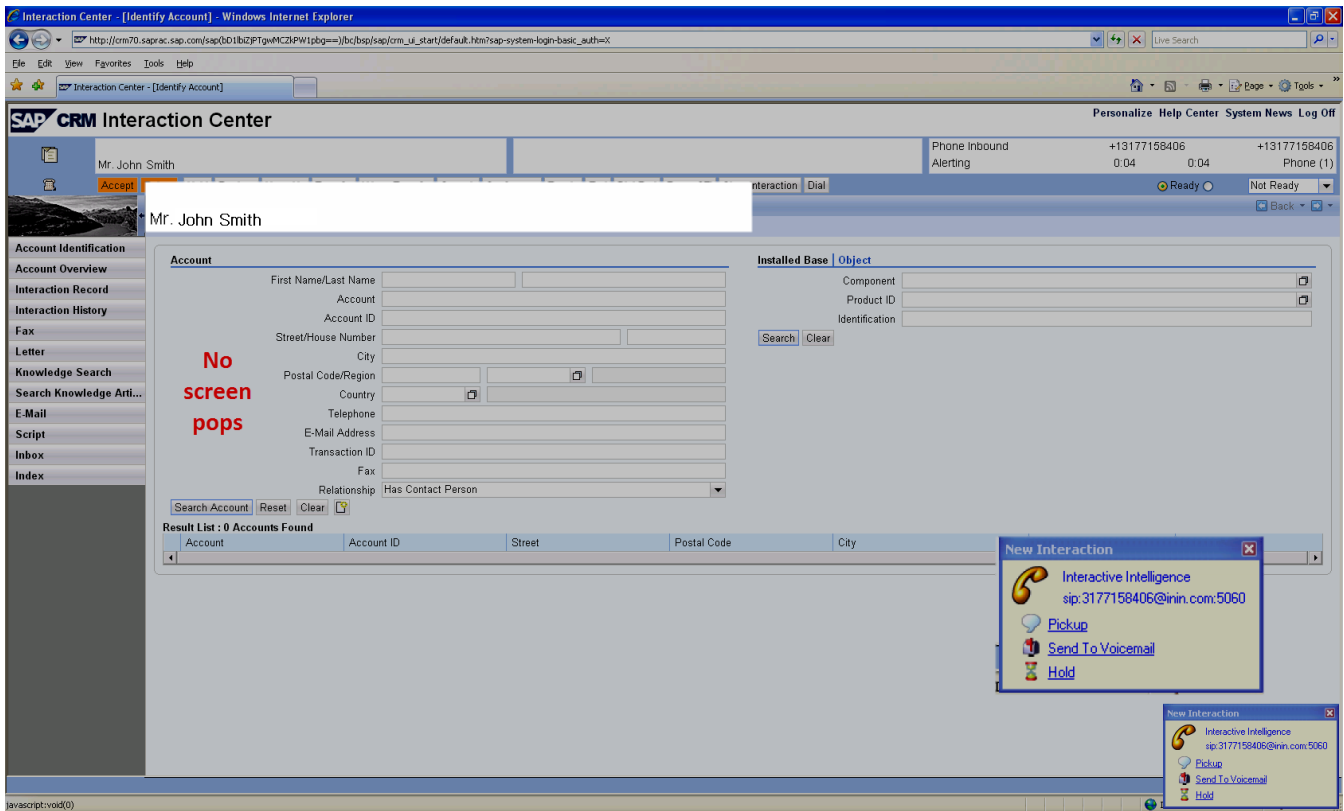
Once the agent accepts the interaction, SAP pops the account information to the agent.
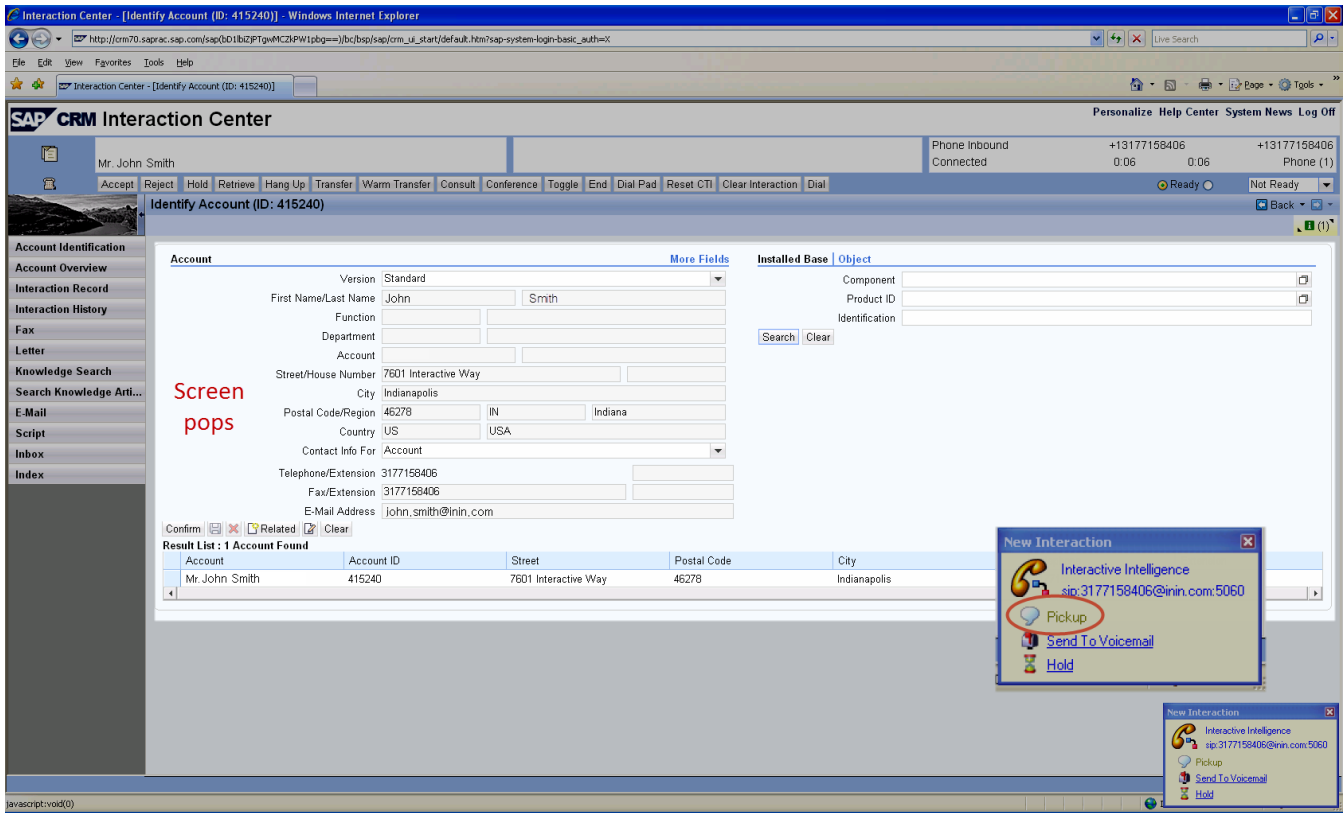
Matching ANI to more than one account

If the ANI matches more than one business partner, the ANI displays on the left side of the CTI control bar. More information about the call displays when the agent accepts the call.
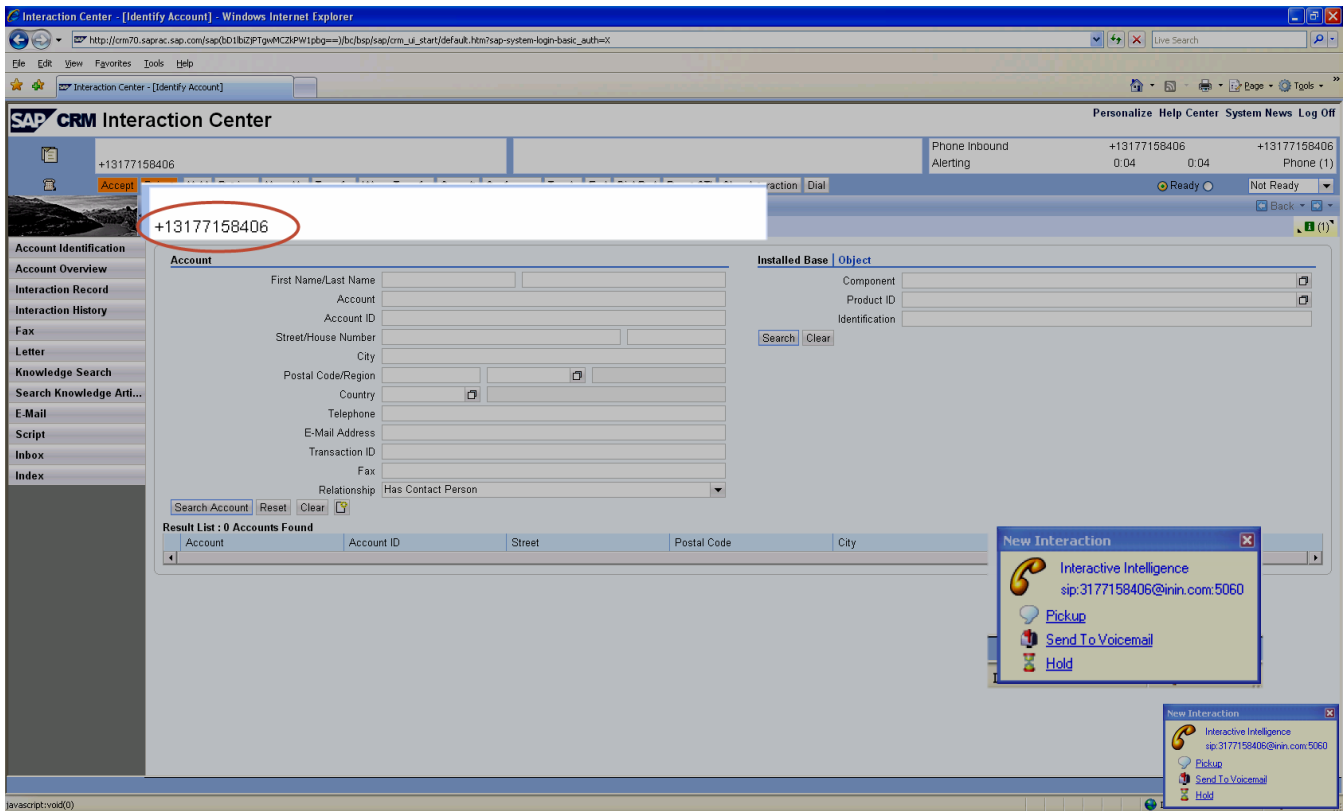
Once the agent accepts the interaction, SAP displays a list of accounts that match the ANI. The agent selects the appropriate account.
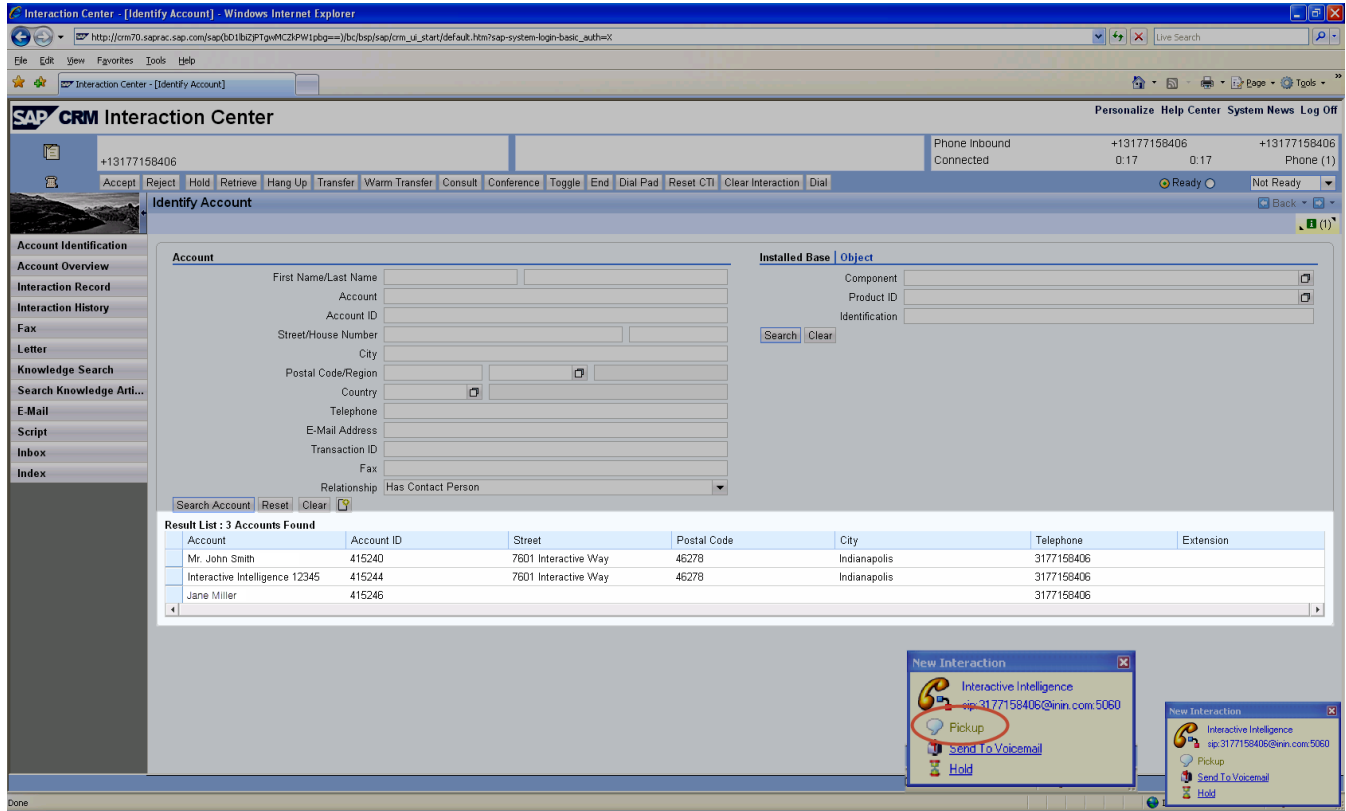
Matching ANI to a single contact within an organization

If the ANI matches a single assigned contact within an organization account, the matching contact and organization account display on the left side of the CTI control bar as the call is alerting. Once the agent accepts the interaction, SAP pops the contact information.
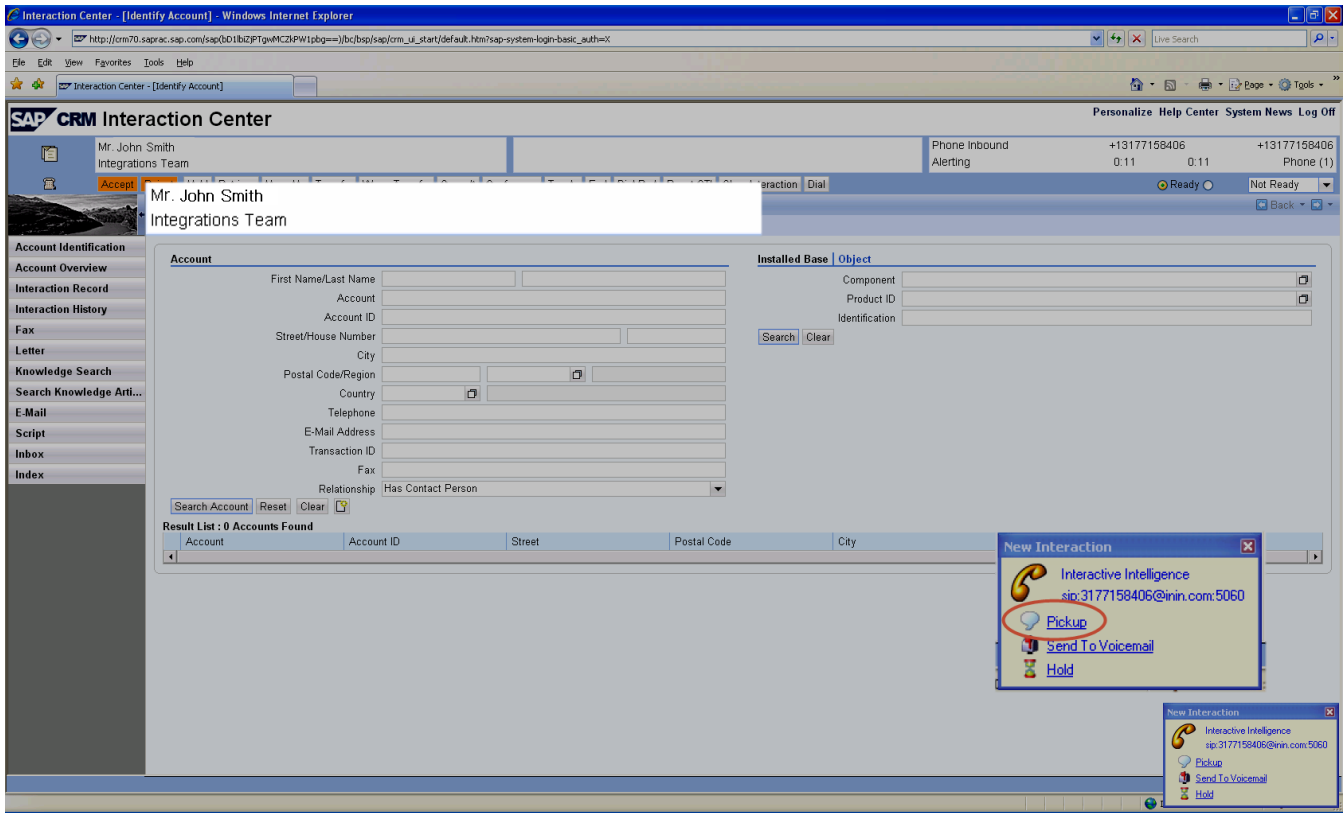
Matching ANI to an organization account

