Avaya Solution & Interoperability Test Lab

Application Notes for InfoTalk-Recognizer 10.0 with Avaya Aura® Experience Portal 7.0, Avaya Aura® Communication Manager 6.2 FP4 and Avaya Aura® Session Manager 6.2 FP4 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for InfoTalk-Recognizer 10.0 to successfully interoperate with Avaya Aura® Experience Portal 7.0, Avaya Aura® Communication Manager 6.2 FP4 and Avaya Aura® Session Manager 6.2 FP4. Avaya Aura® Experience Portal running VoiceXML applications hosted on Microsoft IIS utilizes the automatic speech recognition (ASR) features of InfoTalk-Recognizer 10.0 using the Media Resource Control Protocol (MRCP) Version 2.

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.

©2015 Avaya Inc. All Rights Reserved.

1. Introduction

These Application Notes describe the configuration steps required for InfoTalk-Recognizer 10.0 to successfully interoperate with Avaya Aura® Experience Portal 7.0, Avaya Aura® Communication Manager 6.2 FP4 and Avaya Aura® Session Manager 6.2 FP4. Avaya Aura® Experience Portal (AAEP) running VoiceXML applications hosted on Microsoft IIS utilizes the automatic speech recognition (ASR) features of InfoTalk-Recognizer 10.0 using the Media Resource Control Protocol (MRCP) Version 2.

InfoTalk-Recognizer is a software solution running both the InfoTalk-Recognizer ASR engine and the InfoTalk MRCP Server Version 2.0 application on Ubuntu 14.10.

2. General Test Approach

The general test approach is to place calls manually to Avaya Aura® Experience Portal running VXML applications that uses the ASR resources of InfoTalk-Recognizer solution.

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.

2.1. Interoperability Compliance Testing

This Interoperability Compliance Test included feature and serviceability testing. The feature testing focused on placing calls to Avaya Aura® Experience Portal that ran Voice XML scripts in English, Cantonese and Putonghua (Traditional Chinese) that uses the ASR engines on the InfoTalk-Recognizer solution. The compliance test focused on placing calls to verify the accuracy of ASR detection.

The serviceability testing focused on verifying the ability of InfoTalk-Recognizer solution to recover from adverse conditions such as rebooting of InfoTalk server and Avaya Aura® Experience Portal and disconnecting the LAN cables to the InfoTalk server.

2.2. Test Results

All test cases passed. Avaya Aura® Experience Portal 7.0 was successful in running applications that use the ASR resources of the InfoTalk-Recognizer solution. A point to note is that InfoTalk-Recognizer does not support built-in grammar for DTMF recognition.

©2015 Avaya Inc. All Rights Reserved.

2.3. Support

For technical support on InfoTalk-Recognizer and MRCP Server contact:

- Telephone : +852 2190 9600
- Fax : +852 2788 2306
- Email : support@infotalkcorp.com

©2015 Avaya Inc. All Rights Reserved.

3. Reference Configuration

Figure 1 illustrates the configuration used to verify InfoTalk-Recognizer 10.0 solution. The InfoTalk-Recognizer 10.0 and InfoTalk MRCP Server 2.0 software were installed on Ubuntu 14.10. VoiceXML scripts that used the ASR engine were hosted on another Windows 2003 Server with Service Pack 2 installed running IIS 7.0. Avaya Aura® Experience Portal is connected to Avaya Aura® Session Manager and Avaya Aura® Communication Manager using SIP VoIP Connections. Avaya IP telephones were used to place calls to Avaya Aura® Experience Portal, which would run the VoiceXML applications. The applications would use the InfoTalk-Recognizer ASR engine for speech detection.

