## Introduction

The CallDeflection snap-in demonstrates a number of Avaya Breeze® platform features available to the snap-in writer. These features include the ability to prompt and collect, send SMS, send email and add a participant to the call.

The use case demonstrated with the CallDeflection snap-in is that of a company (Widgets, Inc.) that is launching a new product. Widgets Inc. is expecting a large increase in inbound call volume to its contact center where the primary goal of those calls is simply to inquire for more information on this new product. Rather than scaling up its contact center infrastructure and hiring more temporary agents to handle this temporary increase in call traffic, Widgets Inc. has created a snap-in that will attempt to deflect callers over to a digital communication channel to get the information that they desire instead of sending those callers into the core contact center.

The CallDeflection sample snap-in will play two prompts to the calling party. The calling party will press digits to determine which operation is performed:
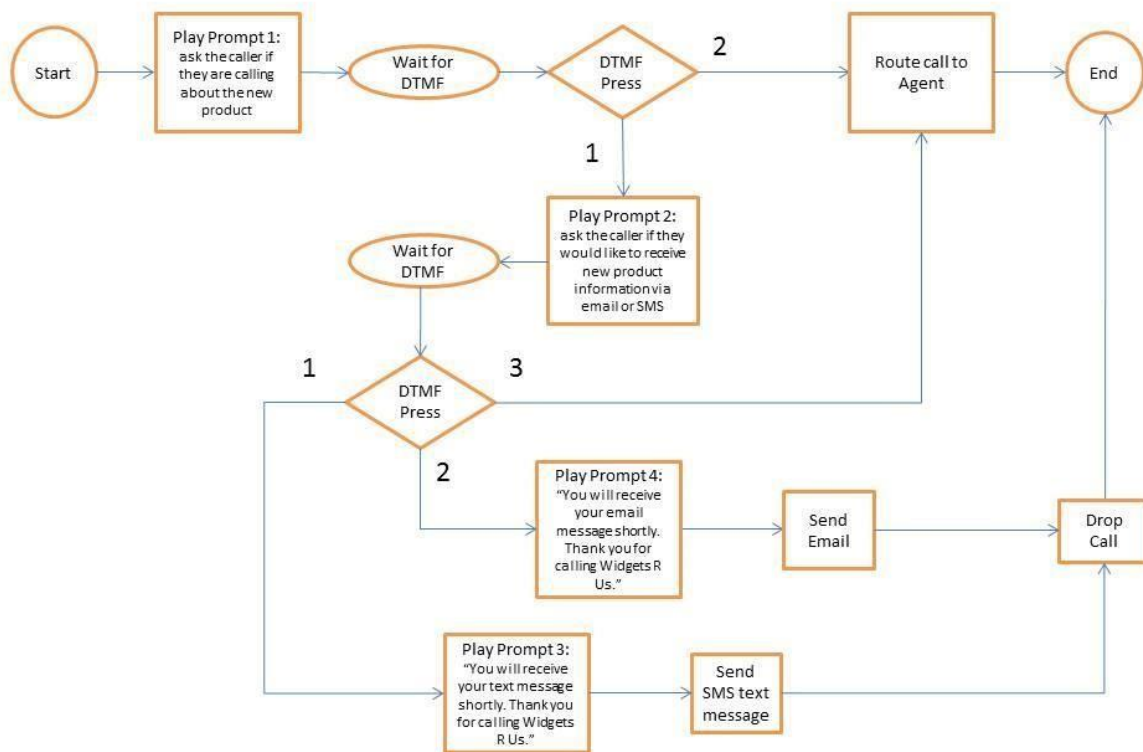
Overview

The CallDeflection snap-in can be configured to handle Zang calls or Avaya Aura™SIP calls or both. With this use case, the Zang option may be particularly attractive, as it prevents many calls from even hitting the Widgets Inc. enterprise network.

Common configuration

There is some configuration required to use the CallDeflection snap-in. Let's assume the call center 1-800 external contact number is 1-800-555-2222. When called, 1-800-555-2222 routes the caller to the CallDeflection snap-in running on Avaya Breeze.

