Avaya Aura® Experience Portal
Release 6.0
Intelligent Customer Routing

Developer Guide

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Contents

Introduction

The purpose of this guide is to provide information about developing applications using ICR Plugable Data Connector (PDC), creating custom reports for ICR using the AAEP custom report, and sample applications that ICR provides.

For updated documentation, product support notices, and service pack information, go to the Avaya Support Center Web site at http://support.avaya.com.

Audience

The ICR Developer guide is intended for those users who want to:

- Install and configure ICR for their own use or for other's
- Use Orchestration Designer to design and create speech applications for ICR
- Use AAEP to design and create custom reports for ICR

The specific users include:

- Customers who want to create their own speech applications
- Avaya business partners and independent service vendors who create speech applications for Avaya customers

About ICR PDC

Plugable Data Connector (PDC) is a connector between Self Service Application (SSA) and ICR Core.

ICR PDC is built to integrate ICR into Avaya Aura® Orchestration Designer (OD). ICR PDC is a generic connector, which an application developer can use without knowledge of call centers and ICR Core. The purpose of ICR PDC is to provide a SIP URI, which is the routing destination for a skill.

Prerequisite

You must install Orchestration Designer to create and build applications. If you are installing Orchestration Designer for the first time, see *Orchestration Designer* documentation on the Avaya support site http://support.avaya.com.

For more information on installing ICR PDC, see the Implementation guide of ICR.

Using ICR PDC in a call flow

ICR PDC provides the **Get Destination** method. The skill ID that SSA identifies is provided as an input to this method.

Note: While ICR PDC is fetching the routing destination from ICR Core, callers may not get a response from the system. To prevent this, use **Transitional audio prompts** available in OD to play a prompt to the caller. For more information, see the “Transitional audio prompts” topic in the *Orchestration Designer Developer Guide*.

To use ICR PDC in a call flow:

1. Open SSA in OD.
2. Create a **Data** node in the SSA call flow.
3. Open the **Data** node.

   The system displays the **Pallete** tab. On this tab you can view the **Get Destination** method under **ICR Connector**.
4. Drag and drop the **Get Destination** method in the **Data** node.
5. On the **Properties** tab, select the Skill ID Variable and Field.

Note: Before using ICR PDC in a call flow, ensure that the skill ID is identified in SSA and that skill ID is matching with the skill ID that is configured in the ICR configuration of the Experience Portal Manager system.

This operation creates the **DestinationInformation** implicit variable in the project variables of the SSA call flow.

ICR PDC creates the **DestinationInformation** implicit variable in form of <*variable_name*> followed by an incremented number. For example, **DestinationInformation1**.

In a call flow, if you use the **Get Destination** method multiple times, ICR PDC creates multiple implicit variables. For example, DestinationInformation1, DestinationInformation2, and so on. However, in this guide, the implicit variable name is referred as DestinationInformation or DestinationInformation#.

Implicit Variable DestinationInformation

The implicit variable **DestinationInformation** is complex variable. This variable contains the routing information received from ICR Core or from the Simulation profile.

The following table describes fields in the **DestinationInformation** variable.

Field Name	Description
acd	Name of the call center to which call is queued. You can find the call center configuration under the **ICR Configuration** menu of Experience Portal Manager.
acdType	Type of the call center. **Note:** For this ICR release, the default value is **Avaya-CM**.
defaultAcd	Name of the call center to which call is transferred when an error occurs. The default call center for a skill is configured under the **ICR Configuration** > **Skill** menu of Experience Portal Manager.
defaultDestination	SIP URI of Default VDN to which call is transferred in case of error. The default VDN is configured under the **ICR Configuration** > **Skill** menu of Experience Portal Manager.
destination	SIP URI of VDN to which call is queued. You can find the VDN under **ICR Configuration** > **Skill** > **VDN** menu of Experience Portal Manager.
ewt	EWT for a call to queue. The EWT for a skill is cached by ICR Core for specific period which is configured in under the **ICR Configuration** > **Skill** menu of Experience Portal Manager.
freshness	Elapsed time in seconds since the EWT is cached for a skill by ICR Core.
refer	Indicates whether to queue or transfer a call. Possible values are: • **true**: Indicates to transfer a call. • **false**: Indicates to queue a call. For this release of ICR, default value is false.
result	Result of routing request. Possible values are: • **AGENT_AVAILABLE**: Indicates whether to queue or transfer a call. • **AGENT_NOT_AVAILABLE**: Indicates that there are no agents logged in a call center or agents logged in a call center are in the AUX work state. • **GENERIC_ERROR**: Indicates that error has occurred. • **OUT_OF_HOURS**: Indicates that call has arrived when a call center is closed based on Business Hours and Holiday configuration for the selected skill.