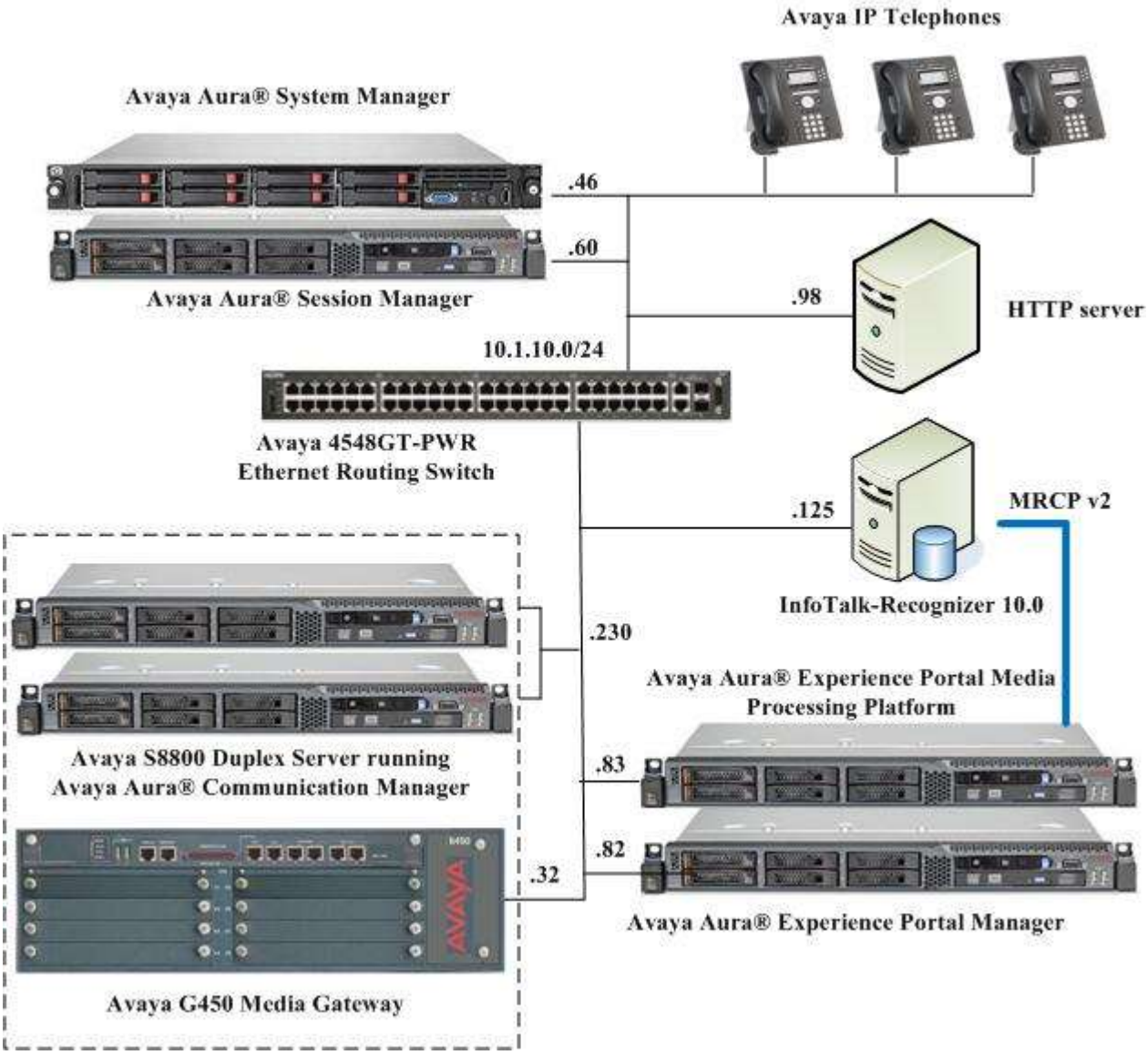


Figure 1: InfoTalk-Recognizer 10.0 with Avaya Aura® Experience Portal Configuration

©2015 Avaya Inc. All Rights Reserved.

4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Communication Manager on Avaya S8800 Server (Duplex)	6.3.9 (Build R016x.03.0.124.0-21971)
Avaya G450 Media Gateway	36.7.0
Avaya Aura® System Manager on HP DL360 G7	6.3.11.8.2933
Avaya Aura® Session Manager on Avaya S8800 Server	6.3.11.0.631103
Avaya Aura® Experience Portal 7.0 running on VMware 5.1u1	EPM - 7.0.0.0.6604 MPP - 7.0.0.0.6619
Avaya 4548GT-PWR Ethernet Routing Switch	FW: 5.3.0.3 SW: v5.6.1.052
Microsoft IIS on Windows Server 2003 Standard Edition SP2	7.0
InfoTalk-Recognizer on Ubuntu 14.10 running on VMware 4.1u1	10.0

©2015 Avaya Inc. All Rights Reserved.

5. Configure Avaya Aura® Communication Manager

The configuration of the SIP Trunks between Communication Manager and Session Manager, and the routing of calls to Experience Portal are assumed to be in place and will not be discussed here. This section provides the additional procedures to configure Communication Manager for the purpose of administering InfoTalk-Recognizer. The configuration is performed via the System Access Terminal (SAT).

Step	Description
1.	Enter the **change ip-codec-set n** command where **n** is a valid IP codec-set associated with the IP network region that is used by Experience Portal, typically the IP network region assigned to the Session Manager SIP Trunk signaling group. Set **Audio Codec** to an appropriate value supported by Avaya Aura® Experience Portal and InfoTalk-Recognizer. In this configuration, the **G.711MU** codec was used.

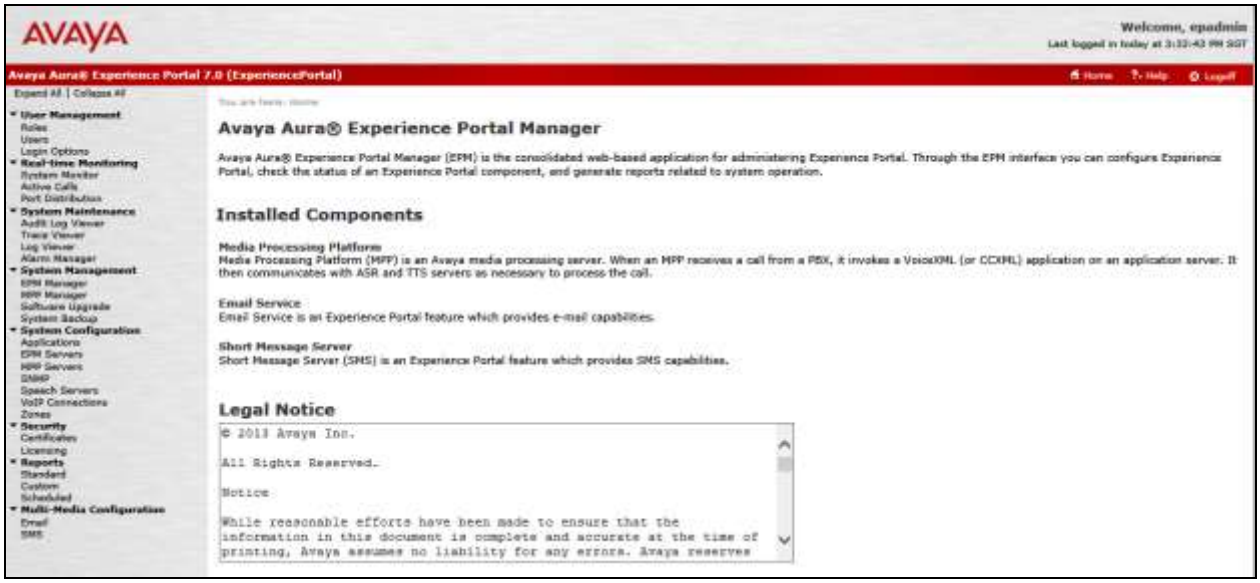
```
change ip-codec-set 6                                          Page   1 of   2

                           IP Codec Set

   Codec Set: 6

   Audio         Silence      Frames   Packet
   Codec         Suppression  Per Pkt  Size(ms)
 1: G.711MU           n         2        20
 2:
 3:
 4:
 5:
 6:
 7:
```


©2015 Avaya Inc. All Rights Reserved.

