Avaya Solution & Interoperability Test Lab

Application Notes for InfoTalk-Speaker 3.0 with Avaya Aura® Experience Portal 6.0 and Avaya Aura® Communication Manager 6.2 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for InfoTalk-Speaker 3.0 to successfully interoperate with Avaya Aura® Experience Portal, Avaya Aura® Communication Manager and Avaya Aura® Session Manager. The Avaya Aura®Aura® Experience Portal running VoiceXML applications hosted on Microsoft IIS utilize the text-to-speech (TTS) features of InfoTalk-Speaker 3.0 using the Media Resource Control Protocol (MRCP) Version 2.

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.

1. Introduction

These Application Notes describe the configuration steps required for InfoTalk-Speaker 3.0 to successfully interoperate with Avaya Aura®Aura® Experience Portal, Avaya Aura®Aura® Communication Manager and Avaya Aura®Aura® Session Manager. The Avaya Aura® Experience Portal (AAEP) running VoiceXML applications hosted on Microsoft IIS utilize the text-to-speech (TTS) features of InfoTalk-Speaker 3.0 using the Media Resource Control Protocol (MRCP) Version 2.

InfoTalk-Speaker is a software solution running both the InfoTalk-Speaker TTS engine and the InfoTalk MRCP Server Version 2.0 application on a Microsoft Windows 2000 or 2003 Server or Windows 2000 or XP Professional machine.

2. General Test Approach

The general test approach is to place calls manually to Avaya Aura® Experience Portal running VXML applications that uses the TTS resources of InfoTalk-Speaker 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 Experience Portal that ran Voice XML scripts in English, Cantonese and Putonghua (Traditional Chinese) that uses the TTS engines on the InfoTalk-Speaker solution. The compliance test focused on placing calls to verify the accuracy of TTS synthesis.

The serviceability testing focused on verifying the ability of InfoTalk-Speaker solution to recover from adverse conditions such as rebooting of InfoTalk server and Avaya Experience Portal 6.0 and disconnecting the LAN cables to the InfoTalk server.

2.2. Test Results

All test cases passed. Avaya Aura® Experience Portal 6.0 was successful in running applications that use the TTS resources of the InfoTalk-Speaker solution. A point to note is that Speech Synthesis Markup Language (SSML) is currently not supported.

2.3. Support

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

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

3. Reference Configuration

Figure 1 illustrates the configuration used to verify InfoTalk-Speaker 3.0 solution. The InfoTalk-Speaker 3.0 and InfoTalk MRCP Server 2.0 software were installed on a Windows 2003 Server with Service Pack 2. VoiceXML scripts that used the TTS engine were hosted on another Windows 2003 Server with Service Pack 2 installed running IIS 6.0. 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-Speaker TTS engine for speech synthesis.