Simulation of application containing ICR PDC

ICR PDC leverages simulation capabilities provided by Orchestration Designer (OD). SSA Application can be tested using Simulator without ICR Core.

For more information, see the “Application Testing by Simulation” topic in the *Orchestration Designer Developer Guide*.

To configure simulation data required by ICR PDC:

1. Edit simulation profile.
2. Go to **ICR Destination Information** tab.
3. Enter the values in all the fields.

   Note: The fields are mapped to **DestinationInformation** fields explained above.
4. Select values from the **Result** and **Refer** drop-down list.
5. Click **Save** to save the profile.

   When you run the application in a simulator, the **Get Destination** method populates simulation data in the **DestinationInformation** variable in the corresponding fields.

About ICR Sample Application

Sample Self Service Application (SSA)

In ICR, a sample SSA is provided to demonstrate the following:

- Identify a skill based on a the caller's intent
- Use ICR PDC to get destination information that ICR Core provides
- Handle UUI in the Shared and Service Provider mode
- Pass information to ICR CCA in an exit or return node using output parameters

The sample SSA is a basic application. The sample SSA collects 10 digit account number, starting with 1 or 2, from a caller.

Application checks the intent of caller by providing following DTMF menu:

- Digit 1 corresponds to caller's intent to check account balance
- Digit 2 corresponds to caller's intent to apply for credit card (Skill ID = 1000)
- Digit 3 corresponds to caller's intent to talk to agent for account related queries. (Skill ID = 2000)

Based on caller's selection from the DTMF menu, SSA identifies the skill ID and fetches destination information for the skill from ICR Core using the **Get Destination** method of ICR PDC.

The account number that SSA collects from a caller passes to ICR CCA using exit parameter. ICR CCA treats this account number as UUI. SSA also passes other values using the implicit variable created by ICR PDC.

Note:

- For this sample SSA, configure the skills with Skill ID "1000" and "2000" in the system under **ICR Configuration** in Experience Portal Manager.
- This sample SSA generates application detail records during a call flow.

For more information on UUI handling, see About User-to-User Information (UUI) handling. For more information on ICR PDC, see About ICR PDC.

Exit Parameter Description

Following are the exit parameters that SSA provides to ICR CCA.

Parameter	Description
ssaResult	Result of SSA. Possible values are: • **AGENT_AVAILABLE**: Indicates whether to queue or transfer a call. • **AGENT_NOT_AVAILABLE**: Indicates that there are no agents logged in a call center, or agents logged in a call center are in the AUX work state. By default, ICR CCA launches Generic EHA on SSA exit. You can override the default Generic EHA by launching the custom EHA on SSA exit. To launch the custom EHA, set the **eha** parameter to the name of the custom EHA that you want to launch. • **GENERIC_ERROR**: Indicates that an error has occurred. ICR CCA launches Generic

