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Avaya Solution & Interoperability Test Lab

Application Notes for Chrysalis Blueworx Voice Response (BVR) with Avaya Aura® Communication Manager and Avaya Aura® Session Manager - Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Chrysalis Blueworx Voice Response (BVR) with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. Chrysalis BVR is an interactive voice response (IVR) application that supports inbound SIP calls and performs blind transfers and passes user-user information (UUI) to call center agents via SIP. Using a sample application, Chrysalis BVR received an incoming call, played a greeting, prompted for an account number to be passed as user-user information (UUI), and then performed a blind transfer to Avaya one-X® Agent, which in turn answered the call and initiated a screen pop using Salesforce.com. Contact information mapped to the account number in Salesforce.com was displayed in the screen pop window. Chrysalis BVR used a SIP trunk established to Avaya Aura® Session Manager.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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1. Introduction

These Application Notes describe the configuration steps required to integrate Chrysalis Blueworx Voice Response (BVR) with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. Chrysalis BVR is an interactive voice response (IVR) application that supports inbound SIP calls and performs blind transfers to call center agents and passes user-user information via SIP. Chrysalis BVR connects to Avaya Aura® Session Manager via a SIP trunk.

The following is a description of the sample IVR application used by Chrysalis BVR.

1. User dials a number that gets routed over the SIP trunk to Chrysalis BVR. In this case, the number is *78600*.
2. Chrysalis BVR answers the call and executes the IVR application (i.e., *GetSfdcAcct.vxml*).
3. The IVR application plays a greeting and prompts the user for an account number. The account number will be passed as user-user information (UUI) when the call is transferred to a call center agent using SIP.
4. The IVR application transfers the call to a Vector Directory Number (VDN), which executes a Vector on Communication Manager.
5. The Vector queues the call to a skill, where one-X Agent is logged in as a member.
6. one-X Agent answers the call and then initiates a screen pop using Salesforce.com.
7. one-X Agent passes the account number to Salesforce.com, which displays the contact information corresponding to the account number.

Refer to the appropriate Chrysalis documentation listed in **Section 11** for additional product information.

2. General Test Approach and Test Results

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

Interoperability compliance testing covered feature and serviceability testing. The feature testing was conducted by placing incoming calls to Chrysalis BVR from local and PSTN stations and verifying that Chrysalis BVR answered the call, executed a sample IVR application, played a greeting, prompted for an account number (to be passed as UUI), performed a blind transfer to a call center agent (i.e., Avaya one-X® Agent), and passed UUI to the agent. Avaya one-X® Agent then initiated a screen pop using Salesforce.com, which displayed the contact information corresponding to the UUI.

The serviceability testing focused on verifying the usability of Chrysalis BVR after a reboot and disconnecting and reconnecting the Ethernet cable to the Chrysalis BVR server.

2.1. Interoperability Compliance Testing

All test cases were performed manually. The following features were verified:

- Establishing SIP trunks to Avaya Aura® Session Manager and verifying the exchange of SIP OPTIONS messages.
- Incoming calls to Chrysalis BVR using G711mu-law codec.
- Support of direct IP-to-IP media (also known as "Shuffling" which allows Chrysalis BVR to send audio RTP packets directly to another IP endpoint without using media resources on the Avaya Media Gateway or Avaya Media Server).
- Blind transfers from Chrysalis BVR to local and PSTN stations.
- Passing UUI to call center agent via SIP REFER message.
- Blind transfer to Avaya one-X® Agent, serving as a call center agent, which initiates a screen pop using Salesforce.com and passes along the UUI.
- Verifying that the Chrysalis BVR sample application can handle error conditions, such as transfer to busy local station or PSTN phone, transfer to PSTN with no trunks available, and transfer to a hunt group/skill with no available queue slots.

For the serviceability testing, the Ethernet cable to Chrysalis BVR was disconnected and reconnected to verify proper operation. Chrysalis BVR was also rebooted to verify that it was operational after coming back into service.

2.2. Test Results

All test cases passed.