If the ANI matches the phone number of a single organization account, the name of the organization displays on the left side of the CTI control bar as the call is alerting.
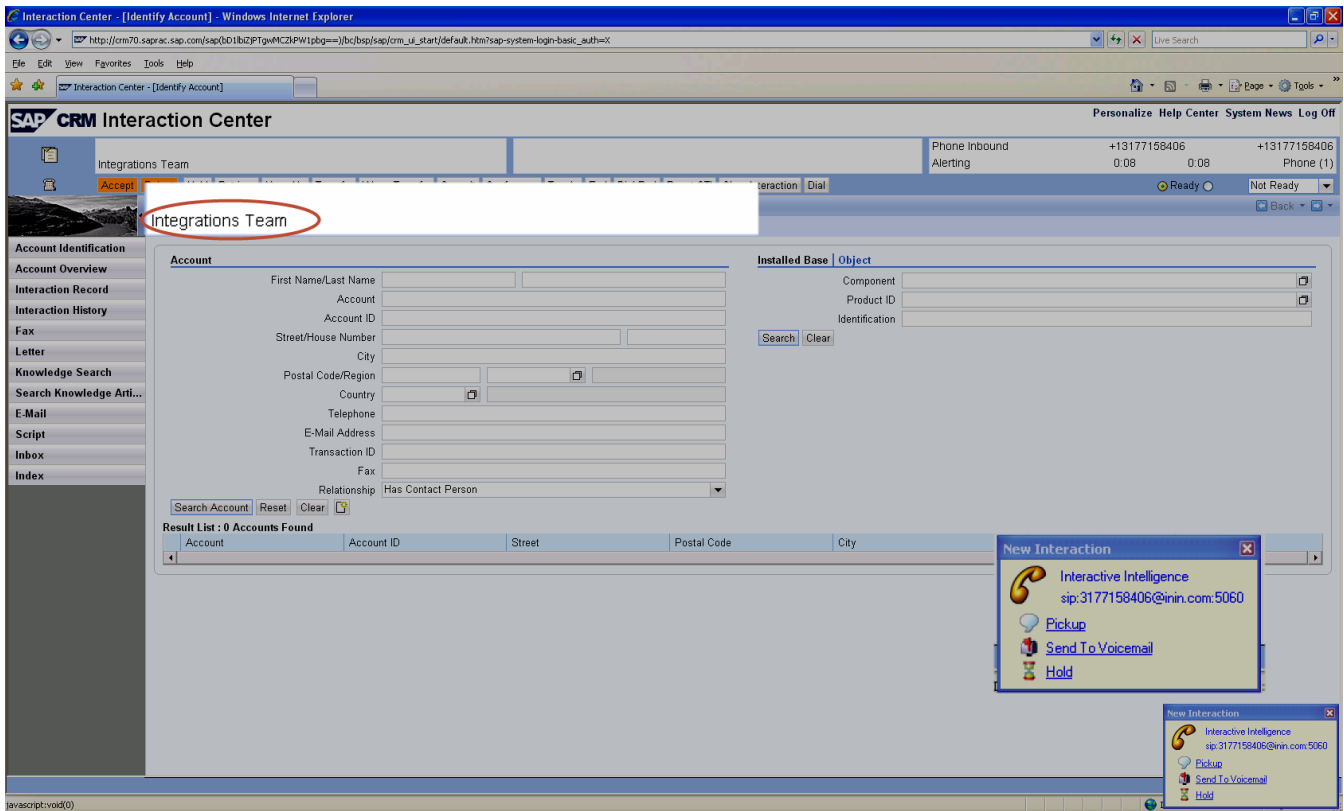
Once the agent accepts the interaction, SAP pops the organization account information along with a list of contacts in that organization.

Limitations

Number of interactions

SAP handles a maximum of six interactions per agent at one time. If an additional interaction is routed to the agent, the interaction is not visible in SAP but remains in CIC.

> **Note:** Because of SAP's limit, to prevent the following scenarios, do not configure a user in CIC to handle more than six interactions.

After the agent closes one of the six interactions, the additional interaction pops in SAP. However, if interactions in CIC are configured to time out, any interaction in CIC after the set time limit is reached is routed to the workgroup queue and ultimately to another agent.

The agent can pick up the additional interaction in The CIC client. However, if the agent does not complete the interaction, once the agent closes one of the original six interactions in SAP, the additional interaction that initially opened in The CIC client pops in SAP.

Channels and queues in the Agent Dashboard

The SAP CRM 7 Agent Dashboard allows agents to select channels (calls, email, chat) and queues. However, the CIC Integration with SAP CRM does not recognize the channels and queues selected in the Agent Dashboard.

Instead, select channels in Interaction Administrator. The following is one possible way.
1. In Interaction Administrator, click **People** > **Users**.
2. Double-click an individual user.
3. On the ACD tab, click **Utilization**.
4. Click **Add** to select an interaction type.

The user is now able to receive interactions for these channels.

Select queues in Interaction Administrator. The following is one possible way.
1. In Interaction Administrator, click **People** > **Users**.

2. Double-click an individual user.
3. On the Workgroups tab, select workgroups to add to the right. The user is now part of these workgroups. A Workgroup Activation icon appears on the right below the call controls.

> **Note:** Depending on the agent's rights, the agent can select or clear workgroups by clicking the Workgroup Activation icon on the right below the call controls. For more information, see Interaction Administrator Help, or Interaction Desktop Help.

Wrap-ups

Wrap-ups in SAP are either requested or automatic. With requested wrap-ups, agents become immediately available for another interaction without needing to do any wrap-up work. With automatic wrap-ups, agents must do wrap-up work on an interaction before becoming available for another interaction.

In the integration, CIC controls the wrap-up functionality, and as a result, uses automatic wrap-ups; automatic wrap-ups force agents to do wrap-up work before moving to a new interaction.

CIC Integration with SAP Architecture and Installation Requirements

The architecture of the CIC Integration with SAP makes deployment simple because it runs in one location at the server level instead of on each client workstation. The benefits of this approach include having only a single installation location and the ease of applying maintenance releases.

The integration server sits between SAP and CIC. The integration is a Windows service that starts when the integration server starts. Multiple Windows services can communicate to multiple CIC servers and multiple SAP servers at the same time. On smaller implementations with fewer than 25 agents, the integration is typically installed directly on the SAP servers—only if the SAP servers are on Windows-based platforms.

The SAP server sets the connection to the integration server using an RFC connection defined inside SAP. The integration is in listen-only mode, waiting for the first SOAP request from SAP. You do not configure SAP server connection details anywhere within the integration itself.
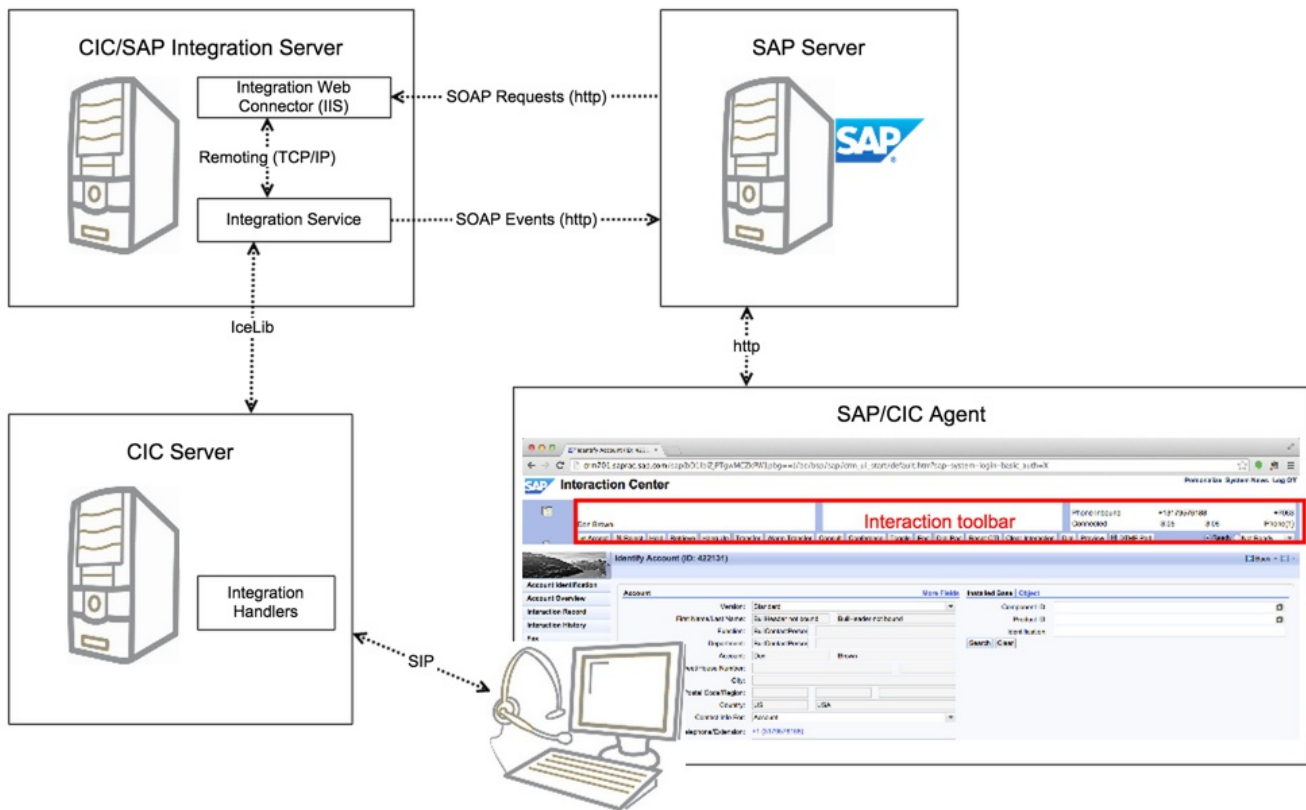
For more information, see the following:
- CIC Integration with SAP Key Terms
- CIC Integration with SAP System Requirements
- SAP Documentation
- CIC Integration with SAP Installation and Configuration Overview

CIC Integration with SAP Key Terms

Term	Description
Action item	SAP term that refers to an item, such as an email message or a workflow, that can be routed to agents. The integration only supports routing ERMS email action items.
Channel	SAP term that is the equivalent of an interaction type in CIC. Refers to calls, callbacks, web chats, and action items.
CIC client	Installed on or accessed by a web browser on agent's workstation. **Note:** CIC supports several interaction management client applications. The SAP integration only works with Interaction Desktop. This documentation uses the term "CIC client" to refer to Interaction Desktop.
CIC Integration with SAP CRM	Name of the integration.
CIC/SAP Integration Server	Integration server that sits between CIC and SAP.
Interaction type	CIC term that is the equivalent of a channel in SAP. Refers to calls, callbacks, chats, and emails.
Push item	SAP term that appears in the Interaction Toolbar when an action item is routed through SAP.
SAP GUI	Client configuration utility on SAP server that defines the remote function call (RFC) to the integration server.
SAP IC Web Client	CRM client used by agents. Installed on SAP server.
SAP Integration Handlers	Custom handlers required for integration. Installed on CIC server. SAPICIHandlers_SU1.msi
SAP Integration Service	Integration service remoting endpoint. Includes configuration utility for integration. Installed on integration server. SAPICIIntegration_SU1.msi
SAP Integration Web Connector	Integration SOAP endpoint. Installed on integration server. SAPICIWebConnectorV1_SU1.msi

CIC Integration with SAP System Requirements

Following are the system requirements for the integration.

CIC/SAP integration server

The integration server must meet the following requirements:

- 1-Gigahertz processor minimum
- 1-Gigabyte RAM minimum
- 6 Gigabytes of free hard disk space (for logging)
- Windows Server 2012 R2 (64-bit), 2016 (64-bit) or 2019 (64-bit)
- .NET Framework version 4.0 or higher
- IceLib API (included with the integration license)
- Trace Config Utility
- SAP Integration Service
- SAP Integration Web Connector

CIC server

- Basic CIC server requirements (see the *PureConnect Installation and Configuration Guide* located in the [PureConnect Documentation Library](#))
- CIC 2016 R2 or later
- Handlers (**SAPICIHandlers_SU1.msi**)

> **Note:** In a switchover pair, run SAPICIHandlers_SU1.msi on both servers.

SAP server

- Basic SAP server requirements (see SAP documentation)
- SAP IC Web Client 3.07
- CRM 7.0 EHP 1

> **Note:** See SAP [product matrix](#) for up-to-date information on product compatibility.

SAP Documentation

Detailed documentation on the integration from the SAP side is available from various SAP support websites. You need an SAP customer name and password to access some of this documentation.

> **Note:** Exact navigation paths, product names, and hyperlinks are subject to frequent change on the SAP website. This information is *only* a guide to help you find the correct documentation.

1. To access SAP CRM integration documentation:
   a. Open the SAP Service Marketplace website, currently at https://websmp105.sap-ag.de/home.
   b. Navigate to **Products** > **Installation & Upgrade Guides** > **SAP Solution Extensions** > **SAP Contact Center** > **SAP Contact Center 7.0** > **SAP Contact Center 7.0 Integration Interface Specifications** > [SAP CRM SAP Contact Center Integration Configuration](#).
   c. Type your SAP customer **User Name** and **Password.**

   The *SAP Contact Center & SAP CRM Configuration Guide for Integration Scenarios* **downloads to your computer.**
2. To access SAP Web service documentation:
   a. Open the SAP Community Network website, currently at http://scn.sap.com.
   b. Search for Integrated Communication Interface, or just follow the link to the current doc: http://scn.sap.com/docs/DOC-14006. The *SAP Integrated Communication Interface Specification* page opens.
   c. Download the document to your computer.

CIC Integration with SAP Installation and Configuration Overview

For PureConnect and SAP integration instructions, see the following:
- PureConnect integration steps
- SAP integration steps

Download

The CIC Integration with SAPI CRM requires CIC 4.0 SU 3 to SU 6, or CIC 2016 R2 or later.

Download the CIC Integration with SAP CRM installation package.

Filename	Date Posted
SAPICI_40.zip	15-Aug-2013

The SAPICI_40.zip file contains the following install files:
- SAPICIIntegration.msi
- SAPICIHandlers.msi
- SAPICIWebConnectorV1.msi

Service Updates

The latest CIC Integration with SAP CRM Service Update is 4.0 SU 1. It requires CIC 2016 R2 or later.

Filename	Date Posted
SAPICI_40_SU1.zip	10-Jun-2015

Service Update Documentation

CIC Integration with SAP CRM 4.0 Service Update 4.0 SU 1 was released 10-Jun-2015. Review the following documents to learn about this service update.
- ReadMe - Files changed and handlers published in this service update, special notices, and pre- and post-SU instructions.
- Summary - A list of changes in this service update grouped by component and SCR number.
- New Features - A list of new features in this service update grouped by component and SCR number.

PureConnect integration steps

Follow these installation and configuration steps on the integration server and in CIC.

1. Install the SAP Integration Service on the integration server.

2. Install the SAP Integration Web Connector on the integration server.
3. Test the SAP Integration Web Connector in IIS.
4. Install SAP Handlers on the CIC server.
5. Configure the SAP Integration Service.
6. Create a super user in Interaction Administrator.