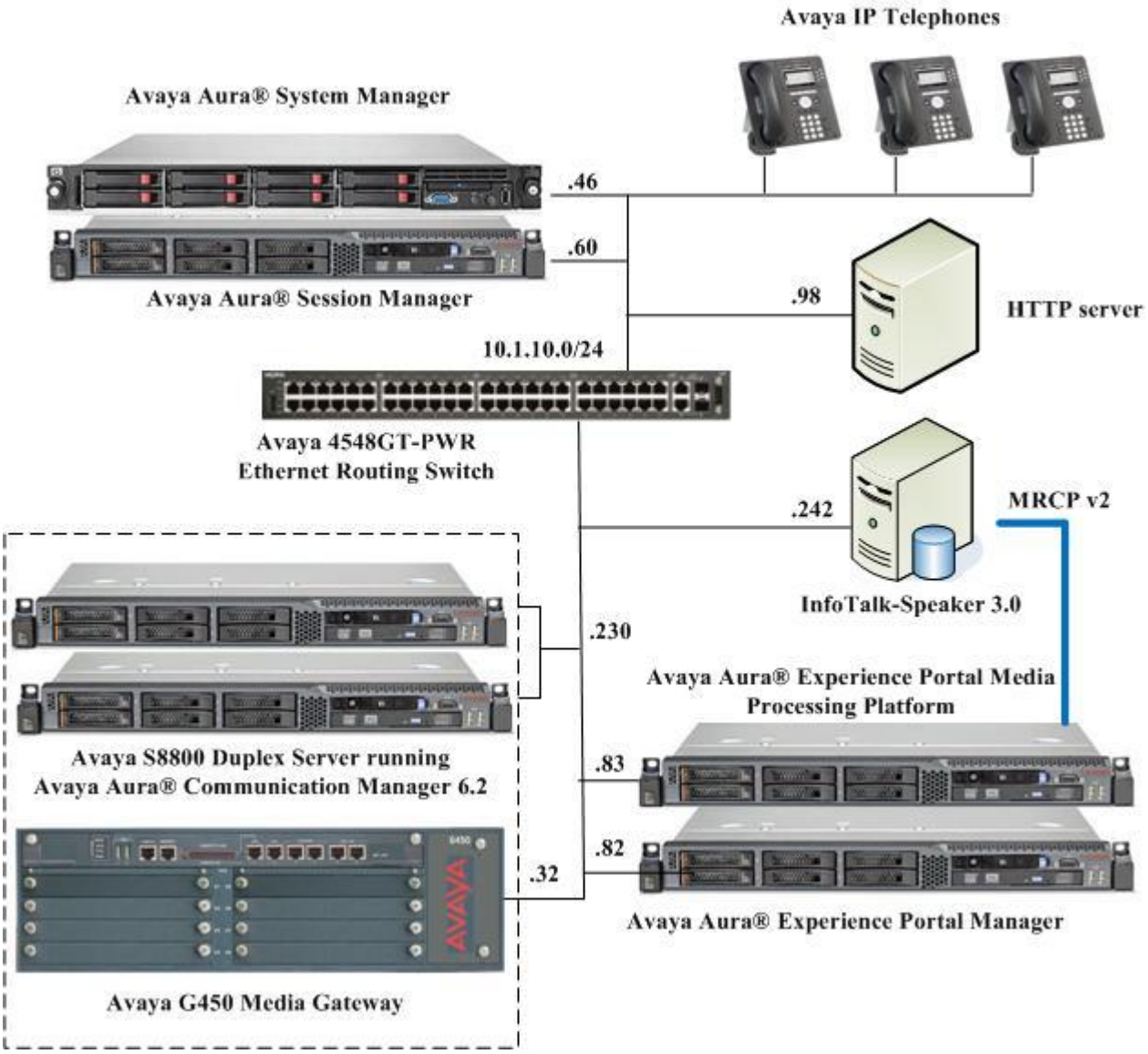


Figure 1: InfoTalk-Speaker 3.0 with Avaya Aura® Experience Portal Configuration

4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Experience Portal 6.0 on Avaya S8800 Server	R6.0 SP1
Avaya Aura® Communication Manager on Avaya S8800 Server (Duplex)	R6.2 SP2.01
Avaya G450 Media Gateway	31.22.0
Avaya Aura® System Manager on HP DL360 G7	6.2 SP 3
Avaya Aura® Session Manager on Avaya S8800 Server	6.1 SP 3
Avaya 9621 IP Telephones	6.2 SP2 (H.323)
Avaya 4548GT-PWR Ethernet Routing Switch	V6.2.4.010
InfoTalk-Speaker on Microsoft Windows Server 2003 R2 Standard Edition SP2	3.0
Microsoft IIS on Windows Server 2003 Standard Edition SP2	6.0

5. Configure Avaya 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-Speaker. The configuration is performed via the System Access Terminal (SAT).

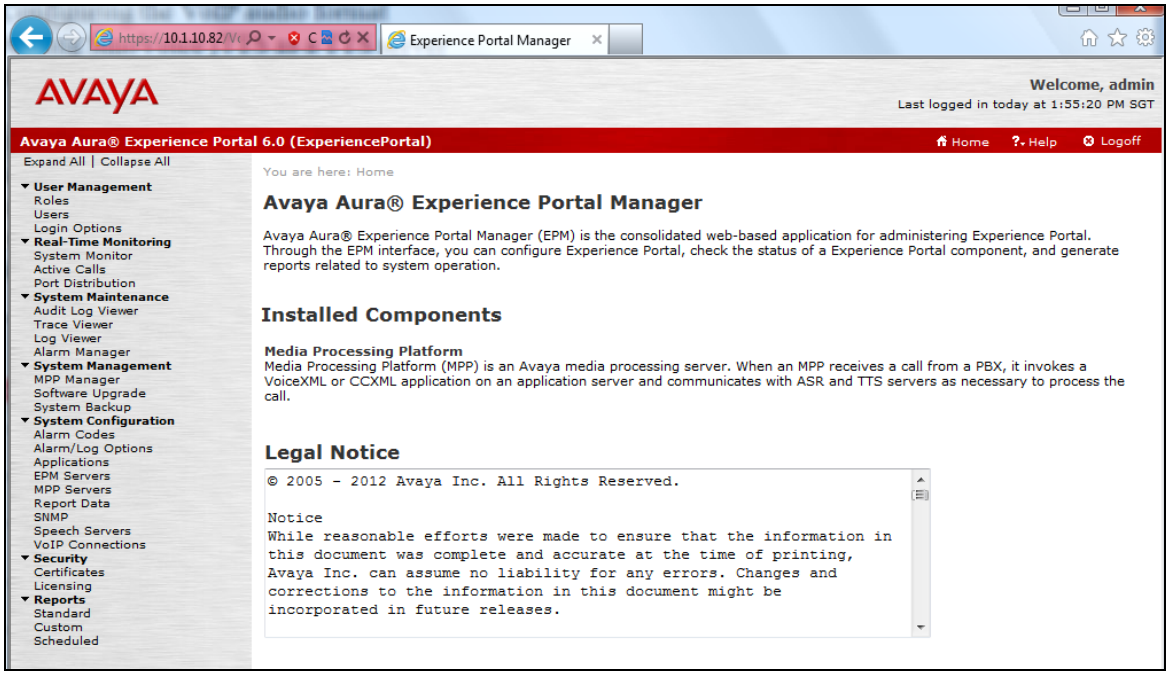
Step	Description
1.	Enter the **change ip-codec-set n** command where **n** is a valid IP codec-set associated with the IP network region that is used by Experience Portal, typically the IP network region assigned to the Session Manager SIP Trunk signaling group. Set **Audio Codec** to an appropriate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