2.3. Support

For technical support and information on Chrysalis BVR, contact Chrysalis at:

- Phone: (918) 858-3942
- Email: support@blueworx.com
- Website: http://www.blueworx.com/support

3. Reference Configuration

Figure 1 illustrates a sample configuration with an Avaya SIP-based network that includes the following products:

- Avaya Aura® Communication Manager running in a virtual environment with an Avaya G450 Media Gateway.
- Media resources in the Avaya G450 Media Gateway and Avaya Aura® Media Server (not shown in figure).
- Avaya Aura® Session Manager connected to Communication Manager via a SIP trunk and acting as a Registrar/Proxy for SIP telephones.
- Avaya Aura® System Manager used to configure Session Manager.
- Avaya 9600 and 96x1 Series H.323 and SIP Deskphones.
- Chrysalis BVR provided the IVR application and connected to Session Manager via a SIP trunk. Chrysalis BVR was installed in a virtual environment.
- The LAN is connected to the Internet (not shown).
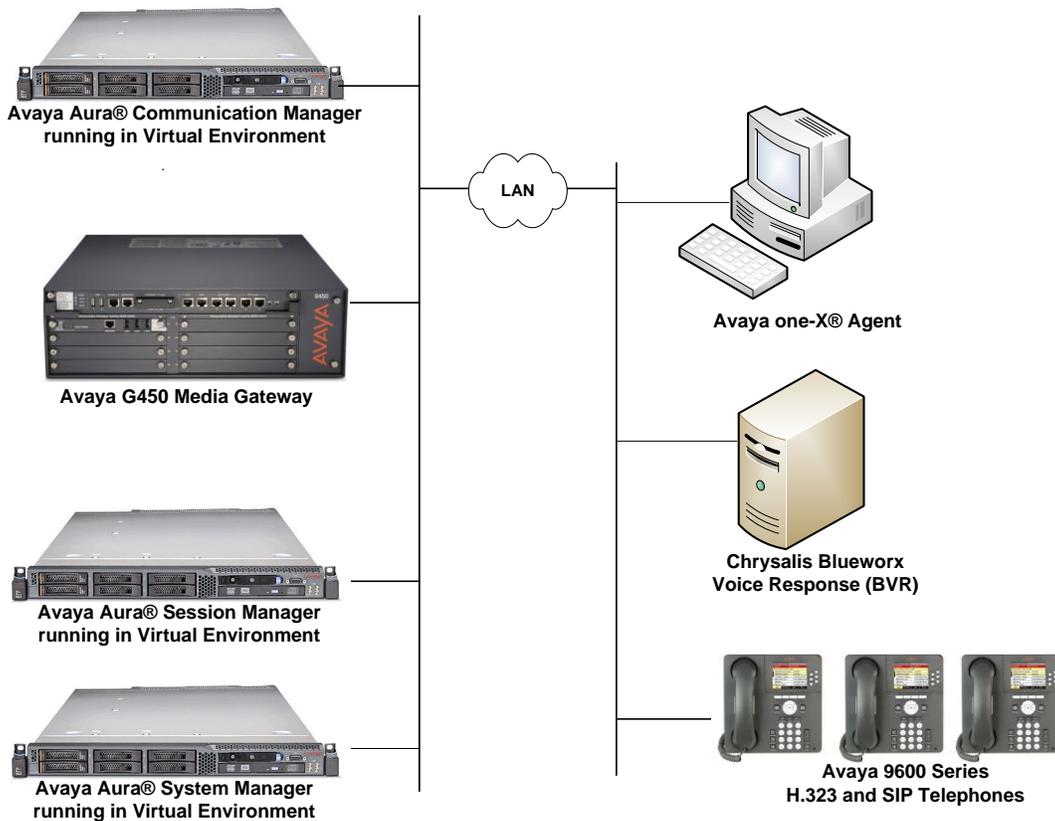
Figure 1: Chrysalis BVR in an Avaya SIP-based Network

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment/Software	Release/Version
Avaya Aura® Communication Manager	7.0.1.1 FP1 SP1 (R017x.00.0.441.0 with Patch 23169)
Avaya Aura® Media Server	7.7.0.226
Avaya Aura® Session Manager	7.0.1.1 (7.0.1.1.701114)
Avaya Aura® System Manager	7.0.1.1 (Build No. 7.0.0.016266 Software Update Revision No: 7.0.1.1.065378 Service Pack 1)
Avaya one-X® Agent	2.5.8 Patch 6 (2.5.58020.604) (H.323)
Avaya 9600 Series IP Phones	3.260A (H.323)
Avaya 96x1 Series IP Phones	7.0.1.1.5 (SIP)
Chrysalis Blueworx Voice Response (BVR)	7.1.1.201611021520

5. Configure Avaya Aura® Communication Manager

The configuration of Communication Manager is performed via the System Access Terminal (SAT) and covers the steps to perform the following required tasks.