Parameter	Description
	EHA. • **OUT_OF_HOURS**: Indicates that a call has arrived when a call center is closed. ICR CCA launches Non Business Hours application. ICR detects a closed call center based on the Business Hours and Holiday configuration for a selected skill. Empty value indicates that a call is completed in SSA and ICR CCA disconnects the call. Use the **DestinationInformation#.result** field if a call is routed using ICR Core. For calls that are queued, ICR launches WTA before queuing calls to prevent the dead air issue. Fore more information, see WTA parameter description to know which WTA is played. **Note:** The application developer must handle the disconnect event in SSA and also set the **ssaResult** to empty string.
skillId	Skill ID that SSA identifies. The Skill ID must match with the skill ID configured in the system. ICR CCA uses this value for displaying calls in **ICR Monitor** menu of Experience Portal Manager and for re-queuing calls.
vdn	VDN to which ICR CCA queues or transfers a call. Use the **DestinationInformation#.destination** field if a call is routed using ICR Core.
acd	Call center name to which ICR CCA queues or transfers a call. Use the **DestinationInformation#.acd** field if a call is routed using ICR Core. ICR CCA uses this value for displaying call centers in ICR Monitor menu of Experience Portal Manager.
acdtype	Call center type. Use the **DestinationInformation#.acdType** field if a call is routed using ICR Core. **Note:** For this release of ICR, the application developer must set the acdtype to **Avaya-CM**.
skilldefaultvdn	VDN to which ICR CCA transfers a call in case of error. Use **DestinationInformation#.defaultDestination** field if call is routed using ICR Core. If the skilldefaultvdn is set to an empty value, ICR CCA disconnects or transfer a call to the default VDN configured in Generic EHA.
ewt	EWT for a call that ICR Core provides. Use **DestinationInformation#.ewt** field if a call is routed using ICR Core. ICR CCA uses this value for displaying EWT for calls in ICR Monitor menu of EXPERIENCE PORTAL MANAGER.

Parameter	Description
refer	Indicates whether to queue or transfer a call. Possible values are: • **true**: Indicates to transfer a call. • **false**: Indicates to queue a call. The application developer must set the value of **ssaResult** to **AGENT_ AVAILABLE**. Use the **DestinationInformation#.refer** field if a call is routed using ICR Core.
wta	Name of the WTA application to launch. The WTA must be configured in Experience Portal Manager as managed application of the ICR CCA application. If you did not configure the WTA specified in the wta paramete, ICR CCA launches the default WTA. If the wta is set to an empty value, ICR CCA launches the default WTA. ICR CCA launches the default WTA if this WTA exits before queued call rings.
eha	Name of the EHA application to launch when an error occurs. If you set the eha to an empty value, ICR CCA launches the configured generic EHA. You must configure the EHA application in Experience Portal Manager. There is no provision to configure multiple EHAs as managed application of the ICR CCA application.
AAI	Information that needs to be passed in the UUI header of a call that is queued or transferred. For more information, see About User-to-User Information (UUI) handling.
querystring	Application developer can use this parameter to provide custom information to WTA.
_avayaExitInfo1	The value denotes that the SDR record is for SSA. Default value is ICRSSA. This value is required for filtering the SDR records related to SSA in the Custom Report feature of Experience Portal Manager. **Note:** The application developer must handle the disconnect event in SSA and set the **_avayaExitInfo1** to ICRSSA before an application exits.

Sample Wait Treatment Application (WTA)

In ICR, sample WTAs are provided to demonstrate the following:

- Capture information that ICR CCA passes to WTA
- Handle the UUI in the Shared and Service Provider mode
- Pass information to ICR CCA in an exit or return node using output parameters

Two sample WTAs are:

- **WTAUpdateAAI**

  Advance WTA that demonstrate how to get more information from a caller while call is in a queue.

  The sample WTA captures information that ICR CCA provides to WTA. WTA checks if any WTA, which is run earlier, has already collected a four digit PIN from a caller.

  If WTA finds that a PIN is not collected, WTA prompts the caller to provide 4 digits PIN. WTA treats this information as UUI and appends the information to the account number by separating both with **. WTA then passes this information to ICR CCA.

  If WTA finds that the PIN is already collected, WTA just announces the caller to wait for an agent to become available.

- **WTAWaitTimeAnnouncement**

  Basic WTA that demonstrates how to announce EWT and queue position to caller.

  The sample WTA captures parameters that ICR CCA passes and announces the EWT and queue position of a queued call to the caller.

Note: The sample WTA generates application detail records during a call flow.

For more information, see About User-to-User Information (UUI) handling.