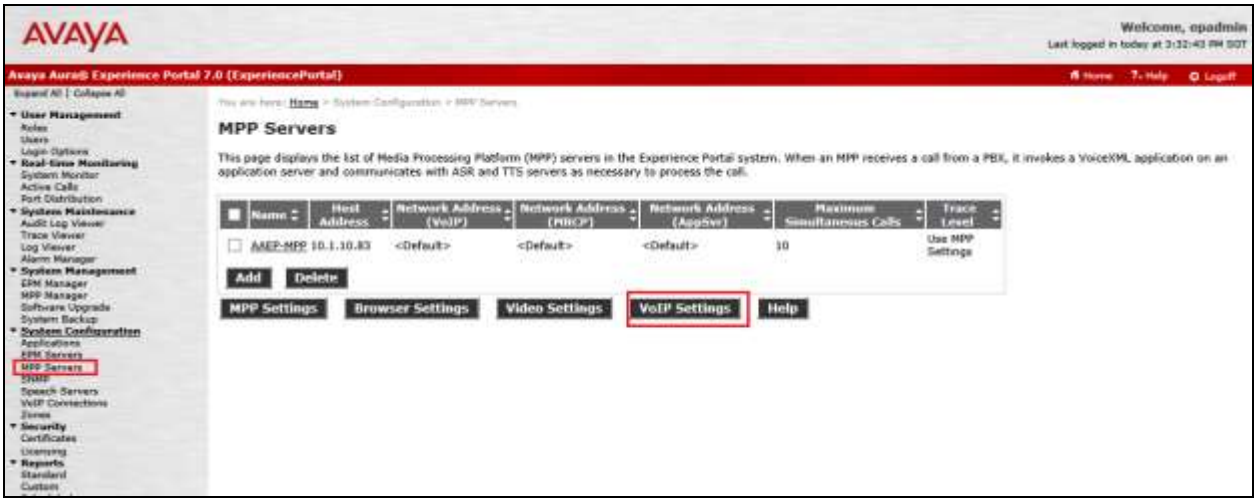
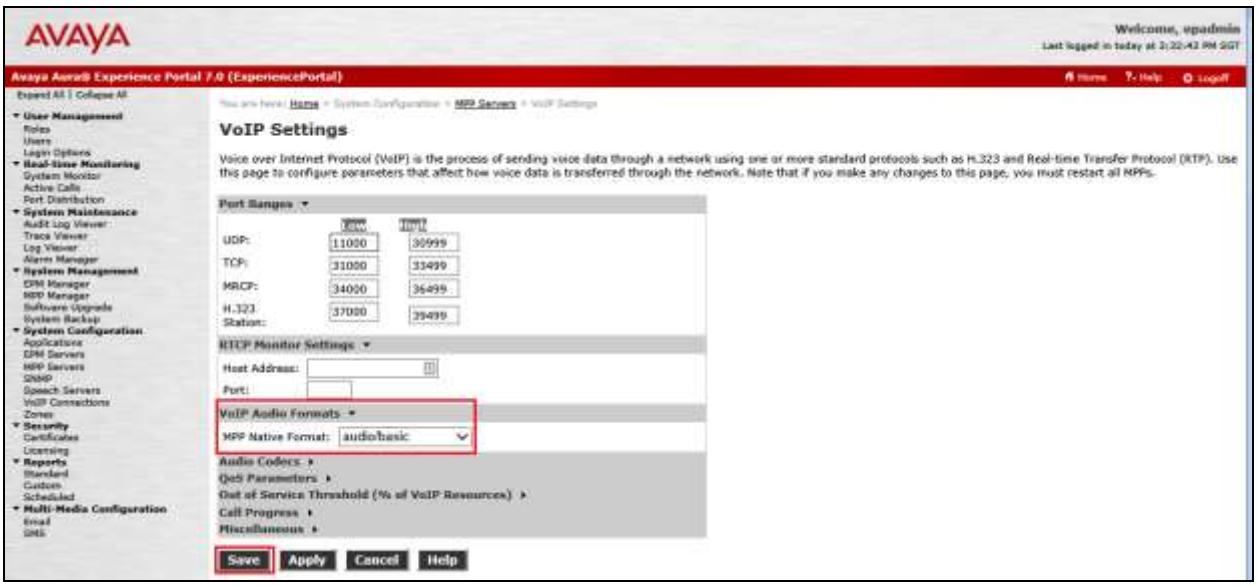
6. Configure Avaya Aura® Experience Portal

The initial administration of Avaya Aura® Experience Portal and the configuration of the SIP VoIP Connection to Session Manager are assumed to be in place and will not be discussed here. This section covers the additional procedures of Avaya Aura® Experience Portal that is required for the purpose of administering InfoTalk-Recognizer. The following steps will be covered:

- Configuring the VoIP audio format
- Adding InfoTalk-Recognizer as a ASR server
- Adding applications

Step	Description
1.	Avaya Aura® Experience Portal is configured via the Avaya Aura® Experience Portal Manager (EPM) web interface. To access the web interface, enter **https://<ip-addr>** as the URL in an internet browser, where **<ip-addr>** is the IP address of the EPM. Log in using an account with the Administration role to display the main page. 

©2015 Avaya Inc. All Rights Reserved.

Step	Description
2.	To configure the codec used by the Media Processing Platform (MPP) server, click **System Configuration → MPP Servers** in the left pane and click **VoIP Settings**. 
3.	Set **MPP Native Format** to **audio/basic** to configure the MPP server for G.711 mu-law to match the configuration on Communication Manager in **Section 5**. Scroll down the page and click **Save**. 

©2015 Avaya Inc. All Rights Reserved.