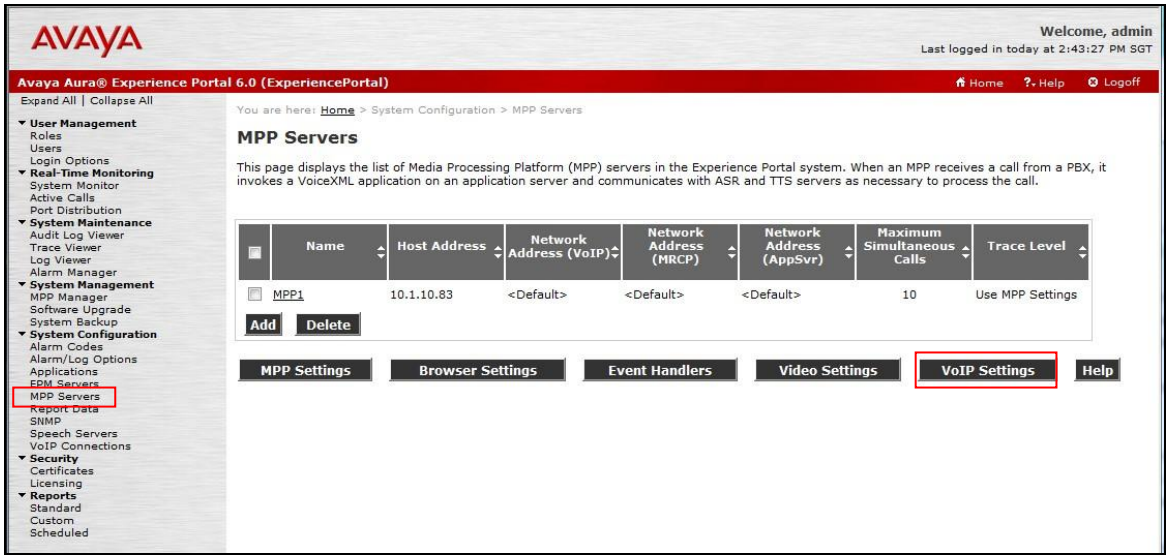
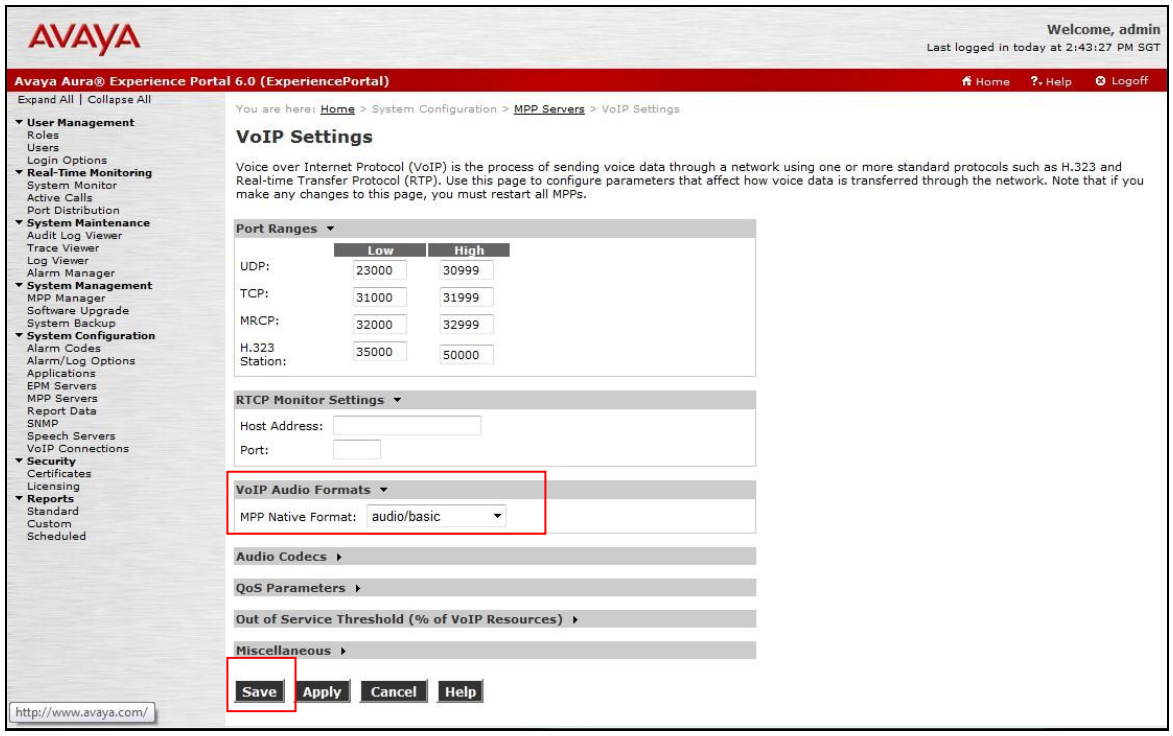
```
change ip-codec-set 6                                          Page   1 of   2

                           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:
```