Information (ECMA script variable) that ICR CCA passes to WTA

Parameter	Description
session.connection.ccxml.values.AAI	The AAI parameter constructed in SSA or earlier WTAs. For more information, see About User-to-User Information (UUI) handling.
session.connection.ccxml.values.ewt	EWT of the queued call. EWT that SSA passes is used for the first launch of WTA. Any successive launch of WTA receives EWT of a queued call.
session.connection.ccxml.values.queueposition	Queue Position of a queued call. Queue Position is 0 for the first launch of WTA. Any successive launch of WTA receives queue position of a queued call.
session.connection.ccxml.values.qs	Query string that SSA or previous WTA provides.
session.connection.ccxml.values.skillId	Skill ID identified based on the caller's intent. This is the skill ID that is identified in SSA.

Exit Parameter Description

Parameter	Description
AAI	Information that needs to be updated in the UUI header of a queued call.

Parameter	Description
querystring	Application developer can use this parameter to provide custom information to consecutive WTA.
_avayaExitInfo1	The value denotes that the SDR record is for WTA. Default value is ICRWTA. This value is required for filtering the SDR records related to WTA in the Custom Report feature of Experience Portal Manager. **Note:** The application developer must handle the disconnect event in WTA and set the **_avayaExitInfo1** to ICRWTA before application exits.

Sample Error Handling Application (EHA)

In ICR, there are two types of EHAs:

- **Generic EHA**

  You can configure this EHA as a part of ICR CCA for generic errors. ICR CCA launches this EHA when a problem occurs in the ICR system.

- **Non Business Hours**

  You can configure this application as a part of ICR CCA for non-Business hours. ICR CCA launches this application when a call arrives in non-business hours or on holidays.

ICR CCA transfers the call to VDN based on the EHA configuration.

In ICR, sample EHAs are provided to demonstrate the following:

- Capture information that ICR CCA passes to EHA
- Announce error message to a caller

Two sample EHAs are:

- **EHAGeneric**

  Basic application that announces error messages to a caller when an error occurs in a call. This application is of type Generic EHA.

  There can be multiple reasons for an error to occur:

  - Application (SSA and WTA) are not available or have an issue
  - ICR Core in the system is not running when ICR PDC requested for destination information
  - The requested skill is not configured under ICR Configuration in Experience Portal Manager
  - The queued call received error response multiple times

- **EHAOutOFHours**

  Basic application that makes error message announcement to a caller when a call arrives in a call center in non-business hours based on your Business Hours and Holidays configuration.

Information (ECMA script variable) passed by ICR CCA to EHA

Parameter	Description
session.connection.ccxml.values.vdn	VDN to which ICR CCA transfers the call after EHA exits. **Note:** Empty value indicates that ICR CCA cannot transfer the call and the call will be disconnected after EHA exits.

Exit Parameter Description

Parameter	Description
_avayaExitInfo1	The value denotes that the SDR record is for EHA. Default value is ICREHA. This value is required for filtering the SDR records related to EHA in the Custom Report feature of Experience Portal Manager. **Note:** The application developer must handle the disconnect event in EHA and set the **_avayaExitInfo1** parameter to **ICREHA** before exits.

About User-to-User Information (UUI) handling

ICR supports configuring ICR CCA application in **Service Provider** and **Shared UUI** operation modes that are available in Avaya Aura® Experience Portal (AAEP).

At high level, the information to pass User-To-User header is provided in the AAI exit parameter of SSA and/or WTA. ICR CCA captures this information and passes that information to subsequent WTA that are launched while call is queued. ICR CCA handles UUI differently in each mode as described below.

For more information, see the Advance Parameter configuration of Application in the Experience Portal Manager documentation.

UUI handling in the Service Provider mode

In the Service Provider mode, application developer must take care of:

- Capturing and formatting **UCID**.
- Collecting information from a caller to ensure that the Screen Pop and Cradle-To-Grave reporting works properly.
- Providing the value back to ICR CCA using exit parameter AAI.

ICR CCA captures exit parameter AAI from SSA and passes the same information in User-To-User header of a queued or transferred call. If a call is queued, this information is passed to WTA that ICR CCA launches. The WTA can update this information and provide that information back to ICR CCA in exit parameter AAI in similar way WTA does in SSA. If the information is updated by WTA then ICR CCA updates User-To-User header of queued call.