Step	Description
4.	InfoTalk-Recognizer is not natively included in the set of ASR engines supported by Avaya Aura® Experience Portal and will not initially appear in the ASR configuration screen. To add InfoTalk-Recognizer to the list of supported engines, log into the EPM server, either locally or remotely through Secure Shell (SSH), and locate the **`languages.properties`** file found in **`/opt/Tomcat/apache-tomcat-6.0.32/webapps/VoicePortal/WEB-INF/classes/messages/`**. Edit the file and add the lines shown below to the appropriate section.

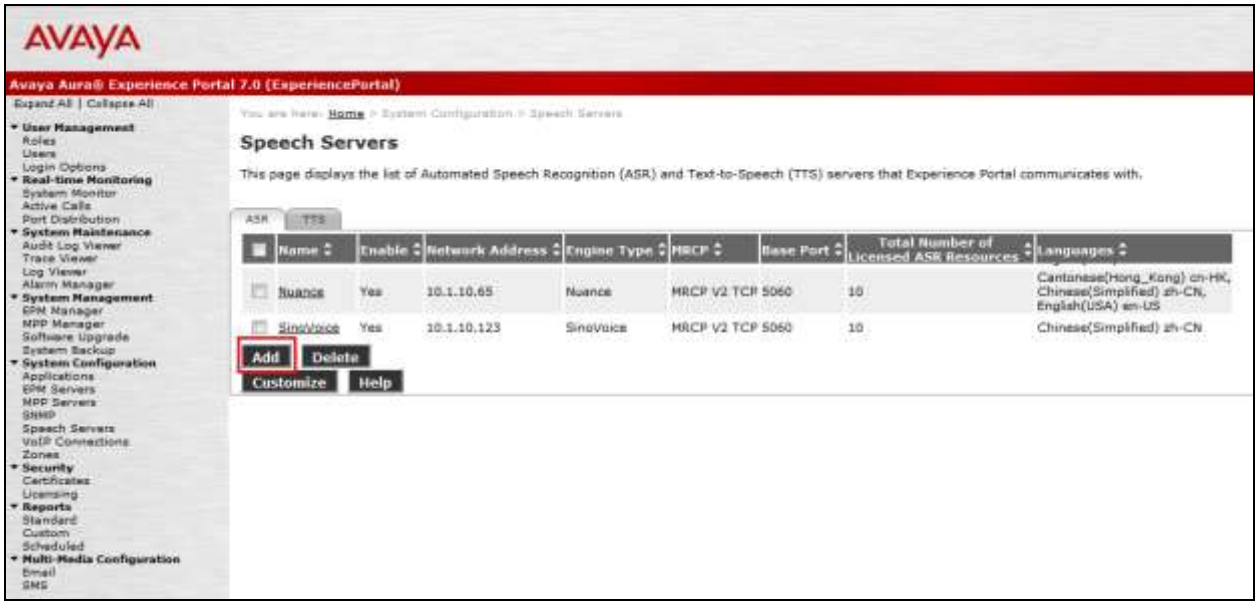
```
< Some lines removed for brevity >

#>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
#{{START:PROPERTIES:EXPERIENCEPORTAL_7.0
#######################################################################
# THIS SECTION IS SPECIFIC TO EXPERIENCE 7.0
# 1. ADD ANY NEW PROPERTIES FOR EXPERIENCE 7.0 TO ADDITIONS SECTION WITHIN 7.0
SECTION.
# 2. TO MODIFY A PRE-EXISTING PROPERTY, MOVE IT TO MODIFICATIONS SECTION WITHIN 7.0
AND THEN MODIFY IT.
# 3. TO DELETE A PRE-EXISTING PROPERTY, MOVE IT TO DELETIONS SECTION WITHIN 7.0 AND
THEN COMMENT IT OUT.
#######################################################################
#{{START:PROPERTIES:EXPERIENCEPORTAL_7.0:ADDITIONS
# Specify any new properties for Experience Portal 7.0 here.
InfoTalkMRCPLabels=MRCP V1,MRCP V2
InfoTalkTransportLabels=TCP

< remaining lines removed for brevity >
```


©2015 Avaya Inc. All Rights Reserved.

Step	Description
5.	Locate the **languages.properties** file found in **/opt/Tomcat/apache-tomcat-6.0.32/webapps/VoicePortal/WEB-INF/classes/config**. Edit the file and add the fields and lines shown below to the appropriate section.