Before You Begin:

- The administration below assumes you have configured an Avaya Aura® Session Manager and associated SIP entity links to Avaya Breeze.

- If using Avaya Aura® SIP, then additionally, the administration below assumes you have configured an Avaya Aura® Media Server, and required Avaya Breeze administration to leverage media operations using this Avaya Aura® Media Server (see *Administering Avaya Breeze*)

- The administration below assumes the called number (eg. 18005552222) does not map to a provisioned user on the Avaya Aura® System Manager

- For the purposes of this example, the Avaya Breeze® platform Cluster will contain only one Avaya Breeze® platform instance for simplicity.

In order to route this call to Avaya Breeze® platform, complete the following administration on the Avaya Aura® System Manager.

1. Create a Service Profile (example: CallDeflectionProfile) with the CallDeflection snap-in as the only service under it.
    a. On Avaya Aura® System Manager, navigate to Home>Elements>Avaya Breeze>Configuration>Service Profiles.
    b. Select New, enter the name of the profile and add only the CallDeflection service to this profile.
    c. Commit.

2. Add the CallDeflectionProfile for 18005552222 in the Implicit User Profiles screen.
    a. On Avaya Aura® System Manager, navigate to Home > Elements>> Avaya Breeze > Configuration > Implicit User Profiles.
    b. Select New, select the profile created in step 1 and then enter an exact pattern match for 18005552222 (min 11, max 11). This ensures that when a call comes to Avaya Breeze® platform in the
    "terminating" phase, Avaya Breeze® platform will invoke the CallDeflection snap-in.[1]
    c. Commit.

    [1] this pattern must match only numbers assigned to this snap-in. In this case, it must exactly match 18005552222.

3. Add the called number (18005552222) to the Dial Patterns for SIP call routing rules for Avaya Aura® Session Manager
    a. On Avaya Aura® System Manager – Navigate to Home > Elements> Routing>Routing Policies
    b. Create (if not present) a new routing policy for the Avaya Breeze® platform SIP entity.
    c. Commit.
    d. On Avaya Aura® System Manager – Navigate to Home > Elements> Routing>Dial Patterns
    e. Enter the 18005552222[2] called pattern string (min 11, max 11) leaving the "Domain" field as ALL for simplicity.

  f. Choose "Add" for the originating location and select "Apply The Selected Routing Policies to All Originating Locations" then select the Routing Policy you create in step 3b. Complete this administration by choosing the "Select" button

  g. Commit.

2
 18005552222 should not match an implicit user rule as defined on the Avaya Aura® System Manager under Home>Elements>Session Manager> Application Configuration > Implicit Users

Zang-specific configuration

If using the Zang SMS Connector or Zang Call Controller, a Zang account will be required. The called number (eg. 18005552222) must be a Zang number associated with your Zang account. See *Deploying Zang-Enabled* Avaya Breeze® platform for information about how to establish an account and configure the Zang number.

SIP-specific configuration

Avaya Aura™ specific configuration –

- Make sure SIP entity links between Avaya Aura® Session Manager and Avaya Breeze® platform are configured and are in-service.

- Make sure the called number (eg. 18005552222) that receives the CallDeflection is not defined in Avaya Aura® System Manager Home> Users > User Management > Manage Users.

- Also make sure this called number (eg. 18005552222) is not included in any patterns defined in Avaya Aura® System Manager > Elements > Session Manager > Application Configuration > Implicit Users.

- Make sure the Session Manager Routing Policy to Avaya Breeze® platform and the Dial Pattern for the called number (eg. 18005552222) have been administered

- Additionally, to establish trust between Avaya Aura® Media Server and Avaya Breeze® platform, required for the sample media playback of the prompt files over HTTPs, refer to "Importing a trust certificate to the trust store" in Media Server 7.8 *Implementing and Administering Avaya Aura® Media Server*.

Note: For assistance on exporting a trusted certificate, refer to *Administering Avaya Aura® Session Manager 7.1* in the "Certificate Management" section.