6. Configure Avaya Aura® Experience Portal

The initial administration of Avaya 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 Experience Portal that is required for the purpose of administering InfoTalk-Speaker. The following steps will be covered:

- Configuring the VoIP audio format
- Adding InfoTalk-Speaker as a TTS server
- Adding applications

Step	Description
1.	Avaya Experience Portal is configured via the 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. 

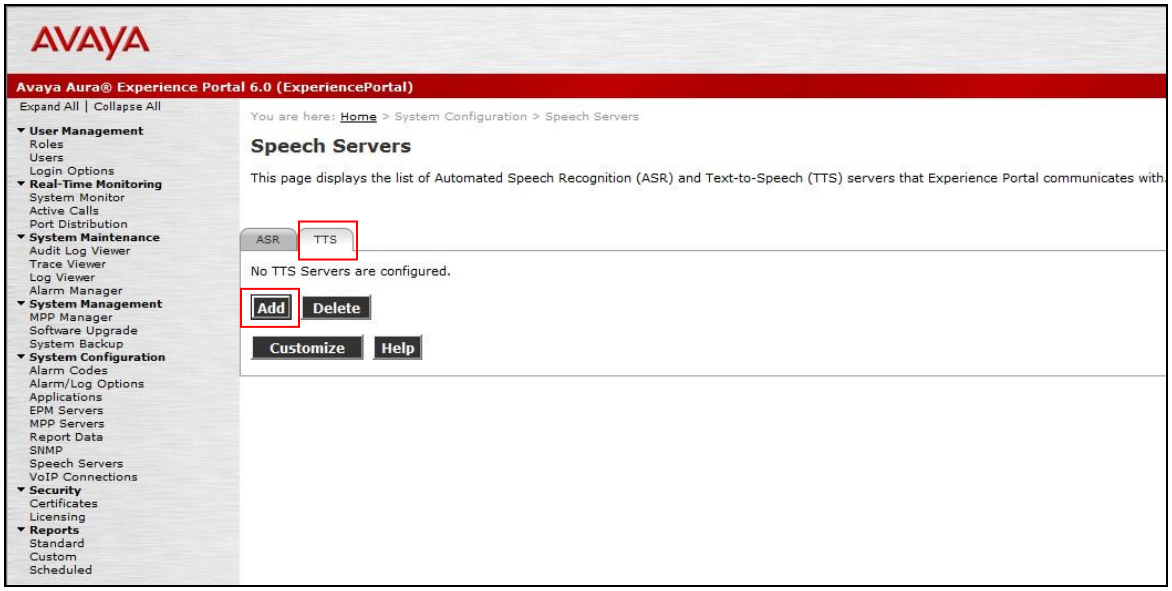
Step	Description
2.	To configure the codec used by the Media Processing Platform (MPP) server, click **System Configuration → MPP Servers** in the left pane and click **VoIP Settings**. 
3.	Set **MPP Native Format** to **audio/basic** to configure the MPP server for G.711 mu-law to match the configuration on Communication Manager in **Section 5**. Scroll down the page and click **Save**. 
4.	InfoTalk-Speaker is not natively included in the set of TTS engines supported by Avaya