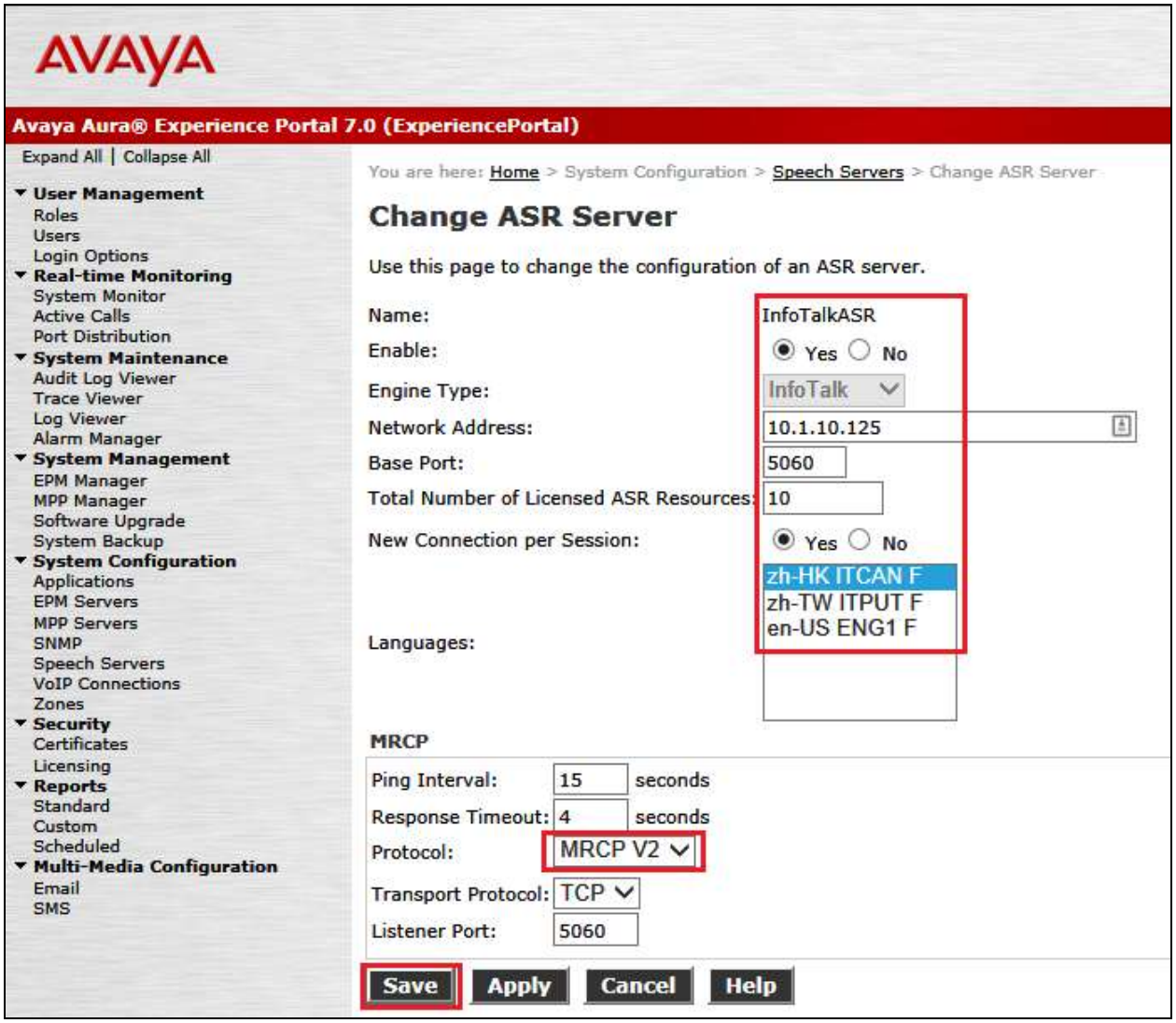
```
#
# Engine Type options displayed on the page
#
asrEngines=SinoVoice,InfoTalk,IBM WVS,Loquendo,Nuance
ttsEngines=SinoVoice,InfoTalk,IBM WVS,Loquendo,Nuance
asrEnginesAmsOnly=Nuance
ttsEnginesAmsOnly=Nuance

# Engine Type conversion from display to internal data in the databas
< Some lines removed for brevity >

InfoTalkASR=infotalk asr

# Engine Type conversion from internal data in the database to display
< Some lines removed for brevity >

infotalkasr=InfoTalk

#
# Languages
#
< Some lines removed for brevity >

InfoTalkASRlanguages=zh-HK ITCan F,zh-TW ITPut F,en-US ENG1 F

#
# Language Default
#
< Some lines removed for brevity >

InfoTalkASRlanguagesDefault=en-US
#
# default base port
#
< Some lines removed for brevity >
InfoTalkBasePort=554
#
# default New Connection per Session
#
< Some lines removed for brevity >

InfoTalkPerPort=Yes
#
# default URL
#
< Some lines removed for brevity >

InfoTalkRtspUrlAsr=/media/ASR
#
# Grammar Type
#
< Some lines removed for brevity >

infotalkGrammarType=srgs
```


©2015 Avaya Inc. All Rights Reserved.