Announcement wav files

When invoked, the CallDeflection sample snap-in requests that the Prompt#.wav file be played to the caller. The various prompt wav files are located at samples/CallDeflection/CallingDeflection-war/src/main/webapp in the SDK.

When using Avaya Aura® SIP, these sample prompt wav files do not need to be installed on the Avaya Aura® Media Server. As long as the Avaya Aura® Media Server is installed and configured properly according to *Implementing and Administering Avaya Aura® Media Server 7.8*, the Avaya Aura® Media Server will be able to retrieve the wav file via HTTPs from the sample snap-in and play them to the caller.   The wav files are part of the sample snap-in war. If using the same Avaya Breeze® platform where the CallDeflection sample is installed, the announcement can be accessed by providing the following URL for the announcement source path attribute: https://<*cluster-ip or asset-ip-address*>/services/CallDeflection.

When using Zang, the wav files must be placed at a location such that they can be accessed from Zang. If it is desired to serve the files directly from the snap-in, the enterprise edge security elements (firewall, reverse proxy) must be configured to allow incoming HTTPs requests from Zang to reach the Avaya Breeze® platform cluster.

Please note that Avaya Breeze® platform should NOT be deployed directly into a DMZ (Demilitarized Zone). It may be desirable to instead serve the files from an alternate web server that is accessible from the Internet. In either case, it will be necessary to properly configure the "Announcement source path" attribute.

Attribute configuration

Attributes for the CallDeflection sample snap-in are configured in the Service Profile for Avaya Breeze® platform in Avaya Aura® System Manager. Navigate to Home>Elements>Avaya Breeze® platform>Configuration>Attributes and modify the cluster attributes for the targeted Breeze cluster as shown in **Figure 1.**

Agent Domain should match the SIP domain used for the Vector Directory Number (VDN) or Agent administered on Avaya Aura®System Manager

Agent Number should be an agent extension or VDN that the incoming call could be routed to, depending on the options chosen during Prompt-and-Collect media operations.

Announcement source path should be in the format: **If using Zang**: http://<*ZangAccessible-ipaddress*>/<path to prompt wav files>. Please recall the discussion earlier regarding the accessibility of the announcement files by Zang. **If using Avaya Aura® SIP**: http://<*breeze-asset-ip or clusterip*>/services/CallDeflection.

Email 'From' Address should be in the format handle@domain. This will be the from email address used for the email deflection case.

Email 'To' Address should be in the format handle@domain. This will be the target email address used for the email deflection case.

SMS 'From' Address should be in the format of a phone number (18005552222) or alpha representation of a phone number (eg. 1800widgets) and if using Zang is expected to be the SMS enabled Zang number associated with the Zang Account. This number will be the from number used for the SMS deflection case

SMS 'To' Address should be in the format of a numeric phone number (7205551234) and is expected to be the target used for the SMS deflection case.

Figure 1: CallDeflection Attribute Configuration

Attributes are defined in the properties.xml descriptor.

Zang-enabled Breeze Call:

The ZangCallConnector snap-in must be installed and configured. See *Deploying Zang-Enabled Avaya Breeze® platform* for additional information about configuring the ZangCallConnector.

Concepts Demonstrated

Reading attributes from the user's Service Profile.
Using Avaya Breeze API's Call.addParticipant to add the new participant.
Using Avaya Breeze API's Call.drop to drop call.
Using the Email and SMS Avaya Breeze APIs to generate message request.
Using Avaya Breeze API's MediaService.promptAndCollect to play announcement and collect digit. Using Avaya Breeze API's MediaService.play to play announcement.

Detailed description

The service framework invokes the class **CallDeflectionCallListener** recognized by the fact that it extends the CallListenerAbstract class, and is annotated with @TheCallListener.
The CallDeflectionCallListener.callIntercepted() method starts with the Prompt 1 message.
CallDeflectionMediaListener class extends the MediaListenerAbstract class. It is used to listen for the media operation events related to the main menu and the Prompt message.

Operations

The detailed media operations and call operations are implemented in the "com.avaya.services.CallDeflection" java package.