- Administer Station for Avaya one-X Agent
- Administer Class of Restriction (COR)
- Administer Vector and VDN
- Modify SIP Trunk Group
- Route Call to Chrysalis BVR

5.1. Administer Station for Avaya one-X® Agent

Use the **add station** command to create a station for Avaya one-X Agent. Set the **Type** field to the station type to be emulated. In this example, *9630* was used. Set the **Port** field to *IP* and configure a **Security Code** as that password to be used by one-X Agent to log in. Also, specify the appropriate COR, which will be modified in **Section 5.2**. Set the **IP Softphone** field to *y*.

```
add station 77400                                       Page   1 of   5
                              STATION

Extension: 77400                   Lock Messages? n              BCC: 0
      Type: 9630                    Security Code: 1234            TN: 1
      Port: IP                     Coverage Path 1:              COR: 1
      Name: Chrysalis              Coverage Path 2:              COS: 1
                                   Hunt-to Station:            Tests? y
STATION OPTIONS
                                        Time of Day Lock Table:
            Loss Group: 19       Personalized Ringing Pattern: 1
                                          Message Lamp Ext: 77400
        Speakerphone: 2-way            Mute Button Enabled? y
     Display Language: english            Button Modules: 0
 Survivable GK Node Name:
        Survivable COR: internal         Media Complex Ext:
   Survivable Trunk Dest? y               IP SoftPhone? y

                                     IP Video Softphone? n
                       Short/Prefixed Registration Allowed: default

                                    Customizable Labels? y
```

On **Page 4** of the Station form, configure the additional feature buttons in bold, which are used by one-X Agent to log in as an Automatic Call Distribution (ACD) agent.

```
add station 77400                                           Page   4 of   5
                              STATION
 SITE DATA
       Room:                                        Headset? n
       Jack:                                        Speaker? n
      Cable:                                        Mounting: d
      Floor:                                     Cord Length: 0
   Building:                                       Set Color:

ABBREVIATED DIALING
     List1:                   List2:                    List3:

BUTTON ASSIGNMENTS
 1: call-appr                      5: manual-in          Grp:
 2: call-appr                      6: after-call         Grp:
 3: call-appr                      7: aux-work    RC:    Grp:
 4: auto-in            Grp:        8: release
    voice-mail
```

On **Page 5**, add a **uui-info** button as shown below.

```
change station 77400                                       Page   5 of   5
                              STATION

BUTTON ASSIGNMENTS

 9: uui-info
10:
11:
12:
13:
14:
15:
16:
17:
18:
19:
20:
21:
22:
23:
24:
```

5.2. Administer COR

On **Page 2** of the station COR, set the **Station-Button Display of UUI IE Data** field to 'y' as shown below.

```
change cor 1                                               Page   2 of  23
                              CLASS OF RESTRICTION


                       MF Incoming Call Trace? n
                Brazil Collect Call Blocking? n
                     Block Transfer Display? n
Block Enhanced Conference/Transfer Displays? y
                     Remote Logout of Agent? n


 Station Lock COR: 1        TODSL Release Interval (hours):
                                  ASAI Uses Station Lock? n



     Station-Button Display of UUI IE Data? y
       Service Observing by Recording Device? n
               Can Force A Work State Change? n
           Work State Change Can Be Forced? n
                 Restrict Second Call Consult? n
```

5.3. Administer Vector and VDN

Use the **change vector** command to add the vector that will be executed when Chrysalis BVR transfers the call. This vector will play ringback for 2 secs and queue the call to the hunt group (hunt group 50 is not shown in these Application Notes) one-X Agent is logged into, and play an announcement if no agents are currently available and the call is queued. If an agent is available, then agent can answer the call.

```
change vector 2                                            Page   1 of   6
                                 CALL VECTOR

    Number: 2                   Name: Chrysalis BVR
Multimedia? n      Attendant Vectoring? n    Meet-me Conf? n          Lock? n
    Basic? y   EAS? y   G3V4 Enhanced? y   ANI/II-Digits? y   ASAI Routing? y
 Prompting? y   LAI? y  G3V4 Adv Route? y   CINFO? y   BSR? y   Holidays? y
 Variables? y   3.0 Enhanced? y
01 wait-time    2   secs hearing ringback
02 queue-to     skill 50   pri m
03 announcement 70000
04 goto step    2          if unconditionally
05
06
07
```