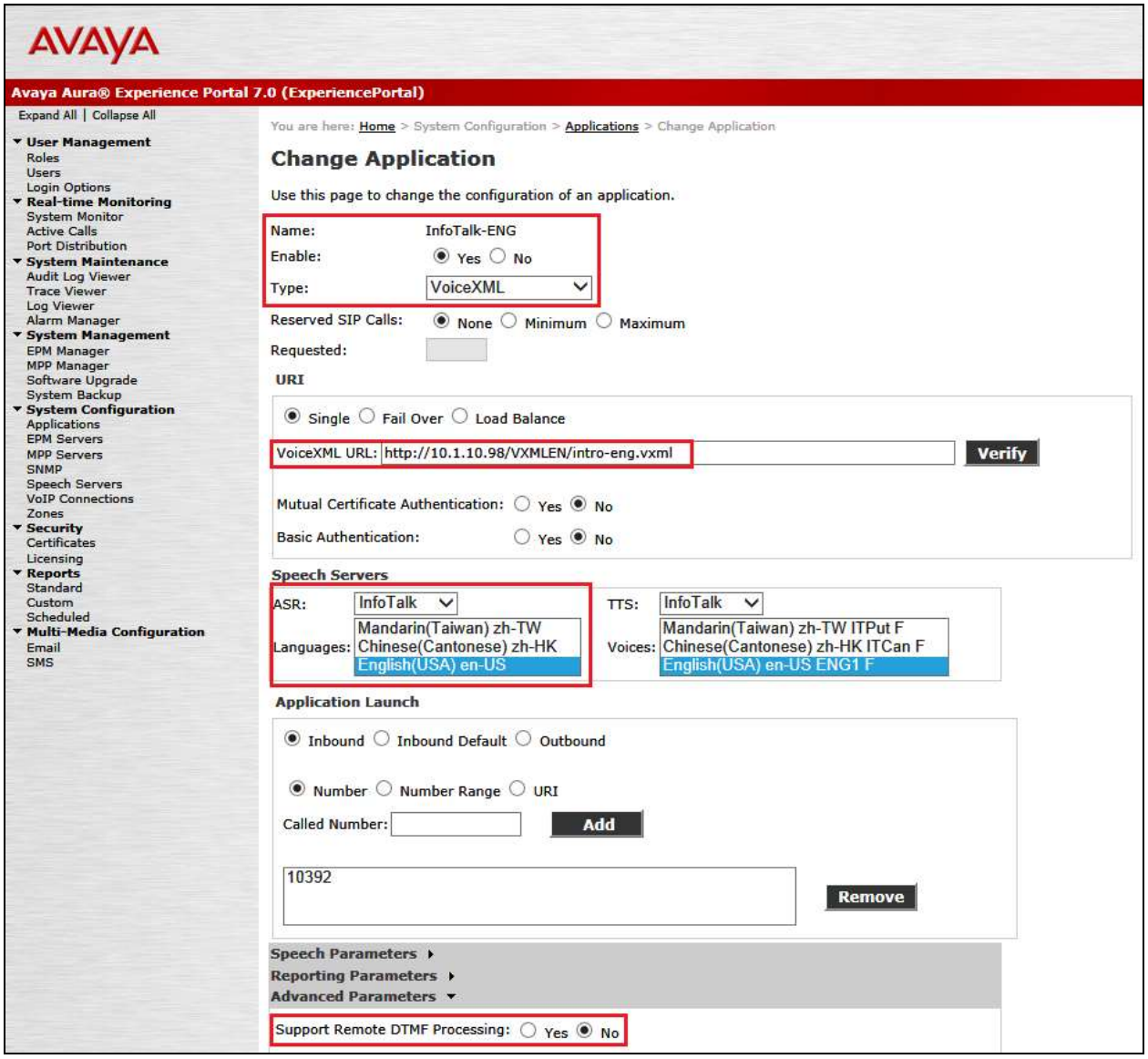
Step	Description
	# # MRCP Protocol # < Some lines removed for brevity > **InfoTalkMRCPValues=mrcpv1,mrcpv2** # # Transport # < Some lines removed for brevity > **InfoTalkTransportValues=tcp** < remaining lines removed for brevity >
6.	Reboot the EPM server for the above changes to take effect.
7.	To configure the InfoTalk-Recognizer server, click **System Configuration → Speech Servers**. Click the **ASR** tab and click **Add**. 

©2015 Avaya Inc. All Rights Reserved.

Step	Description
8.	In the **Add ASR Server** page, select **InfoTalk** as the **Engine Type**. This engine type option was added by modifying the `languages.properties` files in **Steps 4** and **5**. In the **MRCP** section, set **Protocol** to **MRCP V2**. Specify the **Name**, select **Yes** to **Enable**, set **Network Address** to the IP address or Full FQDN of the InfoTalk-Recognizer Server and select the desired **Languages** used by the applications. The **Total Number of Licensed ASR Resources** should also be set to the number of licenses available on the InfoTalk-Recognizer Server. All other fields were left at their default values. Click **Save**.



©2015 Avaya Inc. All Rights Reserved.

Step	Description
9.	To assign InfoTalk-Recognizer to an Avaya Aura® Experience Portal application, click **System Configuration → Applications** and then click **Add** on the **Applications** page (not shown). Configure the **Add Application** page as shown below. This configuration assigns the default Avaya Aura® Experience Portal test application deployed on the http server to the called number **10392**. Specify the **Name**, select **Yes** to **Enable**, set MIME **Type** to **VoiceXML** and set **VoiceXML URL** to HTTP server address location of the VoiceXML script. Select **InfoTalk** for **ASR** and then select the appropriate **Languages** to use. Ensure that the **Advanced Parameters** for **Support Remote DTMF Processing** is set to **No** as InfoTalk-Recognizer does not perform DTMF processing. Click **Save** (not shown). Repeat this procedure to assign InfoTalk-Recognizer to other Experience Portal applications. 

©2015 Avaya Inc. All Rights Reserved.

7. Configure InfoTalk-Recognizer and InfoTalk MRCP Server

InfoTalk-Recognizer and InfoTalk MRCP Server were installed on a HP server with Intel Xeon X5670, 2.9 GHz with 8 GB of memory running Ubuntu 14.10. As all communication between the InfoTalk server and Avaya Aura® Experience Portal is via TCP/IP, it is strongly suggested that both systems be placed on the same IP subnet with minimal network traffic in order to minimize network latency.

The sections that follow detail the InfoTalk-Recognizer setup:

- Install software
- Install License
- Start up InfoTalk MRCP server

7.1. Install software

Step	Description
	Installing InfoTalk-Recognizer & MRCP software
1.	The InfoTalk-Recognizer software is distributed on a DVD-ROM. To install, place the DVD-ROM into the drive**.** The installation runs through the following steps: 1. Mount the DVD ROM. 2. Login as root. 3. Install the InfoTalk-Recognizer software by executing the command: ➢ **dpkg –i <DVD_MOUNT_POINT>/infotalk.deb** 4. InfoTalk MRCP server and Recognizer will be started automatically as a service. 5. The service name is "**infotalk**" and the working directory is at **/var/lib/infotalk.**

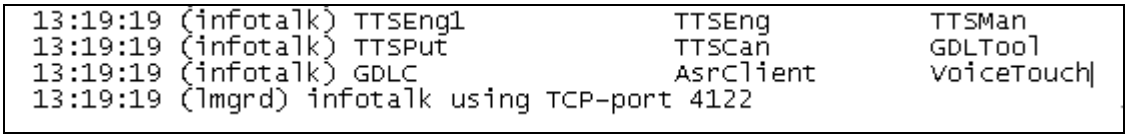
©2015 Avaya Inc. All Rights Reserved.