     Perform all other standard configuration in CIC.
   - When setting up agents in SAP and CIC, make sure the user names match. Also, each CIC user must have a phone extension. And finally, **do not exclude** the CIC user from the Company Directory listing.

     > **Note**: The user name match between the SAP and CIC systems is **case-sensitive**.

- After creating agents in CIC, set the initial status for each agent in The CIC client. This enables the buttons in the interaction toolbar.

7. To send item attached data to SAP, configure the IVR (only needed for customizations to screen pop or media bar).

SAP integration steps

Follow these installation and configuration steps in SAP.

> **Note:** A certified SAP systems integrator must perform these steps. The steps shown here are only as a high-level example. See SAPs CRM integration documentation for more details.

1. Enable the following CRM services:

- Polling
- Web Services

2. Repeat the following base configuration in the SAP GUI for every system using the integration (non-transportable changes):
    - Define a remote function call (RFC) connection and assign it to the integration server.
    - Enable warm transfer screen pop using out-of-box contact attached data (CAD).
    - Finish all other standard configuration.
3. Complete the following global system configuration (transportable changes):
    - Configure business roles.
    - Configure changes to CAD for custom screen pop.
    - Configure the call toolbar.
    - Complete any other custom development.

> **Note:** The toolbar is only configurable within SAP—not for CIC-specific features or functionality beyond what the integration already provides.

4. Configure SAP to consume item attached data (only needed for customizations to screen pop or media bar).

Integration Server Installation

Install the SAP Integration Service

Install the SAP Integration Service on the integration server using the configuration utility wizard. This section walks you through each step.

1. Run **SAPICIIntegration_SU1.msi**.

   The **installation wizard** opens.

2. Click **Next**.

   The Custom Setup step appears. Custom Setup sets the default location to **C:\Program Files\Interactive Intelligence\SAP\IC Integration with ICI**. If other CIC components are already installed on the current machine, the installation program automatically adjusts to the existing installation drive and location.
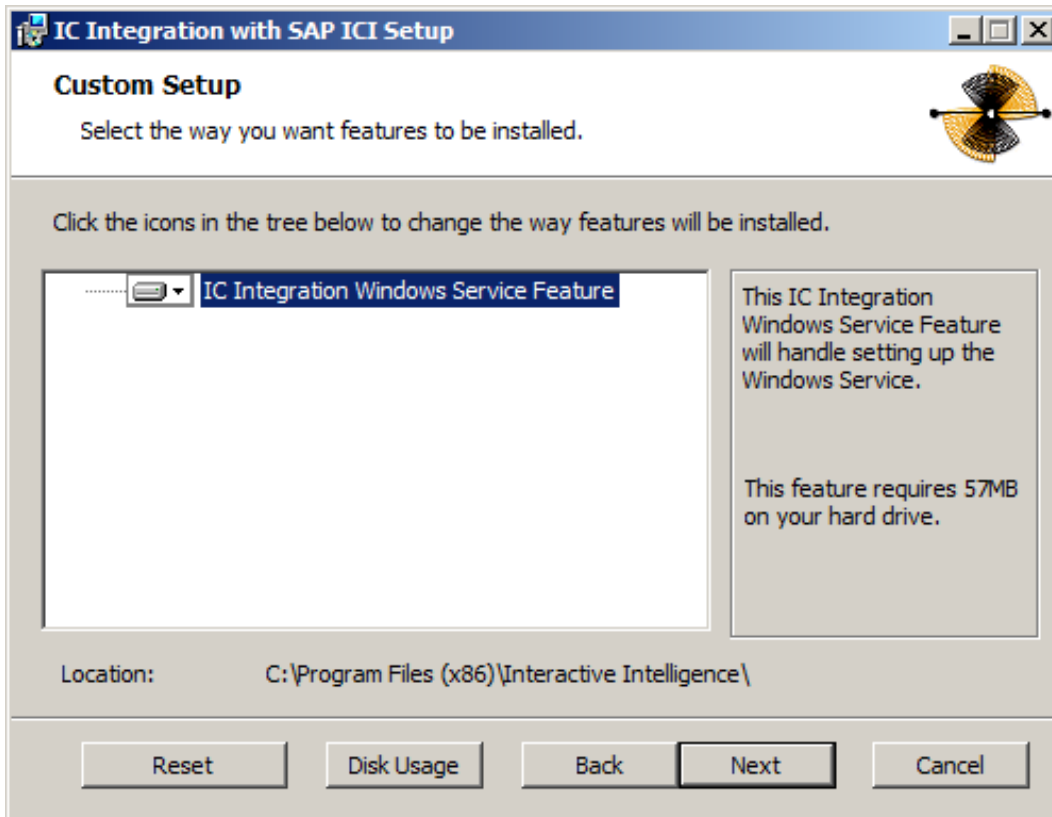
> **Note:** Do *not* change the default location in the Custom Setup dialog. This location ensures the application starts on a 32-bit process.

3. Click **Next**.

   The IC Server Name step appears.
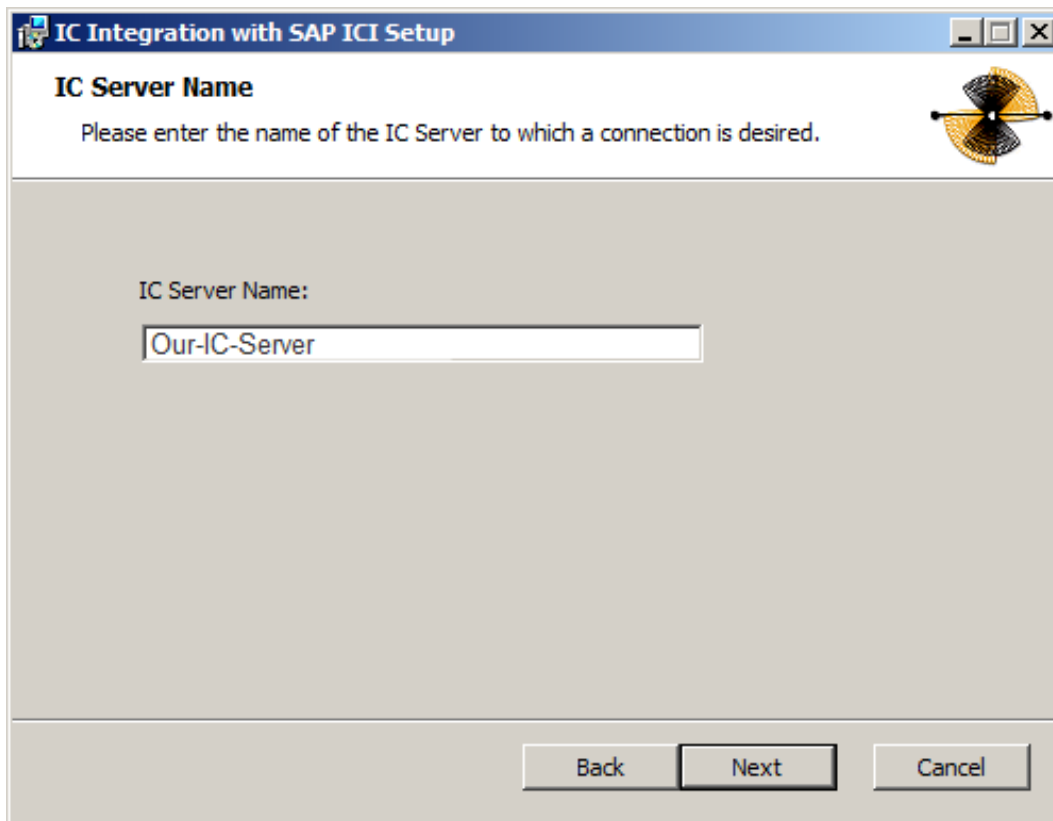
4. Type the **CIC Server Name** for the integration and click **Next**.
5. The **Ready to install SAP Integration Service** dialog appears.
6. Click **Install**.

   The **installer** displays a status bar and messages as the installation progresses. When finished, the **Completed the SAP Integration Service Setup Wizard** dialog appears.
7. Click **Finish**.
8. If prompted, restart the server to complete the installation process.

Install SAP Integration Web Connector

Install the SAP Integration Web Connector on the integration server before registering the virtual folder in IIS on the server. Installing the connector is a simple and quick process.

> **Note:** If installing the Web connector on a different server, open communications and define the port number between the Web connector and the integration service.

1. Run the **SAPICIWebConnectorV1_SU1.msi**.

   The installation wizard opens.
2. Click **Next**.

   The Custom Setup step appears.
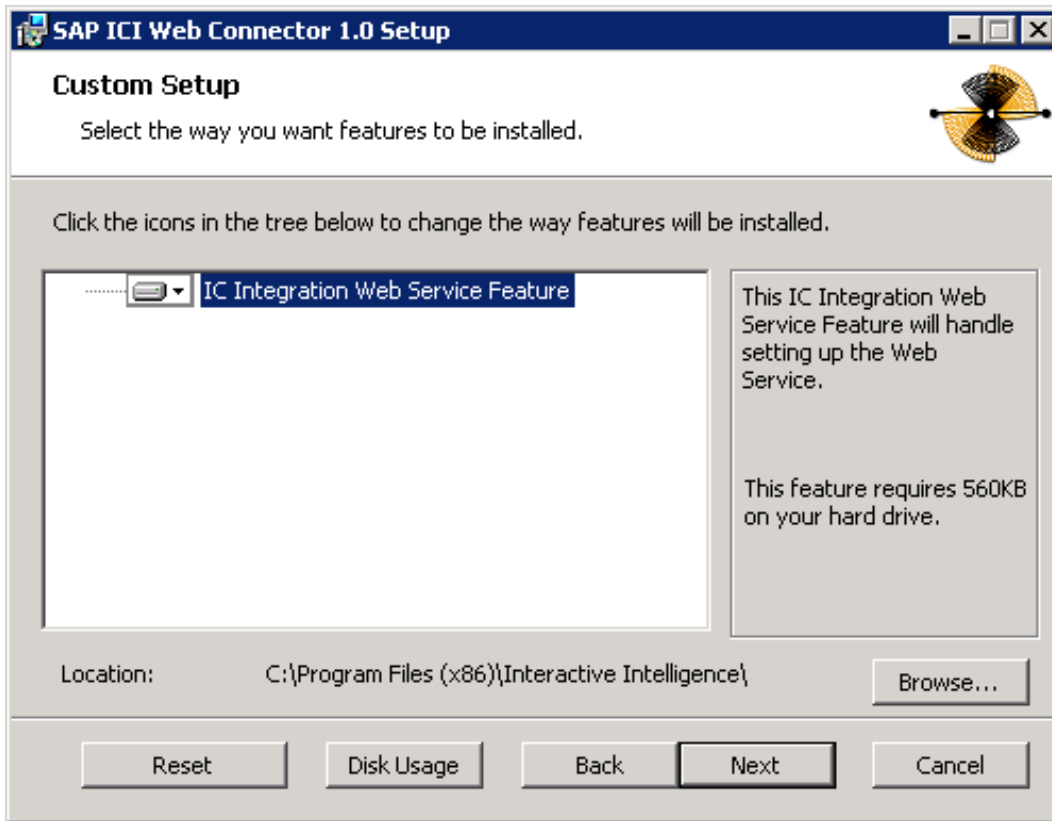
> **Note:** If no other CIC components are on the current machine, the default location is C:\Program Files\Interactive Intelligence\SAP\ICI Web Connector 1.0. Otherwise, the installer automatically adjusts to the installation drive and location of existing CIC programs.

3. Click **Next**.

The Configure Application Settings dialog appears.
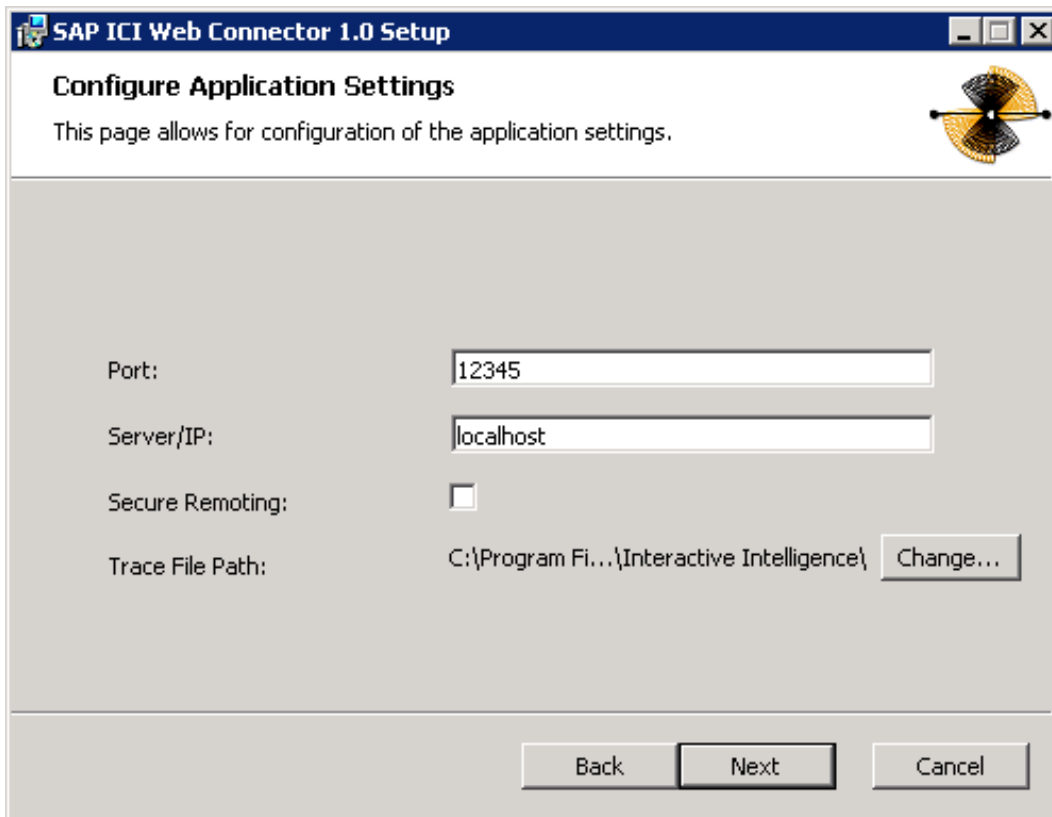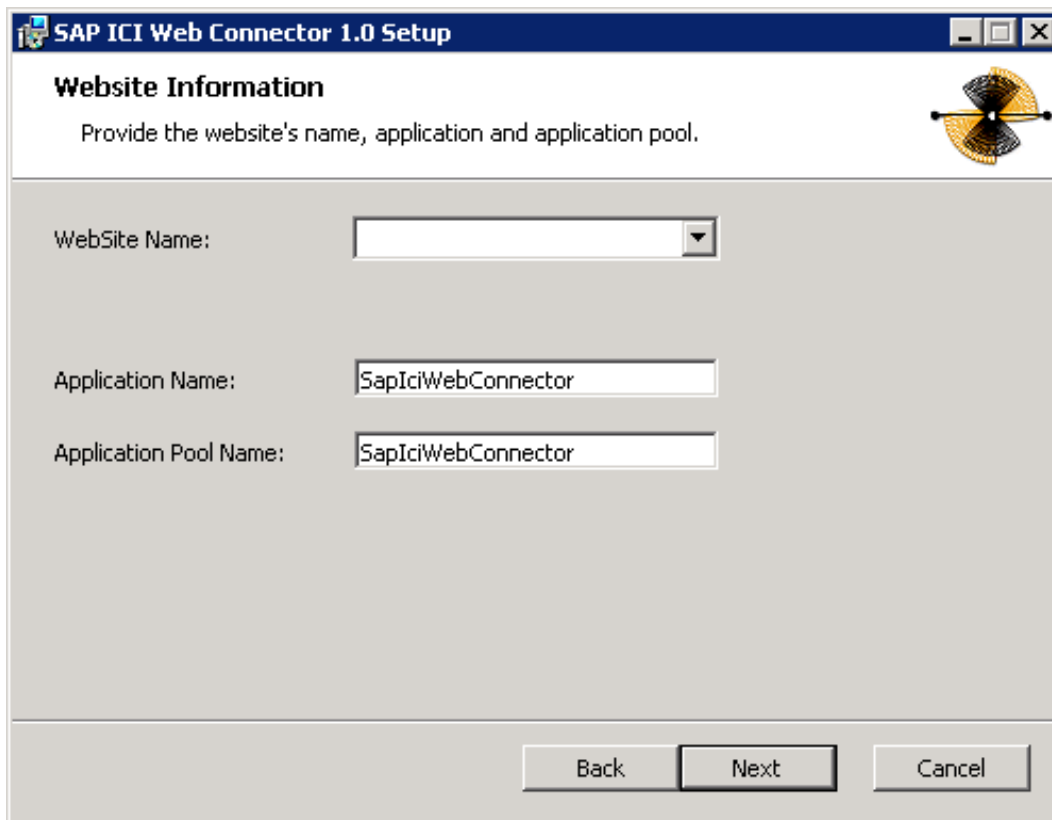
4. Configure the application settings:
   - Type the **Port** number the web connector uses to communicate with the integration service. This value matches the port value defined in the integration configuration utility under IC Settings.
   - Type the **Server/IP** name/address of the integration service server.
   - Clear the **Secure Remoting** check box. This function defines the communication style of remoting to the web service must currently be deactivated.
   - For the **Trace File Path**, click **Change…** to navigate to the file directory path to which the web service writes logs for debugging. The anonymous web user must have create, write, and read permissions for this folder. To turn logging off, leave this path blank.