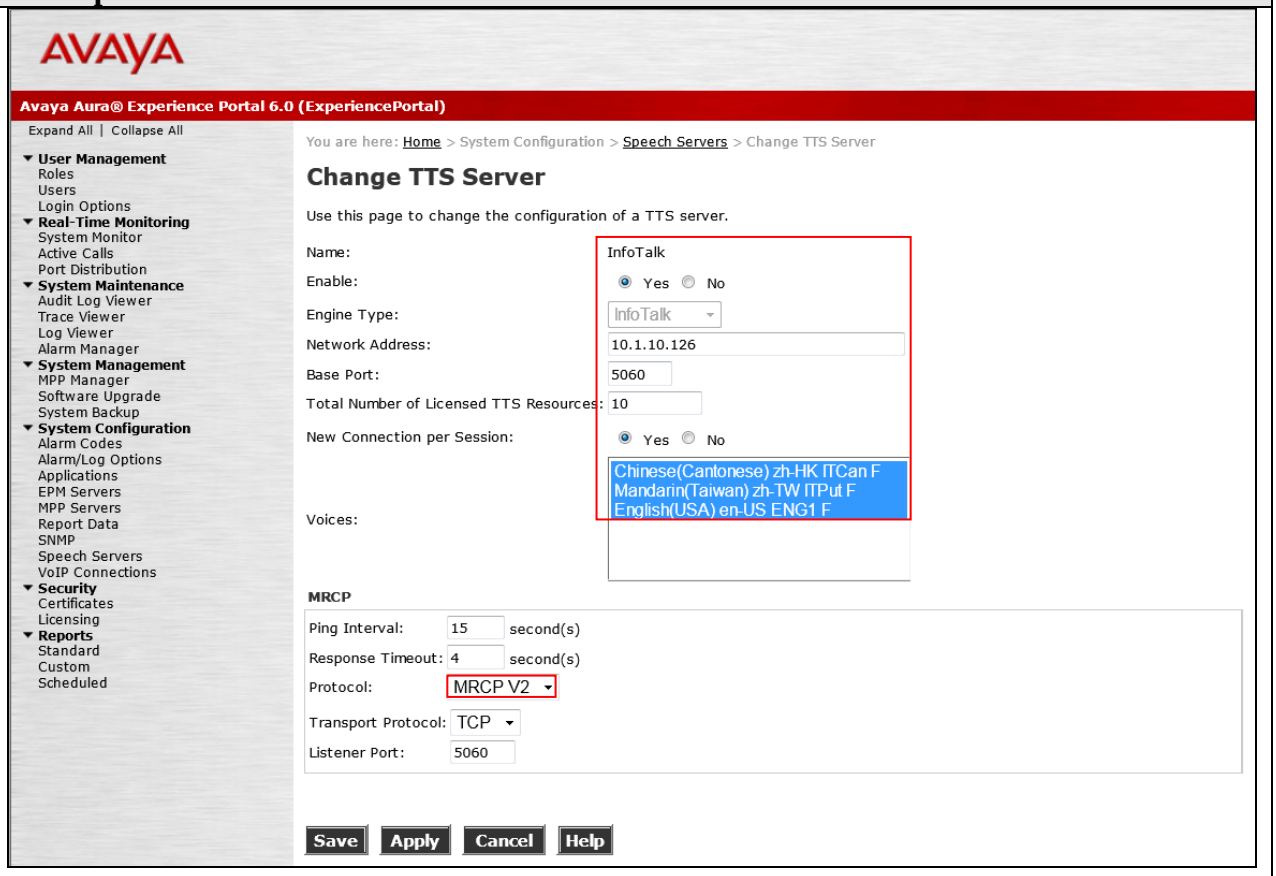
Step	Description
	Experience Portal and will not initially appear in the TTS configuration screen. To add InfoTalk-Speaker to the list of supported engines, log into the EPM server, either locally or remotely through Secure Shell (SSH), and locate the **languages.properties** file found in **/opt/Tomcat/apache-tomcat-6.0.32/webapps/VoicePortal/WEB-INF/classes/me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