Step	Description
	Configuring InfoTalk-MRCP Server software
2.	Modify the file **MRCPServer.cfg** found at **/opt/Infotalk/mrcp/MRCPServer.cfg.** 1. The line shown below determines the location of the configuration file for the InfoTalk-Recognizer ASR engine. **asr_config_file=/opt/Infotalk/mrcp/asr.cfg** 2. The line below determines the maximum instances of the ASR engine. The value must correspond to the number of licenses purchased for InfoTalk-Recognizer. **max_session= 10** server_port = 5060 mrcpv2_port = 1554 log_level= 5 **max_session= 10** mrcp_version= 2 sip_protocol= TCP log_dir= ./log **asr_config_file= /opt/Infotalk/mrcp/asr.cfg** tts_config_file= /opt/Infotalk/mrcp/tts.cfg tts_enable= 1 tts_service_name= TTS msg_codec= UTF-8 tts_default_lang= en-us asr_unicode_result= 1
3.	Modify the file **asr.cfg** found at **/opt/Infotalk/mrcp/**. Locate lines shown below. The variable **client_server** should be set to 0. The MRCP Server will load the Recognizer engine internally. **[rec-client]** **client_server = 0**

©2015 Avaya Inc. All Rights Reserved.

7.2. Install License

After installing the SDK, the next step is to install the license file.

Step	Description
	Installing InfoTalk License Server
1.	Install InfoTalk License following the instructions below: 1. Connect the dongle to the USB port. 2. Login as root. 3. Use the cd command to move to the license directory in the SDK DVD. 4. Run the **Install_INFOTALK** script and follow the directions to install and configure the InfoTalk Software License Manager. 5. Copy the software license file accompanying the dongle to the directory. **/opt/Infotalk/license/**
	Verify the licenses installed
2.	Open the license server log file at **/opt/Infotalk/license/license.log** and check all the license features installed. e.g. 
3.	Open the software license file using any text editor and check the number of licenses available e.g. FEATURE VoiceTouch infotalk 1.0 permanent **10** which means it support 10 instances of "VoiceTouch" - InfoTalk-Recognizer

©2015 Avaya Inc. All Rights Reserved.

7.3. Start Up InfoTalk MRCP Server

Console Mode:

Step	Description
	Start up InfoTalk MRCP Server – Console Mode
1.	Run the script file "**start_mrcp_server.sh**" at **/opt/Infotalk/mrcp/** to start up the InfoTalk MRCP Server.

Service Mode:

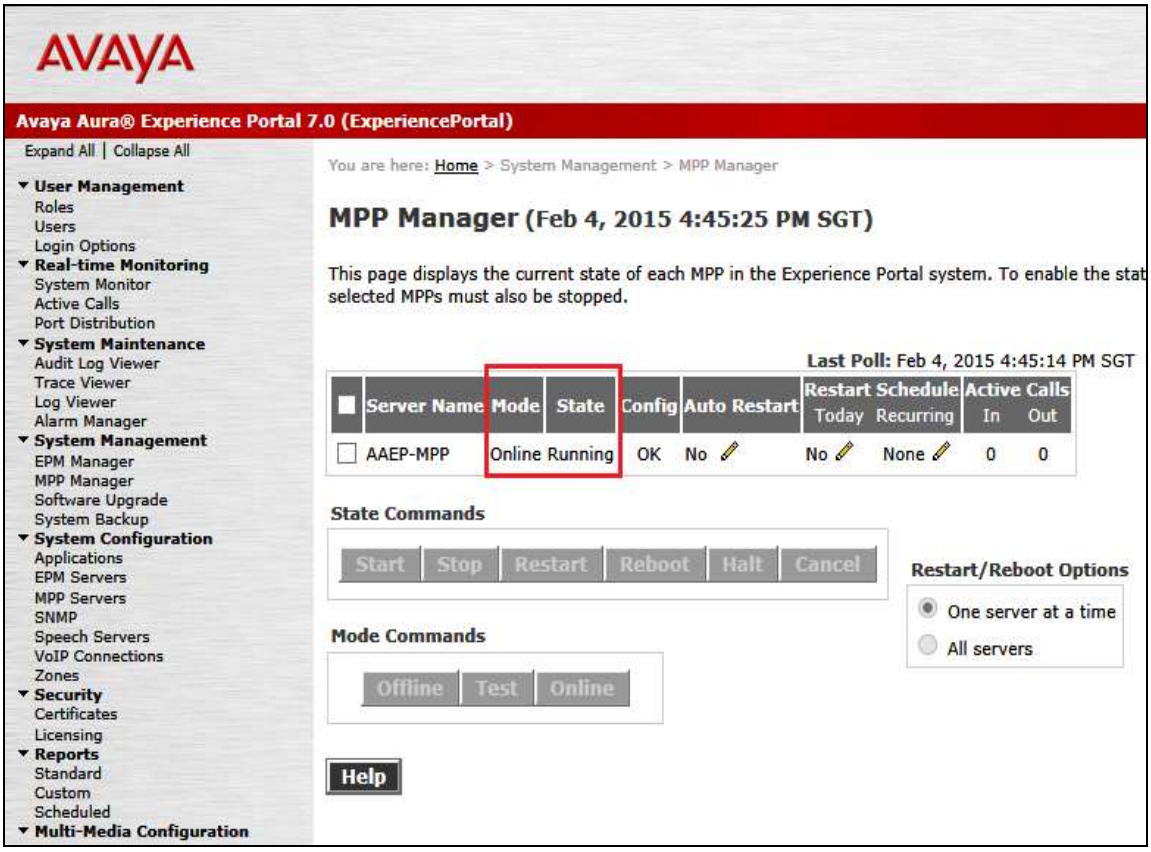
Step	Description
	Start up InfoTalk MRCP Server – Service Mode
1.	Run the command "**service infotalk start**" to start the InfoTalk MRCP Server.

©2015 Avaya Inc. All Rights Reserved.