Assign an **Extension** to the VDN and specify the vector number of the vector configured in the previous step in the **Destination** field. In this configuration, the VDN was 77900, which was specified in the sample IVR application. Chrysalis BVR will transfer the call to the VDN, which will then execute the steps in the specified vector (i.e., transfer the call to a hunt group that contains one-X Agent as a member that will initiate a screen pop using UUI passed by Chrysalis BVR).

```
change vdn 77900                                              Page   1 of   3
                            VECTOR DIRECTORY NUMBER

                         Extension: 77900
                             Name*: Chrysalis BVR VDN
                       Destination: Vector Number        2
                 Attendant Vectoring? n
               Meet-me Conferencing? n
                 Allow VDN Override? n
                               COR: 1
                               TN*: 1
                          Measured: none     Report Adjunct Calls as ACD*? n

        VDN of Origin Annc. Extension*:
                         1st Skill*:
                         2nd Skill*:
                         3rd Skill*:

* Follows VDN Override Rules
```

5.4. Modify SIP Trunk Group

The SIP trunk group between Communication Manager and Session Manager must be modified to enable UUI. On **Page 3** of the SIP trunk group, set the **UUI Treatment** field to *shared* as shown below. In this configuration, SIP trunk group 10 was used.

Note: It is assumed that the SIP trunk group and signaling group have already been configured.

```
change trunk-group 10                                         Page   3 of   22

TRUNK FEATURES
         ACA Assignment? n           Measured: none
                                                   Maintenance Tests? y


   Suppress # Outpulsing? n  Numbering Format: private
                                      UUI Treatment: shared
                                    Maximum Size of UUI Contents: 128
                                        Replace Restricted Numbers? n
                                        Replace Unavailable Numbers? n

                                        Hold/Unhold Notifications? y
                            Modify Tandem Calling Number: no
              Send UCID? n

 Show ANSWERED BY on Display? y
```

5.5. Route Calls to Chrysalis BVR

In this configuration, when a user dials *78600*, the call will be routed over the SIP trunk from Communication Manager to Session Manager using AAR. Session Manager will then steer the call to the SIP trunk to Chrysalis BVR. To route the call over the SIP trunk specified in **Section 5.4** an AAR entry corresponding to *78600* needs to be added to the AAR analysis form as shown below.

```
change aar analysis 78                                          Page   1 of   2
                          AAR DIGIT ANALYSIS TABLE
                             Location: all          Percent Full: 2

          Dialed            Total     Route    Call   Node  ANI
          String          Min  Max  Pattern   Type    Num   Reqd
    78                      5    5     10      lev0          n
    78600                   5    5     10      aar           n
    8                       7    7     254     aar           n
    9                       7    7     254     aar           n
```

The AAR analysis entry will specify the route pattern, as shown below, which in turn will specify the SIP trunk group used to route the call as shown below.

```
change route-pattern 10                                         Page   1 of   3
                    Pattern Number: 10     Pattern Name: To devcon-sm
    SCCAN? n     Secure SIP? n     Used for SIP stations? n

    Grp FRL NPA Pfx Hop Toll No.  Inserted                         DCS/ IXC
    No          Mrk Lmt List Del  Digits                           QSIG
                              Dgts                                  Intw
 1: 10   0                                                         n   user
 2:                                                                n   user
 3:                                                                n   user
 4:                                                                n   user
 5:                                                                n   user
 6:                                                                n   user

     BCC VALUE  TSC CA-TSC    ITC BCIE Service/Feature PARM Sub  Numbering LAR
    0 1 2 M 4 W     Request                                 Dgts Format
 1: y y y y y n  n            rest                               unk-unk   none
 2: y y y y y n  n            rest                                         none
 3: y y y y y n  n            rest                                         none
 4: y y y y y n  n            rest                                         none
 5: y y y y y n  n            rest                                         none
 6: y y y y y n  n            rest                                         none
```
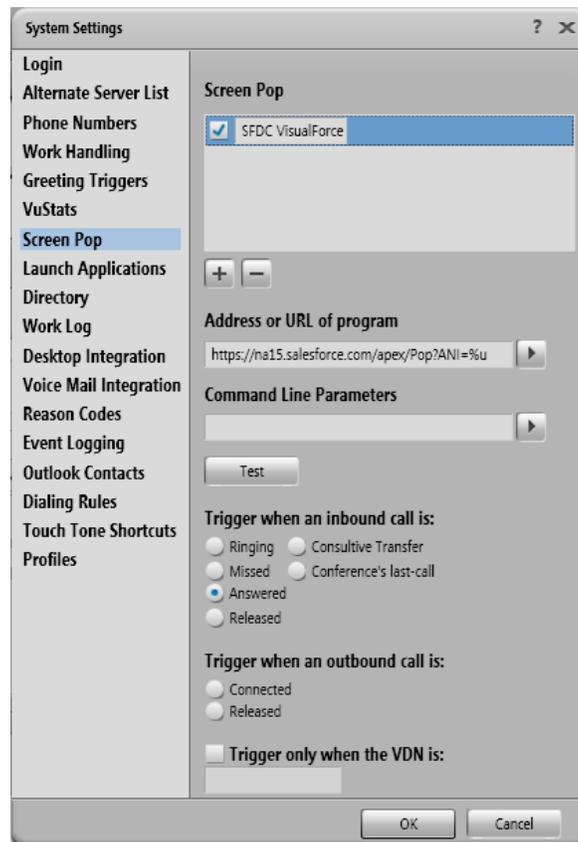
6. Configure Avaya one-X® Agent