> **Note**: Because of potential impact on disk space and performance, only use logging during testing or troubleshooting to verify communication between the integration and SAP. Turn logging off when the integration is live. See Troubleshoot log files for instructions on manually turning on logging or off after installation.

5. Click **Next**.

   The Website Information dialog appears.

   - In the **WebSite Name** list box, type or select the name of the website the connector uses.
   - Leave the default values in the **Application Name** and **Application Pool Name** text boxes.
   - Click **Next**.
6. Click **Next**.

   The Ready to install SAP Integration Web Connector step appears.
7. Click **Install** to proceed with the installation.

   The installer displays a status bar and messages as the installation progresses. When finished, the Completed dialog appears.
8. Click **Finish**.

Test the SAP Integration Web Connector

Once you install the web connector, test the service inside IIS. Also, since the supported versions of Microsoft Windows Server are 64-bit operating systems, manually configure IIS to support the 32-bit Web service. For more information about the installation, see Install SAP Integration Web Connector.

1. Open IIS Manager.
2. In the Advanced Settings for the default application pool, set **Enable 32-bit Applications** to **True**.
3. Under the default website, navigate to the **SapIciWebConnector** folder.
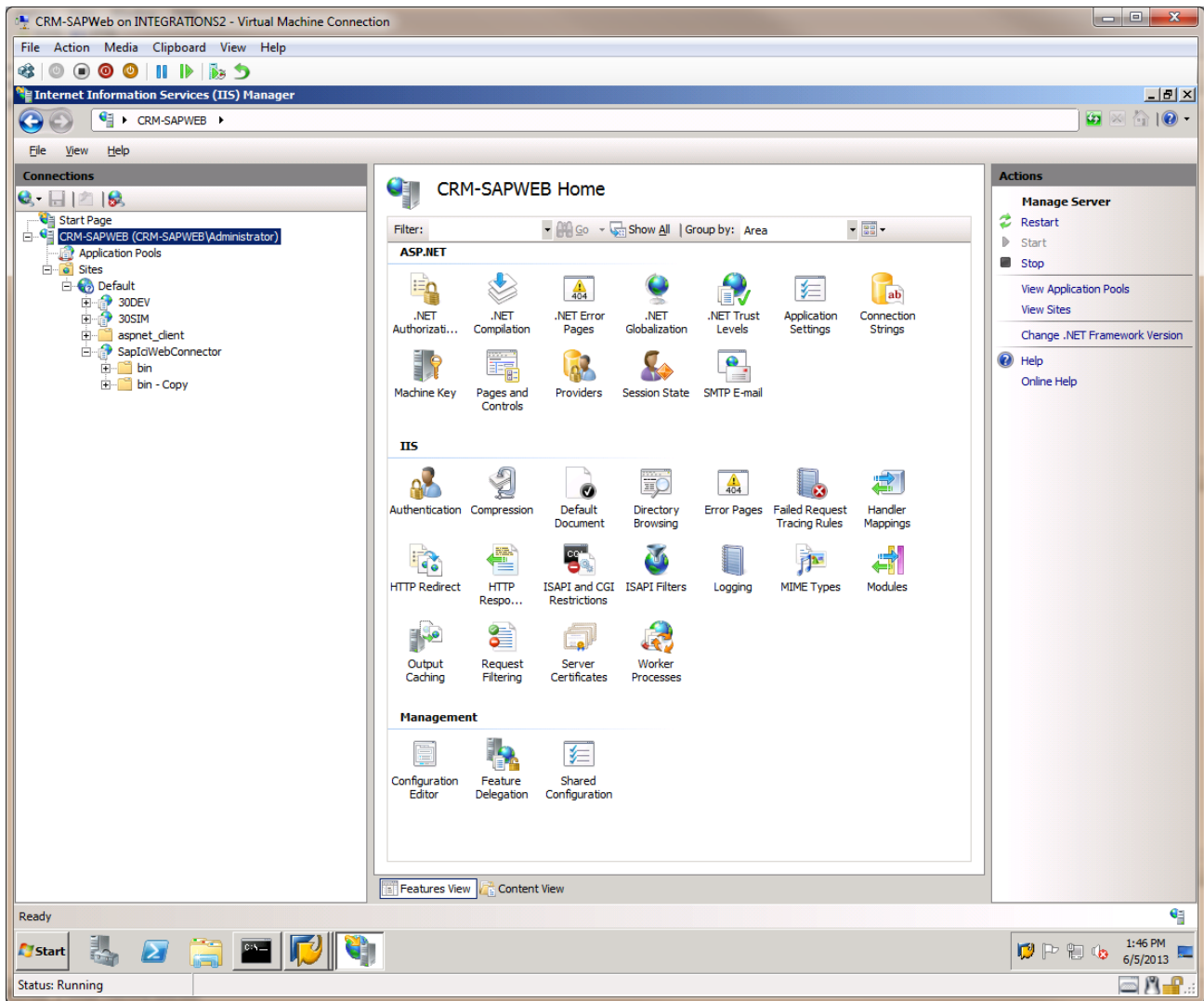
4. Right-click the **SapIciWebConnector** folder and select **Properties**.

   Verify the web service installation in IIS and check that you can display its properties.

5. Close IIS Manager and open a web browser.

6. To test the web connector, type the URL in the **Address** field type the URL http://localhost/SapIciWebConnector/IcSapWebService.asmx and click **Enter**.

   > **Note**: The default port is 80. The Default Web Site SapIciWebConnector lists the web application for the web service.

   The Web Service page opens.
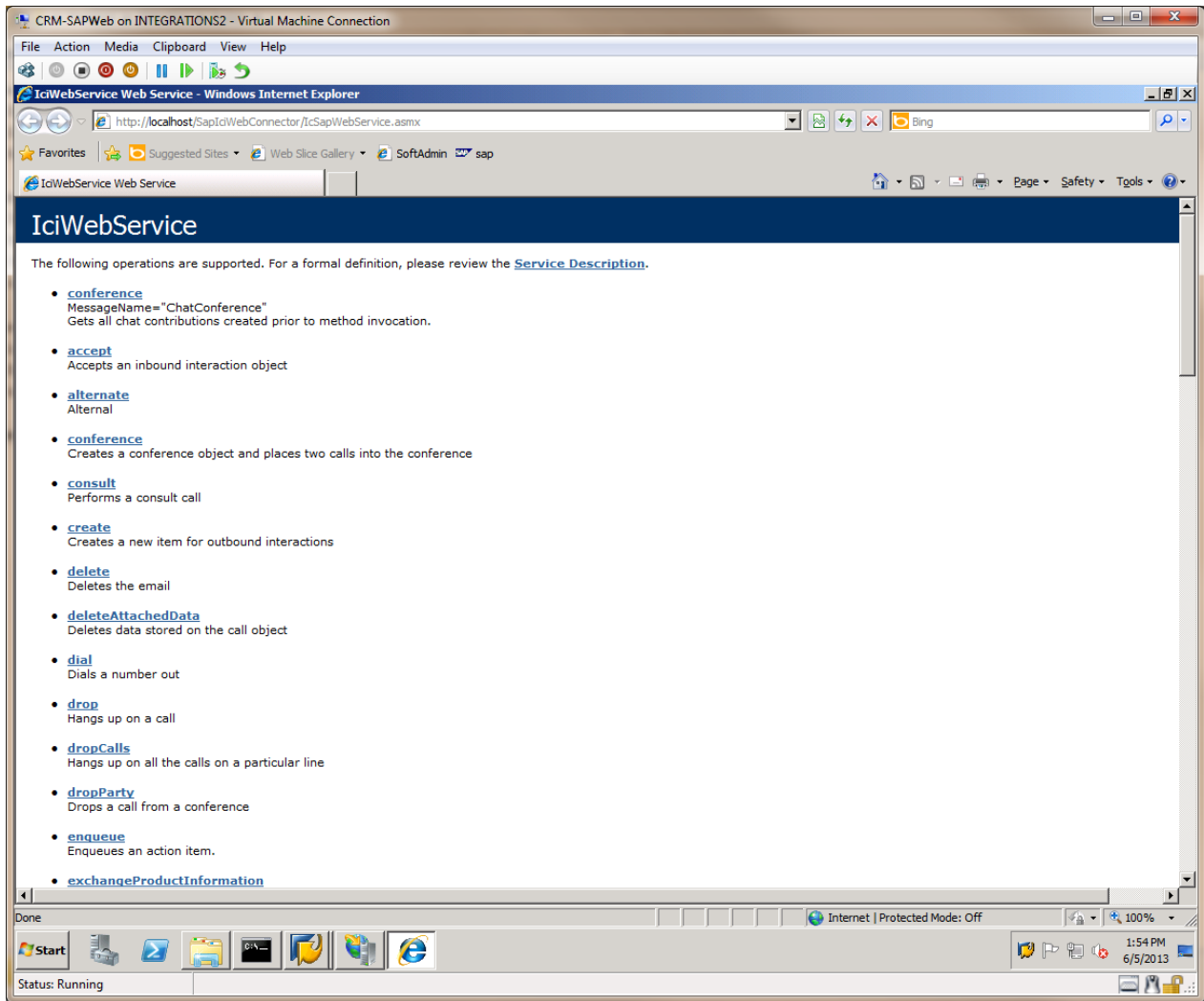
Note: If this page does not display, confirm the IIS settings before contacting a customer service representative.

Install SAP Integration Handlers

The CIC server requires custom handlers to handle reject and presence and to route action items. The installer creates an SAP subdirectory under the directory **d:\I3\IC\Handers\Custom.**

1. On the CIC server, run the **SAPICIHandlers_SU1.msi**.

    Note: In a switchover pair, install the handlers on both CIC servers.

2. Check to ensure the directory contains the handlers needed for the integration. If not, manually publish them.

Configure Handlers for Action Item Routing

You can configure handlers to route action items based on attributes sent from SAP, such as SUBJECT, FROM_ADDRESS, or TO_NAME. For examples of how to access the data sent by SAP, see the RemoteId and RemoteName variables in the CustomSapRouteActionItem handler.

Route action items to workgroups

A common scenario is to route action items to one or more workgroups.

To route action items to one workgroup:

In the SapActionItemProcessing handler, configure the following variables.
- Set the Workgroup variable to the name of the CIC workgroup that you want to receive emails.
- Set the InteractionType variable.

By default, the InteractionType variable is set to Email.

> **Note:** You can also set the InteractionType variable to Generic Object, but unlike the InteractionType Email, Generic Object does not have screen recording, failover, and some reporting capabilities.

To route action items to more than one workgroup:
1. Follow the instructions above for configuring variables in the SapActionItemProcessing handler.
2. In the CustomSapRouteActionItem handler:
   a. Add additional logic for each workgroup that you want to route action items to.
   b. Set the Workgroup variable to the name of CIC workgroup that you want to route each action items to, such as Sales or PureConnect Customer Care.

Example setup to route action items to two workgroups

The following is an example of a possible way to set up the CustomSapRouteActionItem handler to route emails to two workgroups.
1. Open CustomSapRouteActionItem.ihd in Interaction Designer.

2. Add a GetAt tool. Double-click the tool to access the Properties dialog box.
   a. On the General tab, add **TO_NAME** in the Label textbox.
   b. On the Settings tab:
      i. Under List, choose **AttributeValues**.
      ii. Under Index, choose **Find(AttributeNames, "ACTION_ITEM_ATTR_TO_NAME", 0)**.
      iii. For Output Variable, choose **New**. Input **TO_NAME** in the Name textbox.
3. Add a Selection tool. Double-click the tool to access the Properties dialog box.
   a. On the General tab, add **Selection** in the Label textbox.
   b. On the Statements tab, add **TO_NAME = "{email address}"**, for example, TO_NAME = "Support@inin.com".
4. Add two Assignment tools. Double-click each to access the Properties dialog box.
   a. On the General tab of the first Assignment tool, add **route to {workgroup name}**, for example, **route to SAP1**, in the Label textbox.
   b. On the Statement tab of the first Assignment tool:
      i. Under Variable, select **Workgroup**.
      ii. In the Value textbox, add the name of the workgroup in quotes, for example, "SAP1".
   c. On the General tab of the second Assignment tool, add **route to {workgroup name}**, for example, **route to SAP2**, in the Label textbox.
   d. On the Statements tab of the second Assignment tool:
      i. Under Variable, select **Workgroup**.
      ii. In the Value textbox, add the name of the workgroup in quotes, for example, "SAP2".
5. Add a link between the Selection tool and the appropriate Assignment tool to connect the steps in the handler.

Integration server and CIC configuration

Configure the SAP Integration Service

Once you install the SAP Integration Service and Web Connector, you are ready to configure specific settings for the integration using a configuration utility installed with the service. The service's configuration wizard walks you through required and optional settings. For more information about the installations, see Install the SAP Integration Service and Install SAP Integration Web Connector.

> **Note:** In addition, the wizard has a Log To Text Generator area that contains configuration settings for a plug-in that converts binary log files to ASCII text format. SLD registration requires text log files. For extra configuration steps required for SLD Registration, see Appendix B: SLD registration.

1. On the integration server, go to **C:\Program Files (x86)\Interactive Intelligence\SAP\IC Integration with ICI** and open the SAP Integration Service Configuration wizard, **sapiciserviceconfigwizard-xxx-xxx.exe**.
   It opens by default to the CIC Server Settings section.

   > **Note:** If the wizard opens to the log file view, click **Actions > Switch Configuration** to switch back to the integration settings.

2. Do the following:

   - Configure CIC server settings
   - Configure workmodes
   - Configure ICI settings
   - Configure service flags
   - Configure remote attributes
   - Configure dialed attributes
   - Configure channel selection
   - Perform the SLD registration

Configure CIC server settings

These settings allow you to create and test a connection to the CIC server.

1. In the **Server Name** field, enter the name or IP address of the primary CIC server to which the integration service connects.

2. In the **User ID** and **Password** fields, enter the user ID and password of the CIC administrator who monitors connections and notifications on the CIC server.

   > **Note:** See the section Create a super user in Interaction Administrator.

3. To validate the settings and verify a connection to the CIC server, click **Test Connection**.
4. Results of the test connection display in the Connection Results window.
5. Click **Next** to configure the Workmodes.

Configure workmodes

Workmodes in SAP correspond to agent statuses in CIC. This list of workmode assignments appears on the SAP IC Web Client drop down and allows the agent to select from a list of defined statuses. At minimum, define workmodes for Logout, Ready, and Not Ready, which correspond to SAP workmodes 1, 2, and 3, respectively.

The workmode configuration displays the non-localized Message Name field configured in Interaction Administrator. The agent sees the localized message (if available).

> **Note:** If the CIC connection goes down, the agent's status automatically changes to **Server Down**. When attempting to reconnect, it changes to **Attempt Reconnect**. These statuses only display during loss of connection, and the agent should never select them.

1. Select a CIC server status for each of the following standard workmodes:

   - **Logout**: Disconnects the agent from the CIC server without changing the agent's status before logout.
   - **Ready**: Changes the agent's 'ready' status to the mapped status (for example, Ready for Calls).
   - **Not Ready**: Changes the agent's 'not ready' status to the mapped status (for example, Do Not Disturb).

2. To override this functionality and manually map the workmode IDs to a CIC server status and append any other defined CIC server status to the list, configure the **Mapped CIC Status Workmodes** section.
3. Click **Next to configure ICI settings**.

Configure ICI settings

These settings are the main parameters used by the web connector to process SOAP requests received from SAP.