CallDeflectionMediaOperationsImpl class demonstrates how to request the announcement, prompt and collect and shows how to setup the media listener related to the media operation.

It shows how to set up a PlayItem to be used by Mediaservice.play feature. The field **promptNumber** is used to determine which prompt will be performed next. **CallDeflectionMediaOperationsImpl** class also shows how to set up a PlayItem and DigitOptions to be used by the MediaService.promptAndCollect feature. It has set the 10 seconds as the timeout for the digitOptions. This means it will wait for only 10 seconds to let the user decide.

CallDeflectionOperationsImpl show how to addParticipant, drop call, and how to interact with sendSMS and sendEmail.

The Email operation is implemented in the com.avaya.services.CallDeflection.email package.
The **CallDeflectionEmailListener** class logs statements and events when receiving responses about the email from the email connector.
The **CallDeflectionEmailSender** class shows how to generate the email HTTP and send email to the email connector.

The SMS operation is implemented in the com.avaya.services.CallDeflection.sms package.
The **CallDeflectionSmsListener** class logs statements and events when receiving responses about the SMS from the SMS connector.
The **CallDeflectionSmsSender** class shows how to generate the SmsRequest, and send to the SMS connector

Snap-in Invocation

The properties.xml document under CallDeflection-svar/src/main/resources has been configured to ensure the CallDeflection sample snap-in gets invoked appropriately.

Installation and Configuration

The CallDeflection sample snap-in can be found in the SDK zip at: /samples/CallDeflection.

Change directories to where the snap-in resides and compile it (mvn clean install). Load and install the svar on System Manager, assigning it to users, and configuring the display string attributes for the Service Profile.

To use the CallDeflection sample snap-in, install and configure according to snap-in documentation, the following snap-ins :
1. ZangCallConnector [optional – Avaya Aura® SIP is also supported]
2. An SMS Connector, such as ZangSMSConnector
3. EmailConnector

For information on installing the snap-in, assigning it to users, and configuring the display string attribute for the Service Profile see *Administering* Avaya Breeze® platform.

Testing the Snap-in using an example
Assuming two numbers: calling party: 7205551234@avaya.com, called party: 18005552222@widget.com

1.) **Avaya Aura™SIP Call:** 7205551234@avaya.com is the user had been configured in the System Manager as a use and is meant to represent the customer. 18005552222@widget.com is not a known user configured in the Session Manager's Implicit Users and User Management. Detailed procedures are described in the Overview section.
2.) **Zang-enabled Breeze Call:** use the Zang phone number from a valid Zang account at Zang.io. In the example, 18005552222 was the number used to represent the Zang account phone number
3.) Setup Service Profiles, and Implicit User Profiles for 18005552222@widget.com as the procedures described in the Overview section .
4.) Call 18005552222 from 7205551234 number.
5.) Prompt 1 is played, and the main menu options are presented. Based on the digit pressed, it will play the next prompt or call the agent configured in the attributes.
6.) Dial 1, Prompt 2 will be played.
7.) Dial 1: Prompt 3 will be played, then send SMS text and the call will drop.
8.) Repeat 4-6.
9.) Dial 2 Prompt 4 will be played, then send email[1] and call will drop.
10.) Repeat 4-6.
11.) Dial 3, then agent will be connected to the caller.
12.) Repeat 4-5
13.) Dial 2, agent will be connected to the caller.

Troubleshooting
No play message after the call.
Action:
1. Make sure the Implicit Users profile is configured correctly based on the Overview section.
2. Make sure the called party is not included in any of the Implicit Users Rules in the Session Manager administration, and make sure the called party is not defined as a User in User Management on Avaya Aura® System Manager.
3. Make sure the Announcement source path is correct. (Avaya Aura® SIP or Zang)
4. Make sure that the trust relationship has properly been configured on the media server. (Avaya Aura® SIP)

---

[1] In a production application of this sort, the email address of the caller can be retrieved from a CRM system or similar database. For simplicity, this sample application supports only a single provisioned email address across all callers.