For more information on capturing UCID, see the Developer's guide of Orchestration Designer (OD).

Tip:

- Application developer must ensure that the UUI information present in an incoming call is preserved in SSA.
- Formatting the UCID and the information collected from a caller is not mandatory for an application developer. However, this impacts Screen Pop and Cradle-to-Grave reporting.

UUI handling in Shared UUI Mode

In the Service Provider mode, application developer must take care of capturing the information based on the information collected from the caller and provide that information back to ICR CCA using the AAI exit parameter.

ICR CCA captures information from the AAI exit parameter from SSA. ICR CCA formats UCID along with information captured from the AAI exit parameter to ensure that Screen Pop and Cradle-To-Grave reporting works properly. ICR CCA then passes the formatted value in the User-To-User header of a queued or a transferred call.

If a call is queued, ICR CCA passes the AAI exit parameter information to WTA, which ICR CCA launches. The WTA can update this information and provide that information back to ICR CCA in the AAI exit parameter. If WTA updates the information then ICR CCA updates the User-To-User header of a queued call.

Tip:

- Application developer must ensure that the UUI information present in an incoming call is preserved in SSA.

- ICR CCA utilizes UCID generation functionality of MPP. If UCID is not available, ICR CCA formats information captured in the AAI exit parameter. However, this impacts Cradle-to-Grave reporting.

About Custom Report for ICR

This section describes about creating custom reports, such as ICR CCA, SSA, WTA, and EHA for ICR application.

You can use this information to create custom reports as per requirements. AAEP feature of generating custom report for session detail record (SDR) is leveraged to generate custom report.

For more information, see “Generating a Custom report using EPM” topic in AAEP documentation.

Creating custom session details report for ICR CCA

1. Log in to the Experience Portal Manager Web interface using an account with the Administration or ICR Administration role.
2. From the Experience Portal Manager main menu, select **Reports** > **Custom**.
3. On the **Custom Reports** page, click **Add**.
4. In the **Select a Source Report** section, select **Session Detail Report** from the **Custom Reports** drop-down list.
5. In the **Report Name** field, enter the report name.
6. In the **Date and Time** section, select the start date and end date.
7. In the **Optional Filters** section, click the **more >>** link.
8. In the **Application Session Variables** section, click the pencil icon for the Exit Info fields to rename.

   Rename the Exit Info fields as mentioned below:

Field	Exit Information
Exit Info #1	Application Type
Exit Info #2	Destination
Exit Info #3	Re-queue reason list
Exit Info #4	Max EWT Destination
Exit Info #5	Max Queue position Destination
Exit Info #6	Max EWT
Exit Info #7	Max Queue position
Exit Info #8	Total SSA duration
Exit Info #9	Total WTA duration
Exit Info #10	Total CCA duration

9. In the **Application Type** (Exit Info #1) field enter **ICRCCA**.
10. Select a check box in the **Show Column** column for the fields that you want to display in a report.

11. Click **Save**.

Similarly, you can create Session Summary report for ICR CCA sessions. The SDR are tagged with value "ICRCCA" in Exit Info #1 field.

Creating custom session details report for SSA, WTA and EHA

1. Log in to the Experience Portal Manager Web interface using an account with the Administration or ICR Administration role.
2. From the Experience Portal Manager main menu, select **Reports** > **Custom**.
3. On the **Custom Reports** page, click **Add**.
4. In the **Select a Source Report** section, select **Session Detail Report** from the **Custom Reports** drop-down list.
5. In the **Report Name** field, enter the report name.
6. In the **Date and Time** section, select the start date and end date.
7. In the **Optional Filters** section, click the **more >>** link.
8. In the **Application Session Variables** section, enter following value in **Exit Info#1** field based on the application for which you want to create report.

Application	Description
Application	Value to enter in Exit Info#1
SSA	ICRSSA
WTA	ICRWTA
EHA	ICREHA

9. Select a check box in the **Show Column** column for the fields that you want to display in a report.
10. Click **Save**.

Similarly, you can create Session Summary report for SSA, WTA, and EHA. Every SDR is tagged with value in Exit Info #1 field.