1. In the **Remoting Port** field, enter a port number to establish a listener on the local machine and to wait for commands received from SAP.

   > **Note**: The port number must be unique to the web connector.

2. From the **Login Status** drop-down, select a default workmode to assign to the agent upon login.

   > **Note**: This status only applies if you selected **Ignore SAP's initial login** workmode under Service Flags configuration.

3. From the **Reject Workmode** drop-down, select a status for when the agent rejects an interaction.

   > **Note**: This process ensures that a rejected ACD interaction does not route back to the agent. For more information on configuring the option to send local interactions to the agent's voice mail, see the section Configure Service Flags.

4. Set **Log Interval** to **0** (disabled). SAP now supports session timeout, so you do not need to configure this setting.
5. Click **Next** to configure Service Flags.

Configure service flags

Service flags define extra functionality the integration can turn on/off.

SAP ICI Integration

IC Server Settings
Workmodes
ICI Settings
Service Flags
Remote Attributes
Dialed Attributes
Channel Selection
SLD Registration

Name	Active
Apply secure remoting	☐
Support free seating	☐
Support workcenter filters	☐
Support workcenter lists	☑
View non-selectable statuses	☐
Support presence queue info	☑
Reformat make call number	☑
Ignore SAP's initial login workmode	☑

1. Select the service flag options. See the following table for details on how each option behaves when enabled.

Service Flag	Description
Apply secure remoting	Secure remoting defines the communication style of the remoting to the web service. Note: Unless your configuration has specific compliance security requirements, always clear this check box.
Support free seating	Allow agents to log on to any available machine without first having to log on to the CIC client. Note: Because of the feature-rich capabilities of Interaction Desktop, most agents still log on to both clients on their workstations. If enabled, the SAP IC Web Client displays a new screen prompting the agent for the work center ID. The agent's presence is registered to this telephony provider, and interactions are automatically routed to this location. If the agent fails to enter the correct workstation name without having the CIC client already running on the desktop, then the SAP Web client still logs on, but the media bar at the top is not active. Note: SAP relies on the telephony provider to inform it that if this feature is available or not, so this feature requires no configuration in SAP.
Support workcenter filters	Configure workcenter filters in SAP.
Support workcenter lists	Configure workcenter lists in SAP.
View non-selectable statuses	Allows agents to view all configured CIC statuses, not just agent-selectable statuses. For example, 'ACD not answering' is a non-selectable status in CIC. Agents are only able to set manually selectable statuses.
Support presence queue info	Displays a list of workgroup queues that have one or more agents logged in and available when an agent tries to perform a transfer on an interaction. SAP uses statistical queue information gathered from the CIC server to list available workgroups. The agent selects a group from the list and transfers the interaction to that group. The destination is populated with the workgroup's phone number, and interaction is placed in the workgroup queue, where the CIC server's ACD process forwards it to the next available agent. Note: SAP relies on the telephony provider to inform it that the presence queue feature is available or not, so this feature requires no configuration in SAP.
Reformat make call number	When blind transferring or dialing an outbound number, an E164 formatted number, for example, +13172222222, is reformatted as 13172222222 when sent to the CIC server. Reformatting behavior depends on your dial plan rules in CIC.
Ignore SAP's initial login workmode	If selected, the agent's status (called workmode in SAP) at login comes from CIC. If Login status—set under ICI Settings—is blank, the agent's last status is used. If Login Status is set, that status is used.

2. Once you've finished configuring service flags, click **Next** to configure Remote Attributes.

Configure remote attributes

In the Remote Attributes dialog, you can add, edit, or delete searchable attributes used to locate the ANI for the interaction. Attributes are searched in the order they are defined, and the search ends when a valid value is returned.
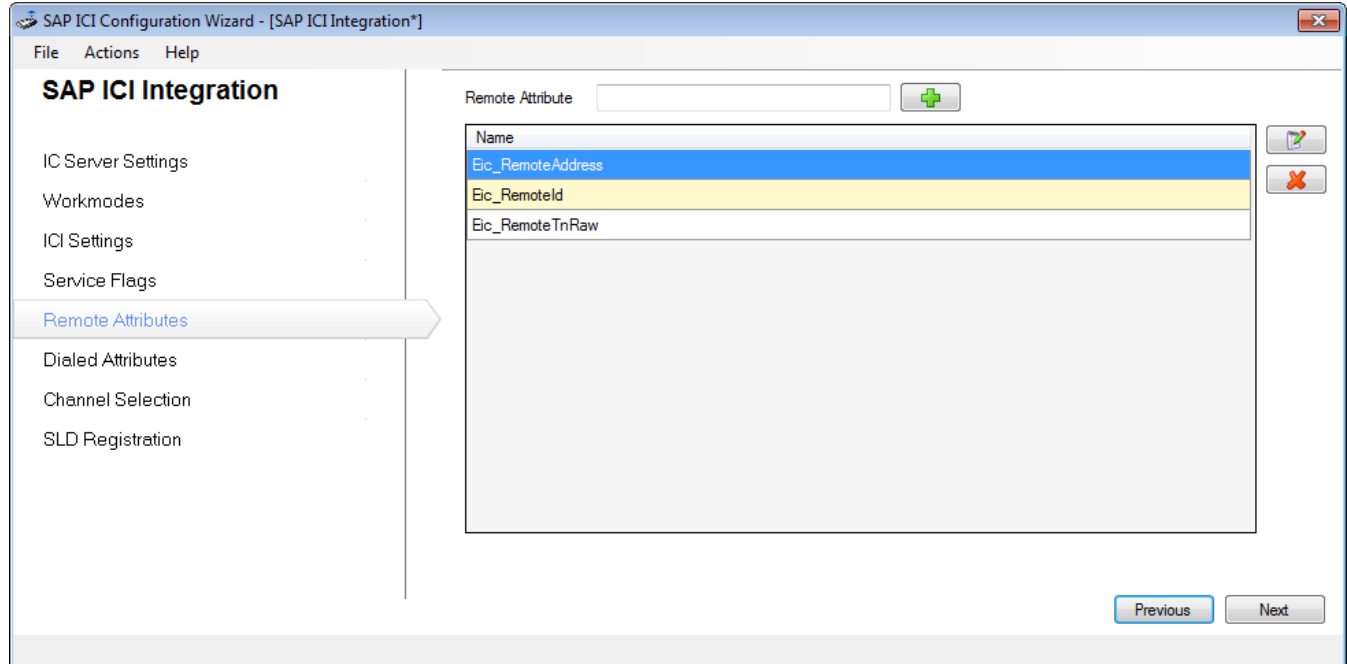
1. Do one of the following:

    - To configure an attribute, in the **Remote Attribute** field type the text for which you want to associate the ANI and click the **Add** icon.
    - To edit the attribute, in the **Name** box select the attribute you want to change and click the **Edit** icon.
    - To delete the attribute, in the **Name** box select the attribute to remove and click the **Delete**.

2. Once you're finished configuring remote attributes, click **Nex t**to configure Dialed Attributes.

Configure dialed attributes

In the Dialed Attributes dialog, you can add, edit, or delete searchable attributes that are used to locate the dialed call for the interaction. Attributes are searched in the order they are defined, and the search ends when a valid value is returned.
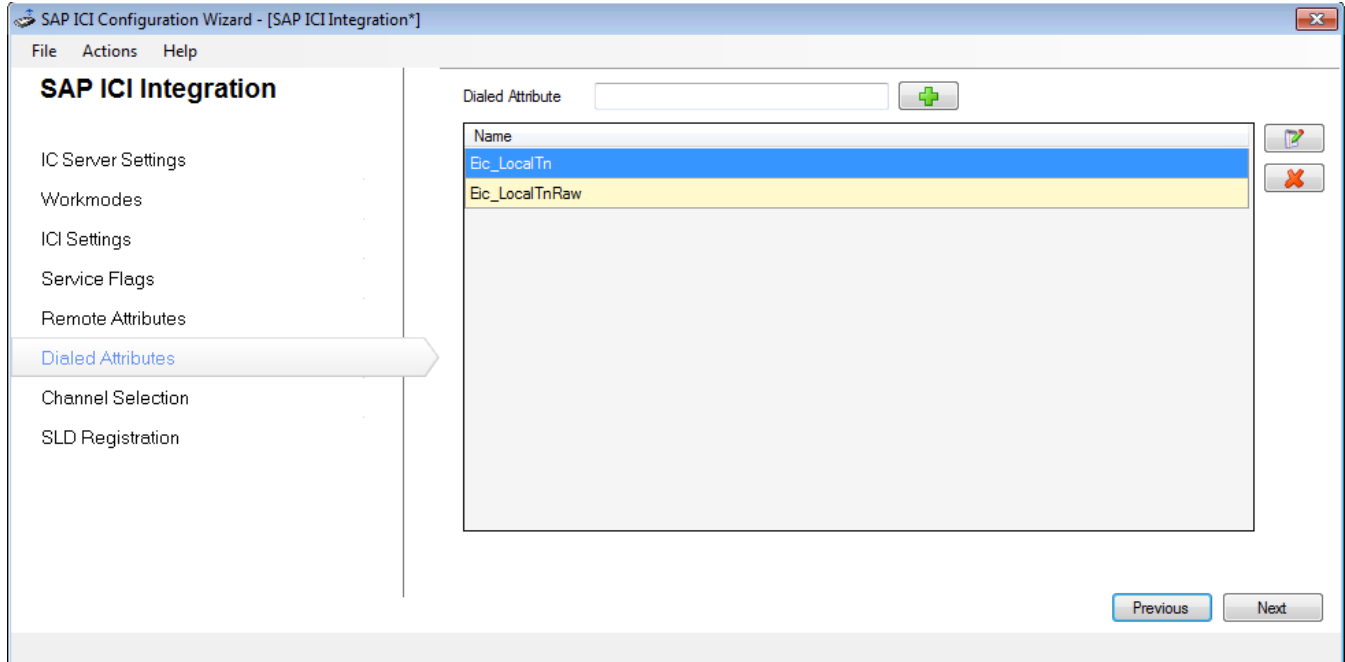
1. Do one of the following:
   - To configure an attribute, in the **Dialed Attribute** field type the text for which you want to associate the ANI and click the **Add** icon.
   - To edit the attribute, in the **Name** box select the attribute you want to change and click the **Edit** icon.
   - To delete the attribute, in the **Name** box select the attribute to remove and click the **Delete**.
2. Once you're finished configuring dialed attributes, click **Next** to configure Channel Selection.

Configure channel selection

Channel selection informs SAP of which interaction types the CIC server supports and instructs it to register each interaction type when the agent logs on to the SAP IC Web Client.
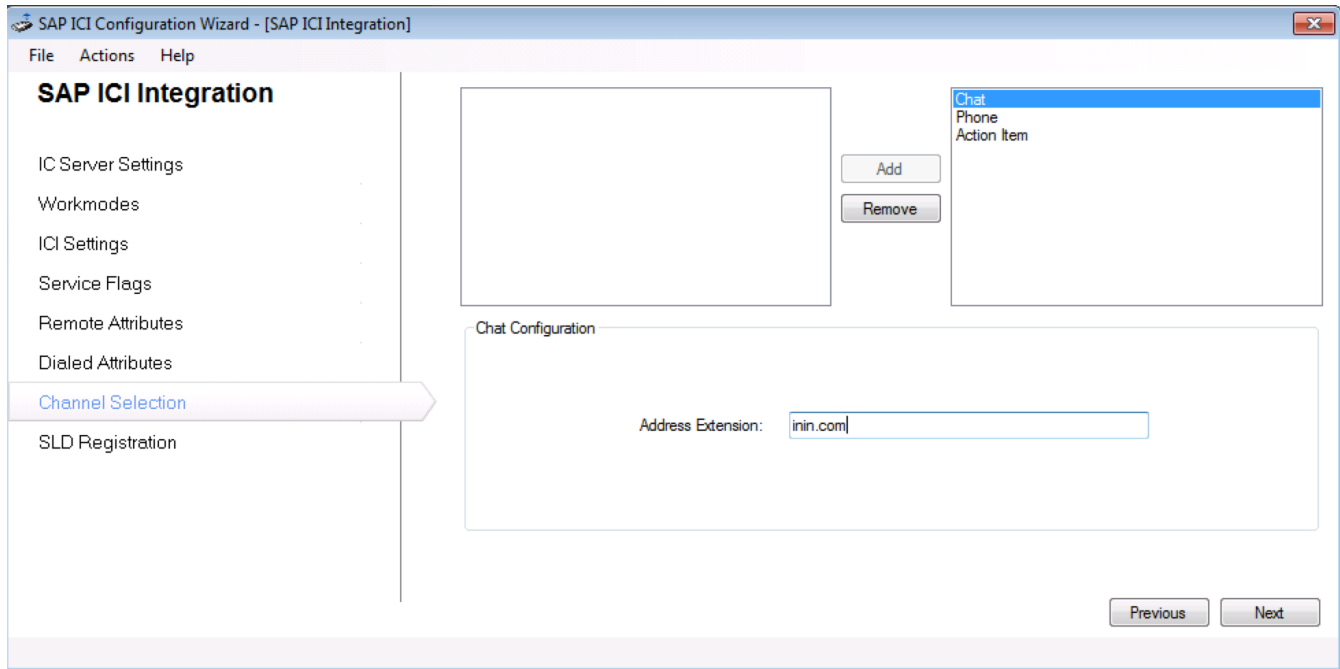
The following sections explain how to configure each channel. After configuring all channels used by the integration, click **Next**. The SLD Registration dialog opens.

Call and callbacks

Calls and callbacks are both configured as Phone channels. To enable call and callback interactions, select **Phone** and click **Add**. A Phone channel does not require any additional configuration.

Web chats

For web chats, SAP requires both the customer and agent chat address to be formatted as an email address.

1. To enable web chat interactions, select **Chat** and click **Add.**

   The Chat Configuration area appears.

2. In the **Address Extension** field, do not type a full email address. Instead, type an SMTP address extension. This extension will be used in combination with the agent or customer name in the event that an email address is not already provided for that agent or customer. For example, typing customer.com would form the email <agentname>@customer.com or <cutomername>@customer.com.

   - If the agent's corresponding CIC user has an email address, that will be used instead.
   - If the customer has an email address (retrieved using remote attributes), that will be used instead.

Tip: In order to avoid having a bunch of dummy emails for your customers added in CIC by this process, you should configure your CIC chat process to require end-customers to enter a valid email at the start of a chat.

Action items

The action item channel uses CIC to route emails sent through SAP's Email Response Management System (ERMS) to an agent. CIC only handles the routing of the email, so the body of the email is neither visible nor stored in CIC.
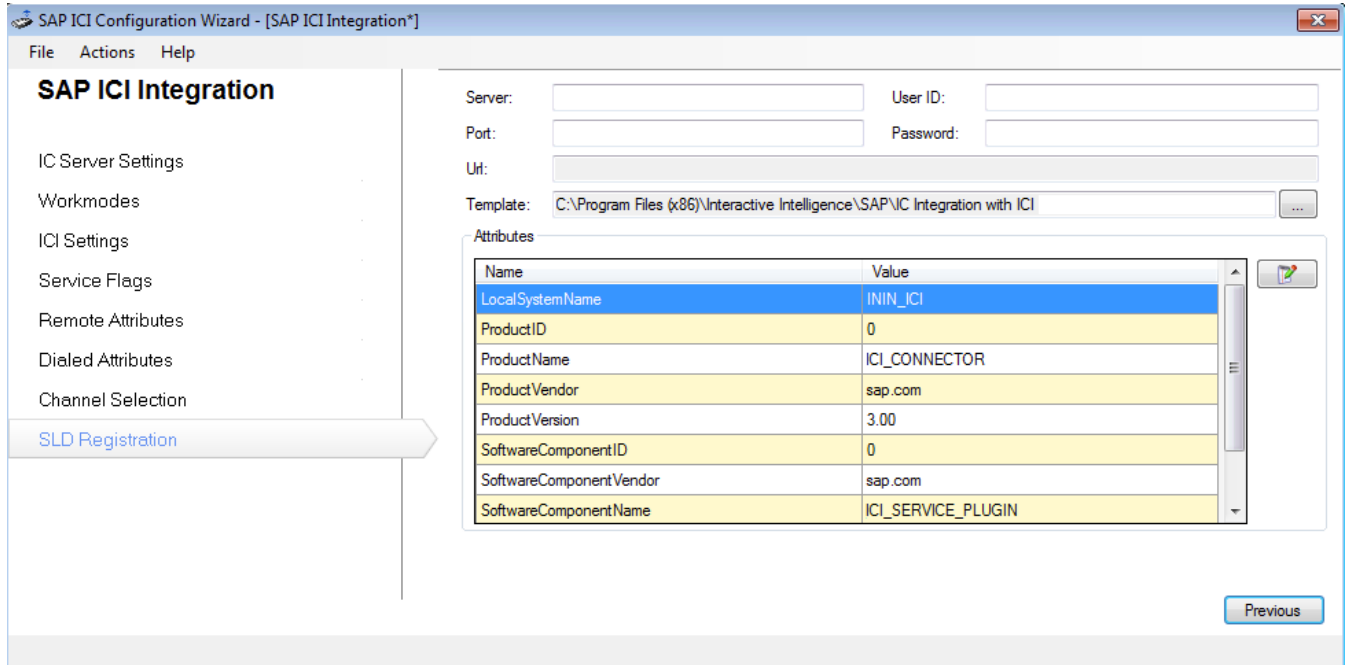
When a customer sends an email message to an address recognized by SAP's ERMS, the integration routes the email through the SapActionItemProcessing handler installed on the CIC server. The handler has a variable that specifies the workgroup that the action item should go to. The agent that receives the action item gets an alert in the CIC client and in the SAP toolbar. The SAP toolbar shows the email address and identifies the email as a "push item." When the agent accepts the push item, the email displays on the right side of SAP's interface.