This section covers the configuration required to initiate a screen pop when one-X Agent answers a call. After logging into Avaya one-X Agent, click on ☰ and then select **System Settings** as shown below.

Under **Screen Pop**, add a descriptive name, in this case, it is *SFDC VisualForce*. Next, provide the URL of the program to pop in the **Address or URL of program** field (e.g., *https://na15.salesforce.com/apex/Pop?ANI=%u*). This command opens Salesforce.com in a browser (assumes that user is already logged in) and passes the account number as an argument labeled ANI. That argument is used to display the appropriate contact in the screen pop. Set the **Trigger when an inbound call is** *Answered*. Click **OK**.

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7. Configure Avaya Aura® Session Manager

This section provides the procedures for configuring a SIP trunk on Session Manager for Chrysalis BVR and call routing. The procedures include adding the following items:

- SIP Entity corresponding to Chrysalis BVR
- Entity Links, which define the SIP trunk parameters used by Session Manager when routing calls to/from SIP Entities
- Routing Policies and Dial Patterns

Note: It is assumed that basic configuration of Session Manager has already been performed. This section will focus on the configuration of the SIP trunk for Chrysalis BVR.

7.1. Launch System Manager

Access the System Manager Web interface by using the URL "https://ip-address" in an Internet browser window, where "ip-address" is the IP address of the System Manager server. Log in using the appropriate credentials.

7.2. Add SIP Entity

From the System Manager **Home** screen, select **Elements → Routing → SIP Entities** and click on the **New** button on the right (not shown) to add a new SIP entity. The following screen is displayed. Fill in the following fields:

Under *General*:

- **Name:** A descriptive name (i.e., *Chrysalis BVR*).
- **FQDN or IP Address:** IP address of Chrysalis BVR (i.e., *10.64.102.111*).
- **Type:** Select *SIP Trunk*.
- **Location:** Select one of the locations defined previously.
- **Time Zone:** Time zone for this location.

Defaults can be used for the remaining fields. Click **Commit** to save the SIP Entity definition.

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7.3. Add Entity Link

From the System Manager **Home** screen, select **Elements → Routing → Entity Links** and click on the **New** button on the right (not shown) to add a new entity link. The following screen is displayed. Fill in the following fields:

- **Name:** A descriptive name (e.g., *Chrysalis BVR Link*).
- **SIP Entity 1:** Select the Session Manager.
- **Protocol:** Select the appropriate protocol (e.g., *UDP*).
- **Port:** Port number to which the other system sends SIP requests.
- **SIP Entity 2:** Select the Chrysalis BVR SIP entity.
- **Port:** Port number on which the other system receives SIP requests.
- **Connection Policy:** Select *Trusted. Note: If Trusted is not selected, calls from the associated SIP Entity specified in Section 7.2 will be denied.*

Click **Commit** to save the Entity Link definition.

7.4. Add Routing Policies

A routing policy will describe the conditions under which calls will be routed to Chrysalis BVR. From the System Manager **Home** screen, select **Elements → Routing → Routing Policies** and click on the **New** button on the right (not shown) to add a new routing policy. The following screen is displayed. Fill in the following:

Under *General*:
Enter a descriptive name in **Name**.