8. Verification Steps

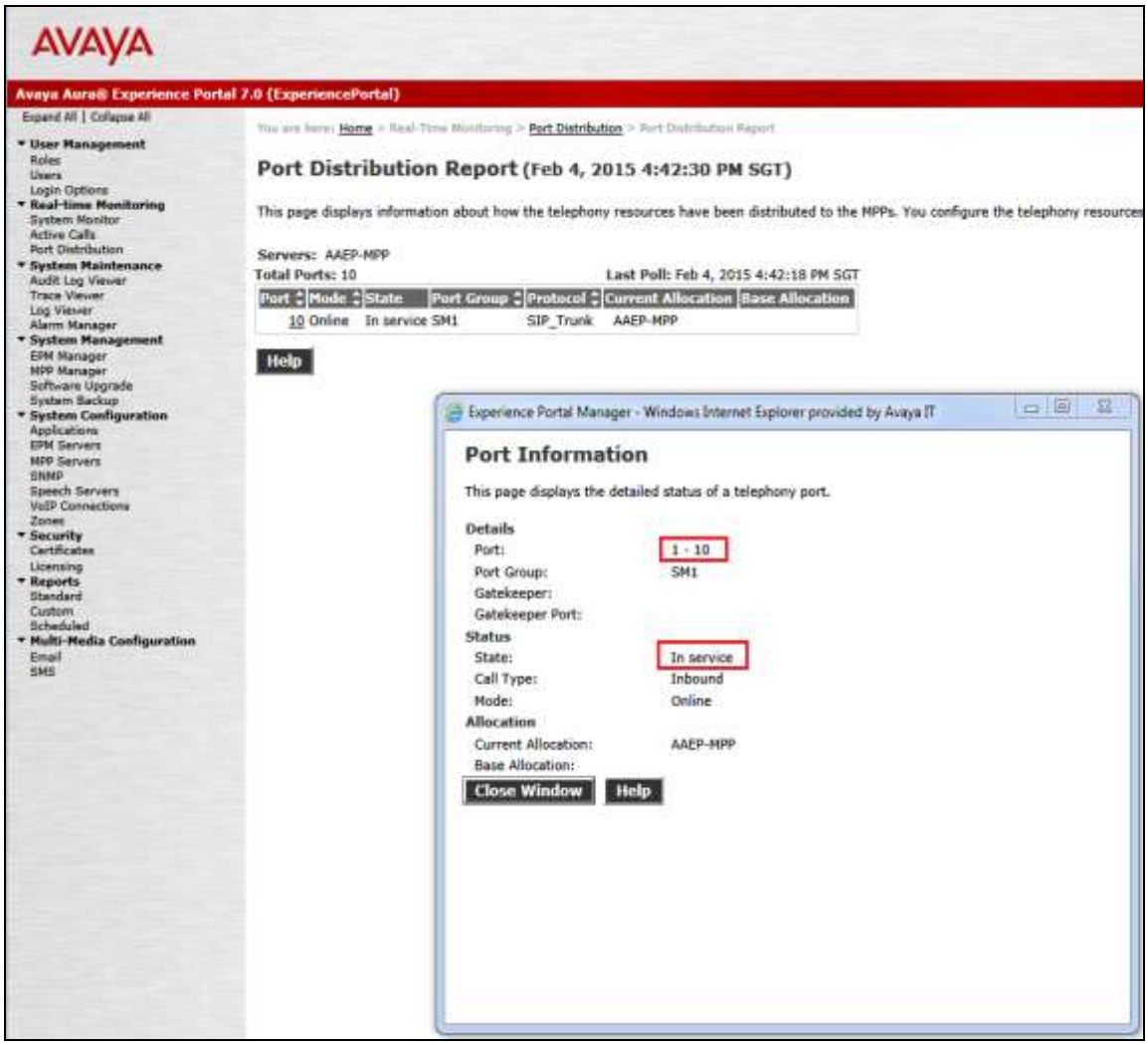
This section provides the verification steps that may be performed to verify that Avaya Aura® Experience Portal can run VoiceXML applications that use the InfoTalk-Recognizer for ASR speech detection.

Step	Description
1.	From the EPM web interface, click **System Management → MPP Manager** on the left pane. On the **MPP Manager** page, verify that the MPP server is **Online** and **Running**.



©2015 Avaya Inc. All Rights Reserved.

Step	Description
2.	From the EPM web interface, click **Real-time Monitoring →Port Distribution** on the left pane. On the **Port Distribution** page, click the specific MPP server on the right pane (not shown) and click **OK.** The screen below will be shown. Click on the number below the **Port** column and a pop-up window will show the **Port Information**. Verify that the **State** of the ports under **Status** on the MPP server is **In service**.



©2015 Avaya Inc. All Rights Reserved.

Step	Description
3.	Place some calls to Avaya Aura® Experience Portal running a VoiceXML script which uses the InfoTalk-Recognizer for speech detection. Verify that the application answers the calls and that the application is able to announce the ASR synthesized prompts to the caller. From the Avaya Aura® Experience Portal web interface, click **Real-time Monitoring →Active Calls** on the left pane and verify that the **ASR Server** in use is **InfoTalkASR**.

©2015 Avaya Inc. All Rights Reserved.

9. Conclusion

These Application Notes describe the compliance-tested configuration used to validate Avaya Aura® Experience Portal 7.0 with InfoTalk-Recognizer 10.0 and InfoTalk MRCP Server 2.0. All test cases were completed successfully with a note indicated in **Section 2.2.**

10. Additional References

The following documents are available at http://support.avaya.com.

[1] *Administering Avaya Aura® Communication Manager*, Release 6.3, Issue 10, June 2014, Document ID 03-300509.
[2] *Administering Avaya Aura® Experience Portal*, Release 7.0, Issue 1, Dec 2013.

The following documents are available from InfoTalk:

[3] *InfoTalk-Recognizer Service Developer's Guide*, Version 9.0

©2015 Avaya Inc. All Rights Reserved.

©2015 Avaya Inc. All Rights Reserved.
Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.

©2015 Avaya Inc. All Rights Reserved.