To enable action item routing, in the Channel Selection window select **Action Item** and click **Add**.

> **Note:** The SapActionItemProcessing handler must be configured to route the action items to the appropriate workgroup. See Configure handlers for action item routing for details.

Perform the SLD registration

Only complete this configuration if your implementation requires SLD registration. For extra configuration steps required for SLD registration, see Appendix B: SLD registration.

Create a super user in Interaction Administrator

The integration requires a super user, created in Interaction Administrator. This user does the following behalf of SAP agents:

- Monitors session activity of the CIC client to pull station information.
- Sends custom notifications to custom handlers on the CIC server and monitors for responses.
- Logs in to a Session Manager on behalf of the agent using the admin credentials.

1. Open Interaction Administrator and create a user account called **SAPSU**.

2. In the User Configuration dialog, select the **Security** tab and add these access control rights on every SAP agent's queue.
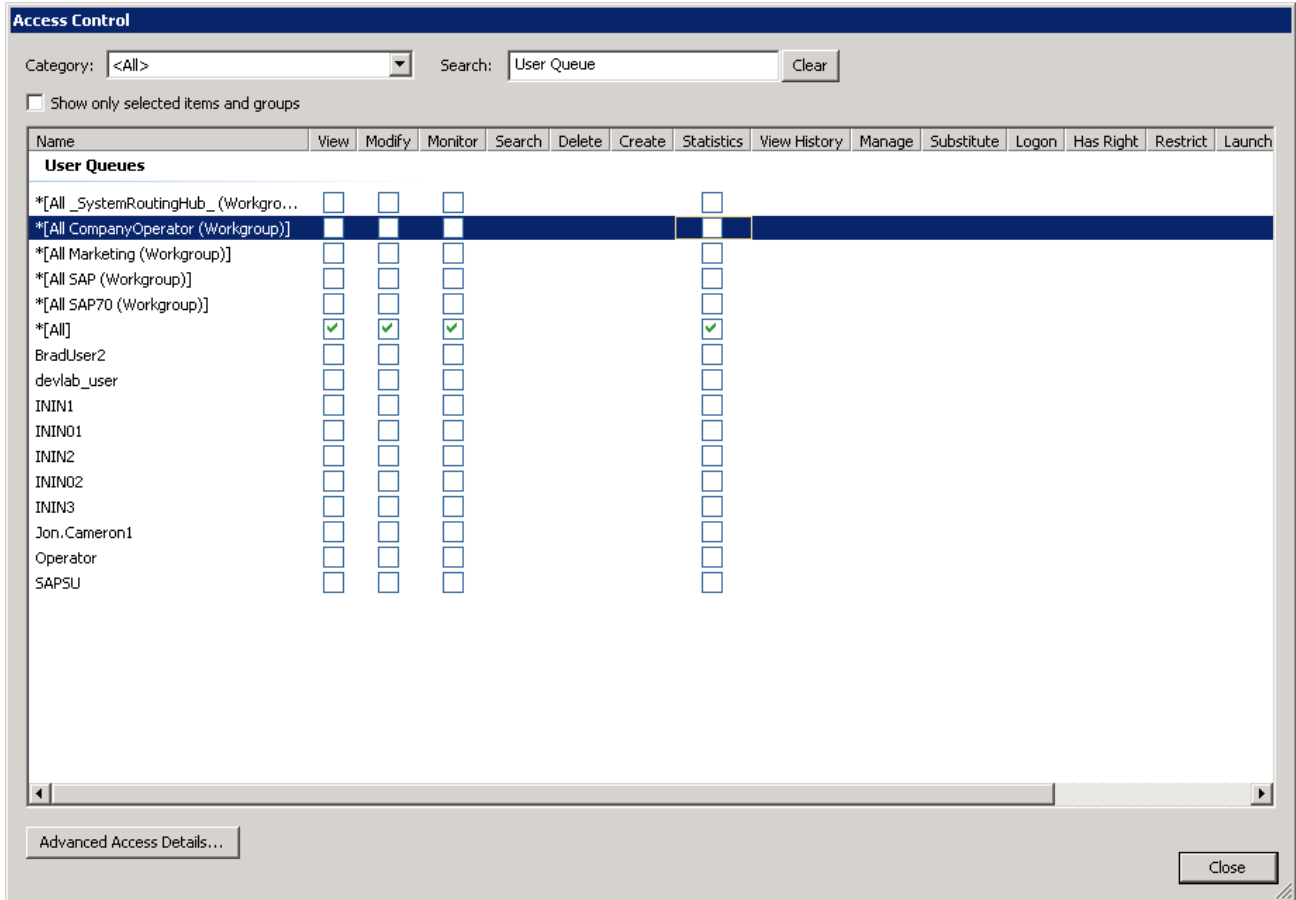
- Proxy Logins > View
- Users Queues > [*All] > View
- Validates user existence
- Workgroups > [*All] > View
- Validates workgroup existence
- Station Queues > [*All] > View
    - Used for logging in using the toolbar, where the agent is not already logged in to the CIC client.
    - Used to reverse lookup station name or extension before logging in.

Update or roll back the integration

Update the integration

To update the integration:
1. Run the install (for example, SAPICIIntegration_SU1.msi for SU1).
    After updating from GA to any SU, the service will not start until you run the configuration utility.
2. Run the configuration utility.

> **Note:** The version of the SAP Integration Web Connector (for example, SAPICIWebConnectorV1_SU1.msi for SU1) and the version of the SAP Integration Service (for example, SAPICIIntegration_SU1.msi for SU1) must match.

When you update from GA to any SU, the configuration utility makes a backup of the configuration file.

The configuration utility uses the following naming convention based on the number of backup files created.
*   One backup file: The first backup file is named {file name}.backup.
*   Two backup files: The second backup file is named {file name}.backup.latest.
*   Three backup files: The name of the second backup file is changed from {file name}.backup.latest to {file name}.backup.1. The third backup file is named {file name}.backup.latest.
*   Four backup files: The name of the third backup file is changed from {file name}.backup.latest to {file name}.backup.2. The fourth backup file is named {file name}.backup.latest.

Additional backup files follow this naming convention.

For information about rolling back the integration, see Roll back the integration.

Roll back the integration

To roll back to an earlier version of the integration:
1. Uninstall the update.
2. Copy the backup file you want to use.
3. Rename the copy ININIntegrationService.exe.config.

> **Note:** If you roll back to an earlier version, make sure that the version of the SAP Integration Web Connector (for example, SAPICIWebConnectorV1_SU1.msi for SU1) and the version of the SAP Integration Service (for example, SAPICIIntegration_SU1.msi for SU1) match.

SAP GUI configuration

To configure the following in SAP, see the following:

- Define an RFC connection
- Set up an SAP IC profile
- Item attached data
- Customer confirmation screen pop example

> **Note:** A certified SAP systems integrator must perform these steps. The steps shown here are only as a high-level example. For more information, see SAP Documentation.

Define an RFC connection

Following are the steps to configure a remote function call (RFC) in the SAP GUI client for an HTTP connection to the integration server. The integration is in listen-only mode, waiting for the first SOAP request from SAP using this remote function call. You do not specify SAP server connection details anywhere else in the integration itself.

1. Open the SAP GUI client.

2. Type the transaction page code **SM59**.

    SAP displays a form similar to the following.
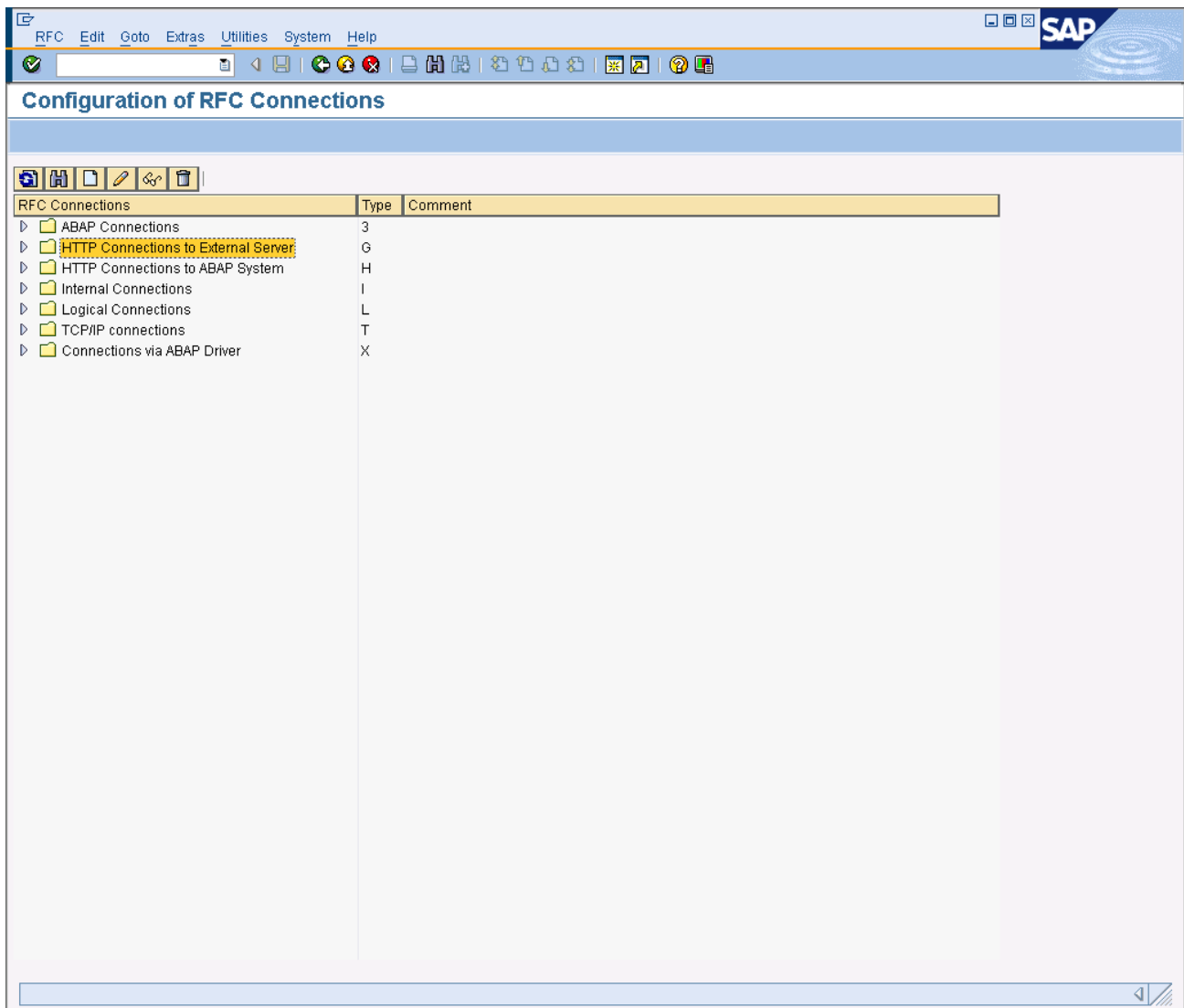
3. Select **HTTP Connection to External Server** folder and click **New**.
    The RFC Destination dialog opens.

4. In the **RFC Destination** field, type a descriptive name you can easily reference later.
5. In **Description 1, 2,** or **3**, describe the purpose of the RFC.
6. Type the **Target Host** name or IP address for the integration server where you installed the SAP Integration Web Connector.
7. In the **Service No.** field, type the port to which the requests are sent. The default port is 80 and in most cases remains unchanged.
8. If you used the default names during the Web connector installation, type **/SapIciWebConnector/IcSapWebService.asmx** in the **Path Prefix** field type.
9. Click **Save**.

For instructions on setting up the SAP IC Web Client to use this RFC, see <u>Set up an SAP IC profile</u>.

Set up an SAP IC profile

The SAP IC profile is a set of configuration settings in the SAP GUI client that links SAP IC Web client to the integration server using the defined RFC connection. For information about defining an RFC connection, see <u>Define an RFC connection</u>.

> **Note:** When setting up agents in SAP and CIC, the user names must match. This user name match is **case-sensitive**.

1. Define a communication management software (CMS) profile where **ININ** is the profile name and description.

2. Add a CMS ID and link it to the **ININ** profile defined in step 1.
3. Add **Telephony** as a channel on the CMS ID.
4. Link the CMS ID to the RFC destination.
5. Define an IC Web Client Profile and link it to the CMS profile.
   a. Copy the IC_AGENT business role and name it **Z_ININ_AGENT**.
   b. Set the profile value of **ID CONTACTCENTER** to **ININ**.
6. Create one or more positions with the **Z_ININ_AGENT** business role and add that role to the appropriate agents.

Enable warm transfer screen pop

To enable screen pops for warm transfer, set **CAD Handling** to C, which means inherited/copied back.

Item attached data

Item attached data enables communication between SAP applications. This XML-encoded data structure makes information available through all communication channels by attaching it to an interaction item (call, callback, web chat). SAP invokes one or more of the call center's integration web service methods (SetAttachedData, GetAttachedData, and DeleteAttachedData) to read or edit the attached data on the interaction. Multiple applications can add their data to the structure. Each application has a separate "Application" subelement defined under the root node "ItemAttachedData." The application element node's attribute "id" identifies which SAP application receives and uses the encased information. The data structure below every application element tag is unique to each application that uses the information, so there is no XML schema definition. For example:

```
<?xml version = "1.0" encoding = "UTF-8"?>

<ItemAttachedData>

<Application id = "SAP-IC">

…SAP-specific data inserted here

</Application>

<Application id = "IVR">

…IVR-specific data inserted here

</Application>

<Application id = "Other">

…Specific data of another component inserted here

</Application>

</ItemAttachedData>
```

The integration is not responsible for editing or execution of the item attached data. Item attached data is used only to attach the set of information to an interaction type and relay that information back to SAP in the form of changed events when an agent receives the interaction.

You can customize screen pop by customizing the call center's IVR call flow to set item attached data as a string on the interaction attribute "Sap_Cad" before agent handoff.

> **Note:** A qualified SAP systems integrator must program custom handling of the item attached data sent to SAP.

Customer confirmation screen pop example

In this example, the IVR system confirms a business partner, and the contact center receives the GUIDs of the partner and contact person. Through handler customizations, you can use the GUIDs to generate an XML string in the format discussed in the previous section and assigned the interaction attribute Sap_Cad. The ACD interaction is then routed to an available agent. The integration then informs the SAP server about the new phone call by sending a SOAP request with the **phoneCallChanged** information. The phoneCallChanged event information fills in the **attachedData** parameter. The application element within the item attached data looks something like this example:

```
<Application id="CRM_IC/BUPA">

<CURRENTCUSTOMER>bbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb</CURRENTCUSTOMER>

<CURRENTCONTACT>cccccccccccccccccccccccccccccccc</CURRENTCONTACT>

<CURRENTCOMPONENT>890FD258977D284B9EEA965DEDA369EB

</CURRENTCOMPONENT>

<BPCONFIRMED></BPCONFIRMED>

</Application>
```

where bbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb and cccccccccccccccccccccccccccccccc respectively denote the 32-character GUIDs of the customer business partner and contact person. The current contact element in the application data structure is an optional field. Upon receiving the event and attached data, SAP screen pops the confirmed business partner to the agent.