Under *SIP Entity as Destination*:
Click **Select**, and then select the appropriate SIP entity to which this routing policy applies.

Defaults can be used for the remaining fields. Click **Commit** to save the Routing Policy definition. The following screen shows the Routing Policy for Chrysalis BVR.

7.5. Add Dial Patterns

Dial patterns must be defined to direct calls to the appropriate SIP Entity. In the sample configuration, "78600" is routed to Chrysalis BVR. From the System Manager **Home** screen, select **Elements → Routing → Dial Patterns** and click on the **New** button on the right (not shown) to add a new dial pattern. The following screen is displayed. Fill in the following:

Under *General*:
- **Pattern:**   Dialed number or prefix.
- **Min**   Minimum length of dialed number.
- **Max**   Maximum length of dialed number.
- **SIP Domain**   SIP domain of dial pattern.
- **Notes**   Comment on purpose of dial pattern (optional).

Under *Originating Locations and Routing Policies*:
Click **Add**, and then select the appropriate location and routing policy from the list.

Default values can be used for the remaining fields. Click **Commit** to save this dial pattern.

8. Configure Chrysalis Blueworx Voice Response (BVR)

This section covers the configuration required for Chrysalis BVR to run the appropriate sample IVR application when an incoming call is received. These steps include:

- Specifying the sample IVR application in `bvr.config` file
- Sample IVR application `GetSfdcAcct.vxml`
- Restart Chrysalis BVR

Note: It is assumed that the Chrysalis BVR server has already been configured with the IP network parameters corresponding to the customer network.

8.1. Modify bvr.config File

Modify the `bvr.config` file located in the `/opt/blueworx/vr/config/<hostname>` directory, where `<hostname>` is the hostname of the server running Chrysalis BVR. In this case, it was *bvrhost*. In the **general** section, set the **default_bind_address** parameter to the IP address of Chrysalis BVR (i.e., *10.64.102.111*), as shown below. In the **app_mapping** section, set the **url** parameter to the full path name of the sample IVR application (i.e., *GetSfdcAcct.vxml*), as shown below. Also, set the **user** parameter to the regex pattern *".*"*, which will match any called number and cause it to be handled by the sample IVR application.

```
#######################
### General Section ###
#######################
# General Section is a required section and can only be defined once.
# java_command                - Optional. Allows the java command line options to be
modified for the main WVR Linux JVM.
# classpath                   - Optional. Has to be an absolute path. Allows the
CLASSPATH to be modified for the main WVR Linux JVM.  Values set here will be added to
the front of the CLASSPATH.
# maximum_call_capacity       - Optional. Maximum number of calls the system will
answer simultaneously. Should be no more than the total number of MRCP sessions
available.
# default_bind_address        - Optional. The default IP address to bind to if not
overridden in other sections.
# default_presentation_address  - Optional. The default IP address to be presented if
not overridden in other sections.

[general]
    java_command = "java -Xmx256M"
    maximum_call_capacity = 500 # Should be no more than the total number of MRCP
sessions available.
    default_bind_address = "10.64.102.111"


##########################
### App Mapping Section ###
##########################
# App Mapping Section is a required section and can be defined multiple times.
# user  - Required. Called number. A regex pattern.
# type  - Required. Type of application, vxml.
# url   - Required. URL of the application.

[[app_mapping]]
```

```
#   Added by wae to match all destinations...
    user = ".*"
    type = "vxml"
    url = "file:///opt/blueworx/vr/sample/GetSfdcAcct.vxml"
```

8.2. Modify Sample IVR Application

This section covers the required changes to the sample IVR application called
`GetSfdcAcct.vxml` which was installed in the `/opt/blueworx/vr/sample` directory
for this compliance test. The sample IVR application should specify the Session Manager IP
address (i.e., *10.64.102.117*) in the **sm_ipaddr** variable and the target VDN (i.e., *77900*) in the
dest_dn variable, as shown below. The complete sample IVR application is contained in the
Section 12: APPENDIX: Sample IVR Application.

```
<?xml version="1.0" encoding="UTF-8" ?>
<vxml version="2.1"  xmlns="http://www.w3.org/2001/vxml"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://www.w3.org/2001/vxml
http://www.w3.org/TR/voicexml20/vxml.xsd">

    <var name="account_number" expr="''"/>
    <var name="sm_ipaddr" expr="'10.64.102.117'"/>
    <var name="dest_dn" expr="'77900'"/>
    <var name="uri" expr="'hi'"/>
```