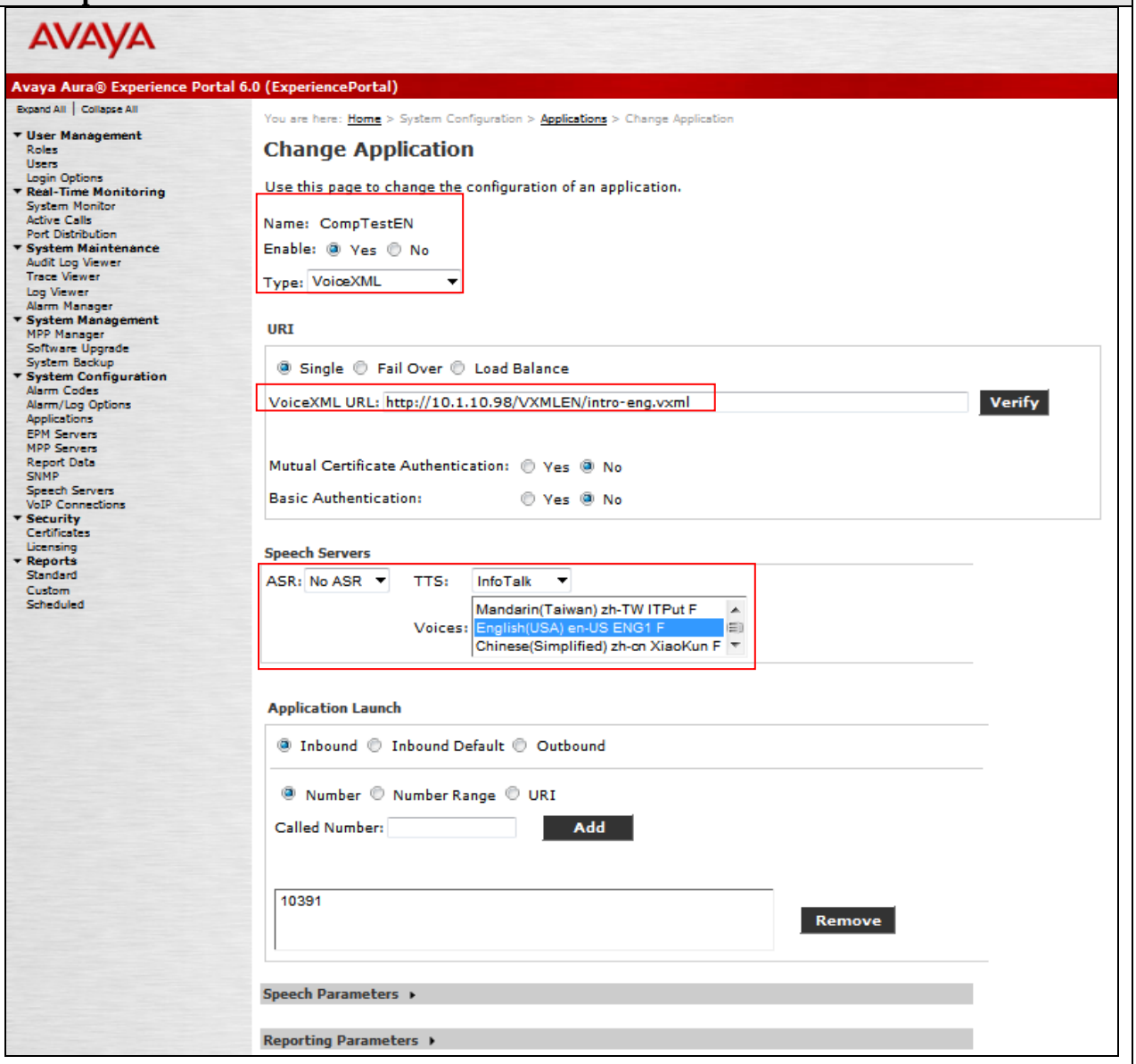
```
< Some lines removed for brevity >

#>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
#{{START:PROPERTIES:EXPERIENCEPORTAL_6.0
#######################################################################
# THIS SECTION IS SPECIFIC TO EXPERIENCE 6.0
# 1. ADD ANY NEW PROPERTIES FOR EXPERIENCE 6.0 TO ADDITIONS SECTION WITHIN 6.0
SECTION.
# 2. TO MODIFY A PRE-EXISTING PROPERTY, MOVE IT TO MODIFICATIONS SECTION WITHIN 6.0
AND THEN MODIFY IT.
# 3. TO DELETE A PRE-EXISTING PROPERTY, MOVE IT TO DELETIONS SECTION WITHIN 6.0 AND
THEN COMMENT IT OUT.
#######################################################################
#{{START:PROPERTIES:EXPERIENCEPORTAL_6.0:ADDITIONS
# Specify any new properties for Experience Portal 6.0 here.
InfoTalkMRCPLabels=MRCP V1,MRCP V2
InfoTalkTransportLabels=TCP
#}}END:PROPERTIES:EXPERIENCEPORTAL_6.0:ADDITIONS

< remaining lines removed for brevity >
```