Troubleshooting

Web chat sessions remain open

If web chat sessions are remaining open longer than expected, it's likely because agents are not closing them properly. Train agents to close the web chat tabs once they complete an interaction.

Two or more phone interactions in one record

When running reports on interactions, two or more phone interactions are showing up in the same interaction record. The integration creates duplicate phone interaction records when agents don't end one phone interaction before starting the next.

CIC does not allow agents to choose when to go into wrap-up mode or how long to stay there. However, SAP DOES allow agents to stay in wrap-up mode as long as wanted. Because of this system incompatibility, train agents to end the interaction before going back to an available status.

Action items cannot be placed on hold

SAP does not support action items being placed on hold. Although the Hold button continues to appear in the SAP Interaction Toolbar, the button does not work for action items.

Action items can be placed on hold in the CIC client. However, placing an action item on hold in the CIC client does not have any impact on the action item in SAP.

Agents cannot log on

Check these items if agents experience logon issues:
- After updating the integration from GA to any SU, the service stops and agents cannot log on. After installing an update, you must run the configuration utility.
- Ensure that the agent user names in SAP and CIC are an exact match. This is a **case-sensitive** match.
- Verify that the CIC user is not excluded from the Company Directory. In Interaction Administrator, clear the **Exclude from Directory** checkbox on the Configuration tab of the User Configuration dialog box.

Integration not working correctly

New CIC agents must have a valid status for the integration to work correctly. The agent's status can be set two ways:
- By the agent setting a status in the CIC client
- By an administrator setting the agent's status in Interaction Administrator or IC Business Manager

Unauthorized errors (402) on the web service

1. Set the default application pool's identity to **Predefined** and select **Network Service**.
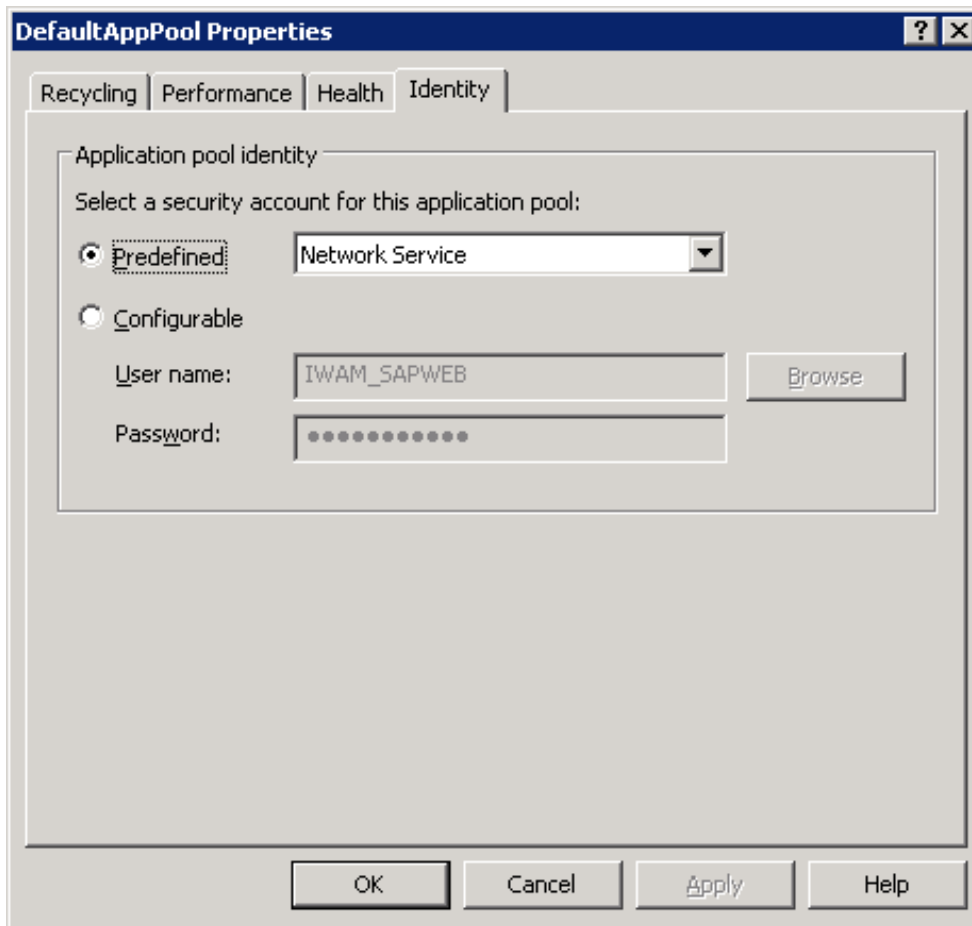
2. Enable the anonymous access by doing the following:
   a. Open IIS and navigate to the defined web service SapIciWebConnector.
   b. Right-click the service and select **Properties**.
   c. Select the **Directory Security** tab and click **Edit** within the **Authenticate an access control group** box.
      i. Select **Enable anonymous access**.
      ii. Set **User ID** to **IUSR_** plus the name of the server running IIS.

         Example: **IUSR_<Server Name>**.
      iii. Everything else remains unchanged.
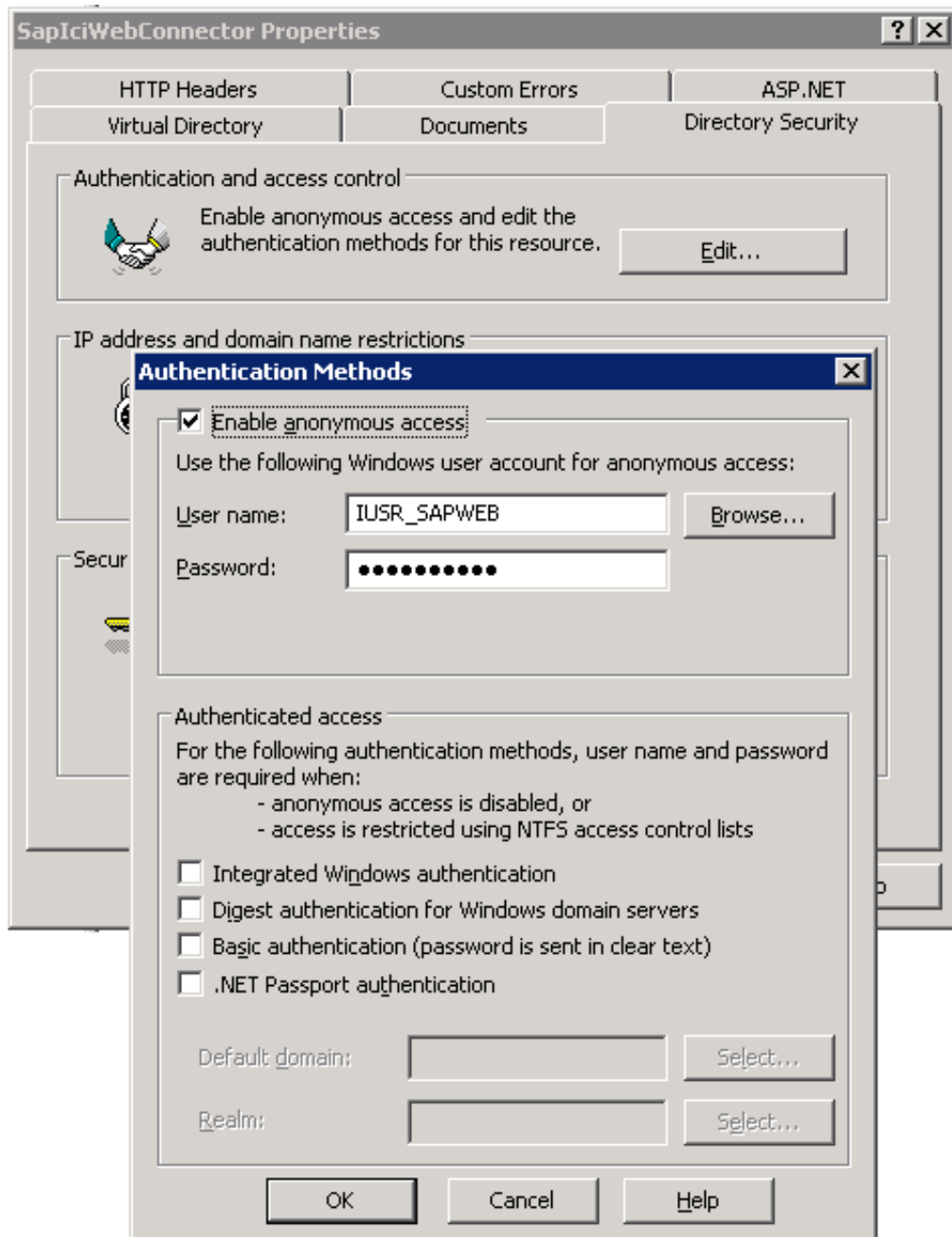
3. Ensure the user account in step 2 is defined on the local machine and the rights are properly set.
4. If all else fails, contact the network administrator to make sure that the Internet settings and proxy settings are properly configured on the local machine.

Contact technical support

If any troubleshooting techniques are unsuccessful, contact a technical support agent. The technical support staff likely needs one or more of the following files:

- Web.config installed with the SAP Integration Web Connector
- ININIntegrationService.exe.config
- SapIci.ininlog
- SessionManager.ininlog (If there are login issues)
- IP.ininlog (For email or reject problems)
- Export from the CRM_ICI_TRACE

For more information, see Troubleshoot log files.

Troubleshoot log files

If issues develop that suggest a problem in CIC Integration with SAP IC Web Client, three logs exist to help the administrator locate the source of the issue.

Log file name	Location	More details
Saplci.ininlog	Windows service	Monitors connections to the CIC server and processes requests received from the web service. Refer to this log first when a problem occurs with the integration.
SaplciWeb.log	Web service	Helpful when first installing the web service to determine possible communication breaks between SAP and the integration. Tip: Because of potential impact on disk space and performance, only use web logging during testing or troubleshooting to verify communication between the integration and SAP. Turn logging off when the integration is live. The web service generates log files to the folder defined within the web.config file under the add key tracefilepath. `<add key="tracefilepath" value="C:\SAPTraceLogs"/>` Leave the value blank to turn off tracing. Tip: The anonymous web user must have create, write, and read permissions for this folder.
CRM_ICI_TRACE	SAP	Tracing utility includes activity related to the SOAP messages sent between SAP and CIC.

Set trace levels for Saplci.ininlog

To set the trace levels, use the Trace Config Utility installed on the integration server.

1. Go to **Tools > Launch TraceConfig**.
2. Set the trace levels for ININIntegrationService's sub topics ININIntegrationService, Saplci, and IcConnectionManager. The higher the value, the larger the log files.

- 99 when troubleshooting
- 60 or lower during normal operation

Configure CRM_ICI_TRACE

From the SAP GUI client, the transaction page CRM_ICI_TRACE allows the administrator to enter the user ID of the agent for which to view logs.

To view the SOAP messages, turn on logging for each agent.
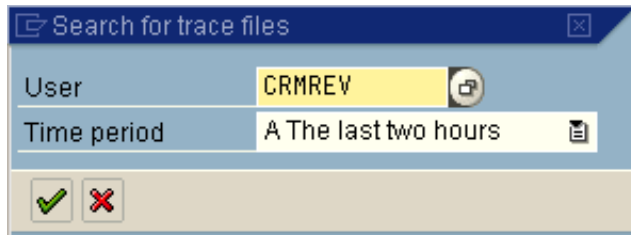
After you enter the user ID and the time period and select the check mark button, SAP opens a list of communications that have occurred over that time period.

Name	Time stamp (UTC)	Number of entries	Time stamp (SyTime)
CRMFOSOUT	05.11.2009 11:29:54	58	05.11.2009 13:29:54
CRMFOSOUT	05.11.2009 11:29:49	8	05.11.2009 13:29:49
CRMFOSOUT	05.11.2009 10:38:00	82	05.11.2009 12:38:00
CRMFOSOUT	05.11.2009 10:37:55	22	05.11.2009 12:37:55
CRMFOSOUT	05.11.2009 10:30:52	90	05.11.2009 12:30:51
CRMFOSOUT	05.11.2009 10:30:50	20	05.11.2009 12:30:50

After you select a time period, SAP provides a visualization of communication and status through use of a green or red circle on the left side of the message. This overview allows the administrator to locate potential problems quickly. To view message content on the right side of the navigation pane, double-click the message.

Appendix A: Supported SAP IC Web Service functions

This appendix includes all of the functions supported by the integration. This information comes from the SAP IC Interface guide and is for reference only. For information about how each function works, see the *SAP Integrated Communication Interface Specification* document at http://scn.sap.com/docs/DOC-14006. The naming convention of the service methods may differ slightly from the actual service.

System methods

The integration supports the following system methods:

Method	Description
exchangeProductInformation	Exchanges the version numbers and product names of the SAP Integration Service and the SAP IC Web Client.
getWorkcenterCapability	Determines availability of the Free Seating feature of the SAP IC Web Client.
getPresenceQueueInfo	Retrieves presence queue information on a specific channel (interaction type) and determines availability of the Free Seating feature of the SAP IC Web Client.

User methods

The integration supports the following user methods:

Method	Description
setCurrentWorkmode	Sets the agent's work mode. Work modes are defined in the configuration file for the integration service. For SAP, only three work mode codes cannot be changed: 1 the agent is logged off or the system is shut down. 2 the agent is logged in to the system in a ready state and is able to start accepting queued ACD interactions. 3 the agent is logged in to the system but is not ready to accept queued ACD interactions. All other values defined in the configuration are considered by the CIC server as Available – No ACD.
setCurrentQueues	Not used by the integration service. By default, agents are assigned to one user queue. ACD calls are placed into a workgroup queue that can be assigned to any agent or agents within Interaction Administrator. When an agent becomes available, calls waiting in the workgroup queue are placed in the available agent's queue.
setCurrentChannels	Sets the channels for which the agent can register. A channel is a type of communication to which an agent has access, such as a phone or web chat. Channels and containers break down communications. The channels define the type of communication while containers define the location of the interaction within the system. For example, if a logged-in agent is assigned the Phone channel, incoming calls come in on the agent's extension.
setAddresses	Provides a unique identifier to the assigned channel.
getUserAttributes	Retrieves information SAP needs about an agent to log the agent on and start receiving event messages from the CIC server. Information returned from this application determines what channels, queues, workmodes, and addresses the agent is eligible to use.
subscribeUser	Registers agents to change-event messages received from the CIC server for the logged-in agent. Event messages are formatted and sent to the assigned URL to inform SAP a change in the user had occurred. The URL received in this method points to the location of the listening web service for SAP, and the appID identifies how SAP processes the message.
unsubscribeUser	Turns off event messages an agent received from the CIC server so they are not sent to SAP, and removes the appID and appURL assigned to events.

Item methods

The integration supports the following item methods:

Method	Description
create	Creates an Item object on the integration service and stores it in the hash tables. Creates a unique identifier for the item object returned to SAP that is used to process interaction commands. Only outbound calls or emails call this method. Inbound interactions already have a unique identifier assigned to them by the CIC server upon delivery to the agent.
getAttachedData	Retrieves the attached data string set on an interaction item by the method setAttachedData. Attached data is in XML format.
deleteAttachedData	Removes the attached data set on an interaction item by the method setAttachedData. Attached data is in XML format.
setAttachedData	Sets an XML formatted string received from SAP to an interaction item.
reroute	Reroutes an interaction item to the workgroup queue from which it came. This method executes when the agent clicks Reject after a new ACD interaction enters the agent's queue. All inbound non-ACD calls are either sent to voice mail or disconnected, depending on the setting of the attribute sapsendlocalcalltovoicemailonreject in the configuration file. All inbound ACD calls are not taken out of the user queue and returned to the workgroup queue from which they came. The priority of the call sent back to the workgroup queue increases to expedite the call to the next available agent, while the user's status changes to the assigned workmode in the configuration file. The status must be of a Do Not Disturb type in the Interaction Administrator to prevent the interaction from routing back to the original agent.
accept	Answers an inbound call or web chat. Once answered, the status of the interaction item changes to Connected.

Container methods

The integration supports the following container methods:

Method	Description
unsubscribeContainer	Stops change event messages pertaining to items within the container from going to SAP.
subscribeContainer	Starts the sending of change event messages for items within the container to SAP.

Line methods

The integration supports the following line methods:

Method	Description
getCalls	Retrieves an array list of call attribute objects that describe all the available calls in the agent's user queue. The integration service ignores calls in the queue that are disconnected.
dropCalls	Disconnects all calls in the agent's user queue and not already disconnected.