8.3. Restart Chrysalis BVR

Restart Chrysalis BVR for the changes to take effect. Change directory to
`/opt/blueworx/vr/bin` and enter the following commands:

- ▪ `./bvr -q` to quiesce BVR
- ▪ `./bvr -s` to start the Chrysalis BVR application

9. Verification Steps

This section provides the tests that can be performed to verify proper installation and
configuration of Chrysalis BVR with Avaya Aura® Communication Manager and Avaya Aura®
Session Manager.
1. Start Chrysalis BVR as described in **Section 8.3**.
2. Place an incoming call to Chrysalis BVR.
3. Chrysalis BVR answers the call, plays a greeting, and prompts for account number.
4. Chrysalis BVR transfers call to VDN, which routes the call to one-X Agent logged into
   the hunt group.
5. One-X Agent initiates a screen pop using Salesforce.com and displays the appropriate
   contact information based on the UUI.

10. Conclusion

These Application Notes describe the configuration steps required to integrate Chrysalis Blueworx Voice Response (BVR) with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. All test cases were completed successfully.

11. Additional References

This section references the Avaya and Chrysalis documentation that are relevant to these Application Notes.

The following Avaya product documentation can be found at http://support.avaya.com.

[1] *Administering Avaya Aura® Communication Manager*, Release 7.0.1, Issue 2, May 2016, Document Number 03-300509.
[2] *Administering Avaya Aura® Session Manager*, Release 7.0.1, Issue 2, May 2016.

The following Chrysalis product documentation is available from Chrysalis.

[3] *Insallation and Configuration for BVR for Linux*, Version 7.1.1.

12. APPENDIX: Sample IVR Application

This section provides a copy of the sample IVR application, *GetSfdcAcct.vxml*, used for the compliance test.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<vxml version="2.1"  xmlns="http://www.w3.org/2001/vxml"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://www.w3.org/2001/vxml
http://www.w3.org/TR/voicexml20/vxml.xsd">

    <var name="account_number" expr="''"/>
    <var name="sm_ipaddr" expr="'10.64.102.117'"/>
    <var name="dest_dn" expr="'77900'"/>
    <var name="uri" expr="'hi'"/>

    <script>
        <![CDATA[
          function EncodeUui(rawString)
          {
            var encodedString = "";
            for (var i = 0; i < rawString.length; i++) {
                encodedString = encodedString + "3" + rawString[i];
            }
            return encodedString;
          }
        ]]>
    </script>

    <form id="Welcome">
        <block>
            <prompt>
                <audio src="Welcome.wav" />
            </prompt>
            <goto next="#GetAccount"/>
        </block>
    </form>

    <form id="GetAccount">
        <field name="getAcct">
            <prompt>
                <audio src="EnterAcctNum.wav" />
            </prompt>

            <grammar src="builtin:dtmf/digits?length=10"/>

            <filled>
                <if cond="getAcct.length == 10">
                    <assign name="account_number" expr="getAcct"/>
                    <goto next="#xferForm"/>
                </if>
                <clear namelist="getAcct"/>
            </filled>
        </field>
    </form>

    <form id="xferForm">
        <block>
            <prompt>
```

```
            <audio src="PleaseHoldForTransfer.wav" />
        </prompt>
        <assign name="uri" expr="'sip:' + dest_dn + '@' + sm_ipaddr + '?User-to-
User=00C80A' + EncodeUui(account_number)"/>
    </block>
    <transfer destexpr="uri" type="consultation" name="trf">
        <filled>
            <if cond="trf == 'busy'">
                <log> unable to transfer due to Busy </log>
                <goto next="#unableToXfer"/>
            </if>
            <if cond="trf == 'unknown'">
                <log> unable to transfer due to Unknown </log>
                <goto next="#unableToXfer"/>
            </if>
            <log> *** transfer successful *** </log>
        </filled>
    </transfer>
</form>

<catch event="error.connection error.unsupported">
    <log> Caught Event result : <value expr="_event" /> </log>
    <goto next="#unableToXfer"/>
</catch>

<form id="unableToXfer">
    <block>
        <prompt>
            <audio src="UnableToXfer.wav" />
        </prompt>
        <log> Unable to transfer - take alternate action </log>
        <exit expr="'unableToXfer'" />
    </block>
</form>
</vxml>
```

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