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=IBM WVS,Loquendo,Nuance
ttsEngines=IBM WVS,Loquendo,Nuance,InfoTalk
asrEnginesAmsOnly=Nuance
ttsEnginesAmsOnly=Nuance

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

InfoTalkTTS=infotalk

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

infotalk=InfoTalk


# TTS LANGUAGE
< Some lines removed for brevity >

InfoTalkTTSlanguages=zh-HK ITCan F,zh-TW ITPut F,en-US ENG1 F
#
# Language Default
#
#
< Some lines removed for brevity >

InfoTalkTTSlanguagesDefault=en-US ENG1 F

#
# 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 >

InfoTalkRtspUrlTts=/media/TTS
#
# MRCP Protocol
#
< Some lines removed for brevity >

InfoTalkMRCPValues=mrcpv1,mrcpv2
```

Step	Description
	# # 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-Speaker server, click **System Configuration → Speech Servers**. Click the **TTS** tab and click **Add**. 
8.	In the **Add TTS 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-Speaker Server and select the desired **Voices** used by the applications. The **Total Number of Licensed TTS Resources** should also be set to the number of licenses available on the InfoTalk-Speaker Server. All other fields were left at their default values. Click **Save**.

Step	Description
	
9.	To assign InfoTalk-Speaker to an Avaya 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 Experience Portal test application deployed on the http server to the called number **10391**. 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 **TTS** and then select the appropriate **Voices** to use. Click **Save** (not shown). Repeat this procedure to assign InfoTalk-Speaker to other Experience Portal applications.

Step	Description
	

7. Configure InfoTalk-Speaker and InfoTalk MRCP Server

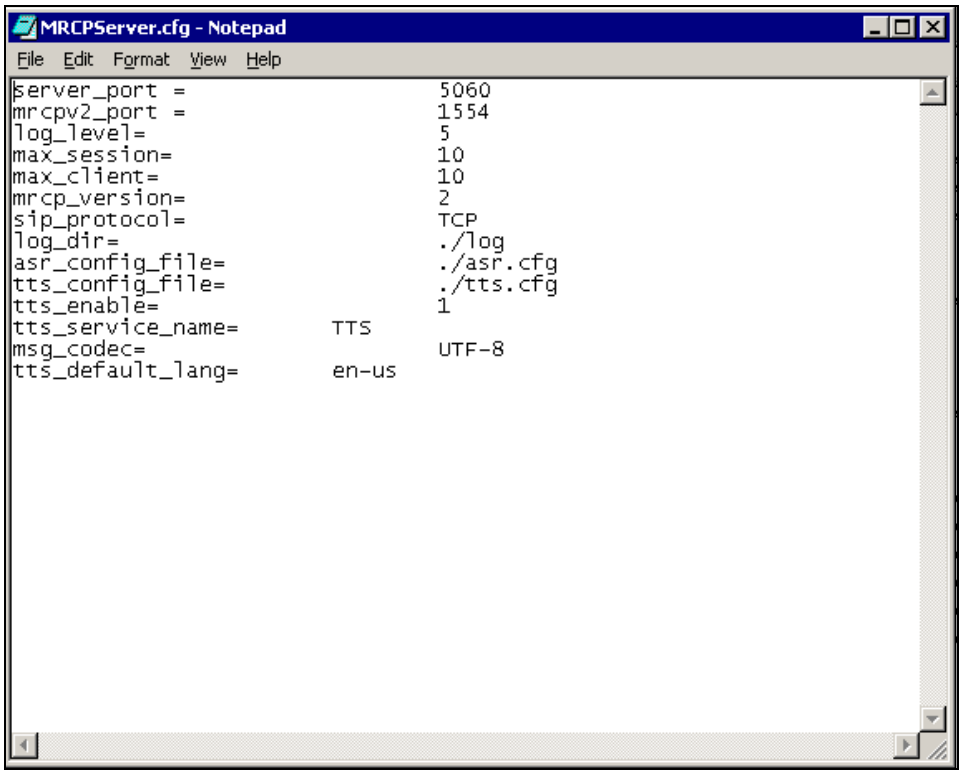
InfoTalk-Speaker and InfoTalk MRCP Server were installed on a IBM Server with Intel Xeon E5410, 2.33 GHz with 2 GB of memory running Microsoft Windows 2003 Standard Edition with Service Pack 2. As all communication between the InfoTalk server and Avaya Experience Portal is via TCP/IP, it is strongly 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-Speaker setup:

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

7.1. Install software

Step	Description
	Installing InfoTalk-Speaker software
1	The InfoTalk-Speaker software is distributed on a DVD-ROM. To install, place the DVD-ROM into the drive and run the file **Setup.exe.** The installation runs through the following steps: a. A welcome window will be displayed. Click **Next** to continue. b. Read and accept the license agreement and click **Next**. c. Select ***Complete*** for **Setup Type** and click **Next**. d. Select the destination folder and click **Next**. The default installation path is **C:\Program Files\InfoTalk**. e. Check the option **Install JRE after Installation?** and click **Install**. f. The installation wizard will install the product. g. At the end of installation process click on the "**Finish**" button. h. Restart the server after the installation.
	Installing InfoTalk-MRCP Server software
2	Insert the DVD-ROM containing InfoTalk-MRCP Server software into the drive and copy the folder "**MRCPServer**" to the installation directory, e.g. **C:\InfoTalk**.

Step	Description
	Configuring InfoTalk-MRCP Server software