Phone call methods

The integration supports the following phone call methods:

Method	Description
unhold	From a call ID handle set by SAP, this method checks to see if the call is in a valid Held state and reconnects the callback to the agent.
conference	Starts a conference call between at least three parties. This function is called when one call (could itself be a conference call) is already on hold and a connection to a new destination is already established for the other. The conference handle returned to SAP is the same as the handle in the held call.
transfer	Performs a blind transfer to the destination specified. Calls that undergo this process are transferred and removed from the agent's user queue regardless of a valid connection or not to the destination specified by the input parameter in this method.
dropParty	Disconnects one of the party members from a conference call. This function is called when the agent wants to drop one party out of a conference with the other parties remaining in the conference. The party to be dropped can be the agent himself or another party. You can configure SAP to drop all members of the conference when the agent disconnects.
reconnect	Disconnects an active call and picks up the call on hold in the agent's user queue.
dial	Creates an outbound call interaction to the destination indicated by the input parameter. The creation of the outbound call object results in the assignment of an interaction ID by the CIC server. This ID maps to the related Item ID that is generated from the create method so that the same Item object is referenced whether the event is issued from the SAP dispatch or the CIC server.
alternate	When two active calls are in the agent's user queue, one connected and one on hold, this method sets the connected call on hold and reconnects the held call to the agent.
consult	Places a call on hold and starts a new outbound call to the destination specified in the input parameters. Once a connection is established with the new outbound call, the agent has two options: to drop the call and reconnect to the held call, or to conference all calls together.
listen	Allows a supervisor to select an active call interaction and establish one-way communication with that call—used for monitoring or training purposes. Supervisors using this method can only listen to the conversation.
listenEnd	Allows a supervisor to disconnect from the call to which the supervisor was listening.
getPhoneCallAttributes	Allows SAP to retrieve information about a particular call interaction.
drop	Allows an agent to disconnect from a connected call.
hold	Places a connected call on hold on the agent's user queue.

Folder methods

The integration supports the following folder methods:

Method	Description
getMessages	Retrieves an array list of email attribute objects that describe all available emails within the specified folder. Inbox is the agent's queue. The integration service ignores disconnected items in the queue.

Appendix B: SLD registration

If your IT environment requires it, this configuration demonstrates to SAP that the integration can achieve System Landscape Directory (SLD) registration (typically used with SAP Solution Manager).

For more information, see the following:

- Perform the SLD registration
- Generate a log file in ASCII text format

Perform the SLD registration

SAP may require the automatic registration of third party integration software to SAPs SLD. This is done by sending an HTTP post to a SLD registration server with the defined attributes. This registration is only performed once, upon the first startup of the integration service.

> **Note:** SAP requires SLD registration for certification compliance, but it is not necessary for the integration to work. An individual customer's business requirements determine the need for SLD registration.

1. In the **Server** field, enter the SLD registration server's domain name or IP address to which the request is.

2. In the **Port** field, enter the port number of the web service that receives the HTTP request for SLD registration.

3. In the **User ID** field, enter the credential information used to send the SLD registration information.

4. In the **Password** field, enter the user password.

5. In the **Attributes** area, scroll down to the **Computer** attribute and enter the name of the computer on which the service is installed.

> **Note:** Attributes can change key values within the ThirdPartySystem.template document. The resulting content is sent to the SLD Web service to register the service. Keep default values for all other attributes.

Generate a log file in ASCII text format

SLD registration requires that the SapIciWeb.log log files generated by the SAP Integration Web Connector be converted from binary to ASCII text format.

> **Note:** Text log files are only required for SLD registration. If your SAP integration doesn't require SLD registration, leave the settings for this plug-in blank to deactivate it.

Once active, the Log To Text Generator plug-in reads the logs and converts them from binary to ASCII text format. This plug-in is executed on a separate thread to prevent the integration from slowing down while the log file generation completes.

1. To enable the Log To Text Generator, open the SAP Integration Service Configuration wizard.

2. Go to **Actions > Switch Configuration > Log To Text Generator**.
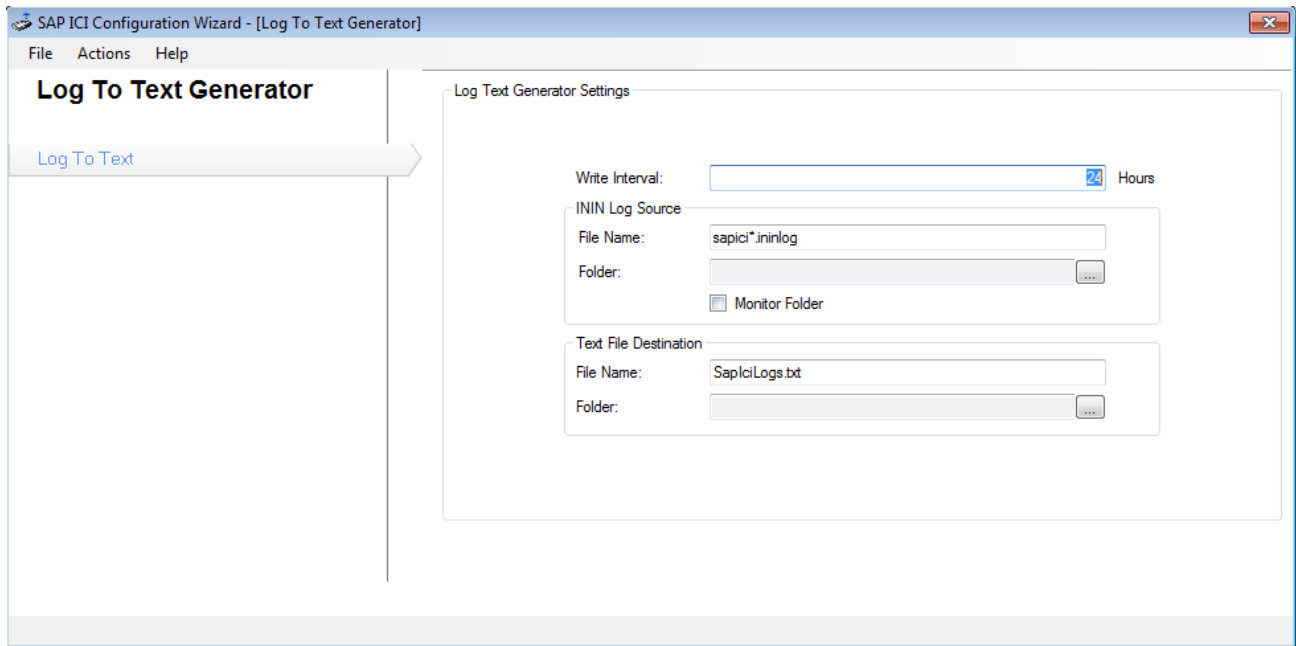
3. Configure the fields using the descriptions in the following table:

Field	Description
Write Interval	Number of hours between each generation of the text log file.
ININ Log Source File Name	Name of the binary source log file to pull into the text log. Wild-card values are allowed. SapIci.ininlog is the default log file format. Each new log file increments with a number at the end. For example, SapIci_1.ininlog
Folder	Path to the root folder where the web service writes binary logs. Logs are written to sub-folders within this folder based on the creation date. The web service keeps a seven-day history of logs. To minimize the generated text file's size, the Log to Text Generator only pulls log files from the subfolder of the date on which it is executing.
Monitor Folder	If enabled, the plug-in monitors change events on the current day's binary log files. Any updates or changes to the files cause the application to create a new text log. Otherwise, the file generates in the period specified by the Write Interval.
Text File Destination File Name	Name of the generated text log file.
Folder	Path to the folder where the plug-in writes the converted text log file.

Appendix C: SAP CRM Integration FAQs

General Features

What interaction types does the integration support?

In CIC 2016 R2 and later versions, the integration supports calls, web chats, callbacks, and generic objects. SAP 4.0 SU1 supports routing of SAP action items (emails).

Is it required to have the user names match in CIC and SAP?

Yes. SAP sends the SAP username upon login which we attempt to match to a CIC user login.

Which parts of the SAP ICI spec do you support?

We support SAP ICI 2.08 and above, including most of 3.03/3.05/3.06.

This is a list of "optional" features in the ICI spec that we have implemented:
- Free seating
- Queue Presence

This is a list of options features we have NOT implemented:
- Agent Presence (We respond to IciSystem_getPresenceQueueInfo, but not to IciSystem_getUserPresence.)
- 4.8 - Action Routing – in beta testing, not yet fully supported
- 4.9 - Monitoring
- 4.10 - Statistical

Does the integration support switchover?

Yes. Assuming the integration has connected to the primary prior to switching, it will attempt to automatically reconnect to the backup on a switch event.

Does the integration require Interaction Desktop to be running?

There are two options. If Workcenters are configured in SAP, the agent provides the workstation name at login. On the other hand, if the user is logged into Interaction Desktop, it will piggy back on the station settings set through the Interaction Desktop session.

Can the integration be used with SIP Softphone?

Yes, but the SIP Softphone must be installed locally using the Interaction Desktop installation. When logging in, the user needs to provide the workstation name configured within Interaction Administrator.

Can outbound calls be made on behalf of a Workgroup?

No, not currently. We suggest using Interaction Desktop to make calls on behalf of a workgroup.

Is Screen Recorder supported with the SAP Integration even if I am not running Interaction Desktop?

Unfortunately, no.

Can you run the Interaction Client side by side the SAP integration?

Yes. It is required if Workcenters are not turned on in the configuration

Does SAP allow for multiple concurrent interactions of the same interaction type?

Prior to SAP 7.0 EHP1, SAP would only allow the agent to handle one interaction of each interaction type at a time. This means the agent would not be able to see more than one chat or call at one time. It would show subsequent interactions once the initial viewing interaction had disconnected or transferred.

As of SAP 7.0 EHP1, SAP allows for more than one interaction of each type at a time. It creates separate sessions or a tabbed approach, one for each interaction. This looks much like the browser ability to open multiple pages. Each SAP session is contained within the one SAP browser session. The agent has the ability to flip between the numerous potential sessions they have open. Once they click "End" the session tab will be closed.

Does Genesys have a packaged integration to SAP for data dipping from the IVR?

No, but SAP supports SOAP web services through their SAP XI and PI products. Genesys PSO has done numerous implementations integrating with SAP SOAP Processor to perform self-service actions and identification processes in the IVR.

Dialer

Do we integrate SAP with Interaction Dialer?

No, not currently.

You can, however, run Interaction Scripter side by side the SAP Web Client. SAP will show the outbound call and may be capable of screen popping if the SAP_CAD is set accordingly.

Screen Pop

What screen pops do we support out of the box?

The SAP architecture allows for customizable screen pop behavior. This configuration is done completely through SAP. With each customer having different needs, our out of the box configuration only screen pops to an Account based on the ANI.

How do screen pops work with SAP?

Call Attached Data (CAD) is used to communicate between SAP applications. This XML-encoded data structure extends the previous concept of call-attached data and makes information available through all communication channels by attaching it to an interaction item (phone calls, chat sessions, etc.). Reading or editing of the attached data on the interaction is achieved by SAP invoking one or more of the call center's integration Web service methods (SetAttachedData, GetAttachedData, and DeleteAttachedData). Multiple applications can add their data to the structure. Each application should have a separate "Application" sub-element defined under the root node "ItemAttachedData." CIC uses an attribute SAP_CAD to retrieve and set CAD. CAD may also be used to allow screen transfers from one agent to another.

Refer to the implementation documentation for more details.

What interaction types do you support screen pop for?

In CIC 2016 R2 and later versions, the integration supports calls, web chats, callbacks, and generic objects. SAP 4.0 SU1 supports routing of SAP action items (emails).

What is SAP's Interaction Record and do you support it?

The Interaction Record is a detailed record created in SAP storing the activity which has occurred for the given interaction. SAP stores information like ANI, DNIS, duration, and association to an Account within the Interaction Record. All customization and configuration for the Interaction Record should be done by a certified SAP consultant.

What does SAP screen pop if there are numerous Accounts with the same ANI?

It will show a search results screen with all of the Accounts. Selecting and confirming the Account will cause the Interaction Record to be related to this account.

Is the screen pop transferred to another agent if the customer is transferred?

Yes. The SAP integration delivers the SAP CAD on the transfer request which is used when the second agent receives the interaction.

Versioning

What versions of SAP are supported?

Minimum SAP versions supported:
- CRM 7.0 - (General Availability: 05/05/2009, End of Mainstream Maintenance: 12/31/2020)

Is SAP integration permitted for use in PureConnect Cloud?

Check with PureConnect Cloud Solutions Management for the latest details.

Is SAPphone still supported?

No. We dropped support for SAPphone starting with CIC 4.0. It was last supported in CIC 3.0.

Licensing/Certification

Is the integration certified by SAP?

Our certification from SAP has expired in and needs to be renewed.

How is it licensed?

It is licensed by CIC server, not by user. The backup server (or switchover) is included in this license.

What level of partner is Genesys with SAP?

Genesys has a RAC agreement with SAP allowing access to numerous remote SAP environments.

Change log

The following table lists the changes to the *CIC Integration with SAP CRM Installation and Configuration Guide* since its initial release.

Date	Changes
16-April-2010	Formatted content and removed section for creating SAP ICI Profile.
14-July-2010	Added appendix about item attached data and did minor cleanup / edit / check of the rest of the document.
10-August-2010	Updated versions supported information.
02-November-2010	• Added information about new features in versions 3.0 and later. • Updated section about configuring service flags in Chapter 3.
05-April-2011	• Added new information and sections. • Made minor edits and tweaks. • Copyright and Trademark Information. • Updated and tweaked sections about proxy configuration and creating super user accounts.
31-July-2013	• Updated system requirements. • Updated procedures for installing, configuring, and testing the integration. • Deleted obsolete information about ANI format rules. • Made other minor tweaks and updates.
22-August-2014	• Added information about configuring for warm transfer screen pop. • Made other minor updates and tweaks.
01-January-2015	• Significant revisions to formatting and style. • Removed de-supported BCB and Java attached data sections. • Removed detail of SAP web method functions and linked to SAP source documentation. • Reorganized content into chapters—added integration overview (Chapter 1) and integration architecture and installation (Chapter 2).
07-April-2015	• Updated 2015 R2 references to R3. • Reapplied template and updated copyright page.
15-April-2015	• Added configuration instructions to localize the integration. • Added note explaining 'server down' agent statuses.
04-June-2015	• Updated CIC user requirements. • Added action item support. • Removed wrap-up mode setting • Added info about placing action items on hold. • Added Configure handlers for action item routing section. Added steps and example to route action items to workgroups. • Updated screenshots and text about ICI Settings, Service Flags, and Channel Selection in the Configuration Wizard. • Updated Call and callbacks section and Web chat section. • Added Phone number formatting section. • Updated Screen pop section. Added explanatory text, updated screenshots, added screenshot for action items. • Added Limitations section about the maximum number of interactions SAP sends to an agent, the use of the Agent Dashboard for channel and queue selection, and wrap-ups. • Added Update or roll back the integration section. • Added Agents cannot log on section. • Added Integration not working correctly section. • Added action item, channel, integration type, push item to Key terms table.
26-June-2015	• Updated version on cover page. • Replaced logo. • Updated 2015 R3 references to R4.

18-September-2015	• Updated 2015 R4 references to 2016 R1. • Removed references to retired Interaction Client .NET Edition. • Added clarification about localized status messages.
24-November-2015	• Updated CIC Documentation Library references to http://help.inin.com. • Update 2016 R1 references to 2016 R2.
20-May-2016	• Added Notes about case-sensitive SAP and CIC user name matches to the PureConnect integration steps and Set up an SAP IC profile sections. • Added more detail about case-sensitive user name matches and the Exclude from Directory checkbox in the Agents cannot log on section in the Troubleshooting chapter.
19-July-2017	Rebranded this document using Genesys terminology.
01-August-2017	Updated cover page, copyrights, and trademarks in this document.
16-October-2017	Removed the "Configure integration for another language" procedure. The 'languagemappings' configuration is read from the configuration file, but is not actually used by the integration.
18-December-2018	Added Interaction Connect to the overview and updated the required server version to 2016 R2 or later.
19-June-2019	Reorganized the content only, which included combining some topics and deleting others that just had an introductory sentence such as, "In this section...".
24-January-2020	Added new topic: Appendix C: SAP CRM Integration FAQs.
13-March-2020	Finished migrating information from Product Information site.
17-April-2020	Updated to reflect support for Windows Server 2019.
21-May-2020	Replaced links to inin.com with links to genesys.com.
06-November-2020	Fixed EHP version in CIC Integration with SAP System Requirements topic.