3	Modify the file **MRCPServer.cfg** found at **C:\InfoTalk\MRCPServer\.** • The line shown below enables the support of TTS of the MRCP server **tts_enable=1** • The line shown below determines the location of the configuration file for the InfoTalk-Speaker TTS engine. **tts_config_file=./tts.cfg** • The line below determines the encoding of the requests. The **msg_codec** field should be set to the value **"UTF-8"** **msg_codec=UTF-8** • Locate the line as shown below. **tts_default_lang=en-us** This property sets the default language for the TTS server when the request is received without the language parameter. Below are the available values: "zh-CN": Putonghua (Simplified Chinese) "zh-TW": Mandarin (Traditional Chinese) "zh-HK": Cantonese (Traditional Chinese) "en-us": English 

4	Modify the file **tts.cfg** found at **C:\InfoTalk\MRCPServer**. Setup the available TTS language and maximum simultaneous instances of each language. If a language is not available, comment it out by inserting "#" at the beginning of the line. The following setting configures the InfoTalk-MRCP Server to handle a maximum of 10 simultaneous instances for each TTS language.  Below are the available TTS engines (case sensitive): "**ITPut**": Putonghua (Simplified Chinese) "**ITMan**": Mandarin (Traditional Chinese) "**ITCan**": Cantonese (Traditional Chinese) "**MSEng**": English "**Eng1**": English

7.2. Install License

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

Step	Description
	Installing InfoTalk licenses
1	Register InfoTalk License following the instructions below: 1. Connect the dongle (if any) to the USB port. 2. Click **Start → Programs → InfoTalk → License Registration Tool** 3. Click to choose **has its own license file, or is a network license server**. 4. Click **Browse** to select the license file 5. Click **Setup** 6. A dialog box appears confirming that the license setup has finished successfully. 
	Verify the licenses installed
2	Open the license server log file at **C:\Program Files\InfoTalk\License\License.log** and check all the license features installed. E.g.: 13:19:19 (infotalk) Server started on w2003r2svr for: CDB 13:19:19 (infotalk) TTSEng1 TTSEng TTSMan 13:19:19 (infotalk) TTSPut TTSCan GDLTool 13:19:19 (infotalk) GDLC AsrClient VoiceTouch 13:19:19 (lmgrd) infotalk using TCP-port 4122

Step	Description
3	Open the license file at **C:\Program Files\InfoTalk\License\License.dat** using Notepad and check the number of licenses available for each feature installed. E.g.: FEATURE TTSPut infotalk 1.0 permanent **10** FEATURE TTSCan infotalk 1.0 permanent **10** FEATURE TTSMan infotalk 1.0 permanent **10** FEATURE TTSEng infotalk 1.0 permanent **10** FEATURE TTSEng1 infotalk 1.0 permanent **10** The above features support: • 10 instances of "TTSPut" - InfoTalk-Speaker (Putonghua) • 10 instances of "TTSCan" - InfoTalk-Speaker (Cantonese) • 10 instances of "TTSMan" - InfoTalk-Speaker (Mandarin) • 10 instances of "TTSEng" - InfoTalk-Speaker (English) • 10 instances of "TTSEng1" - InfoTalk-Speaker (English)

7.3. Start Up InfoTalk MRCP Server

Console Mode:

Step	Description
	Start up InfoTalk MRCP Server – Console Mode
1	Run the batch file "**start_MRCP_Server.bat**" at **C:\InfoTalk\MRCPServer** to start up the InfoTalk MRCP Server.

Windows Service Mode:

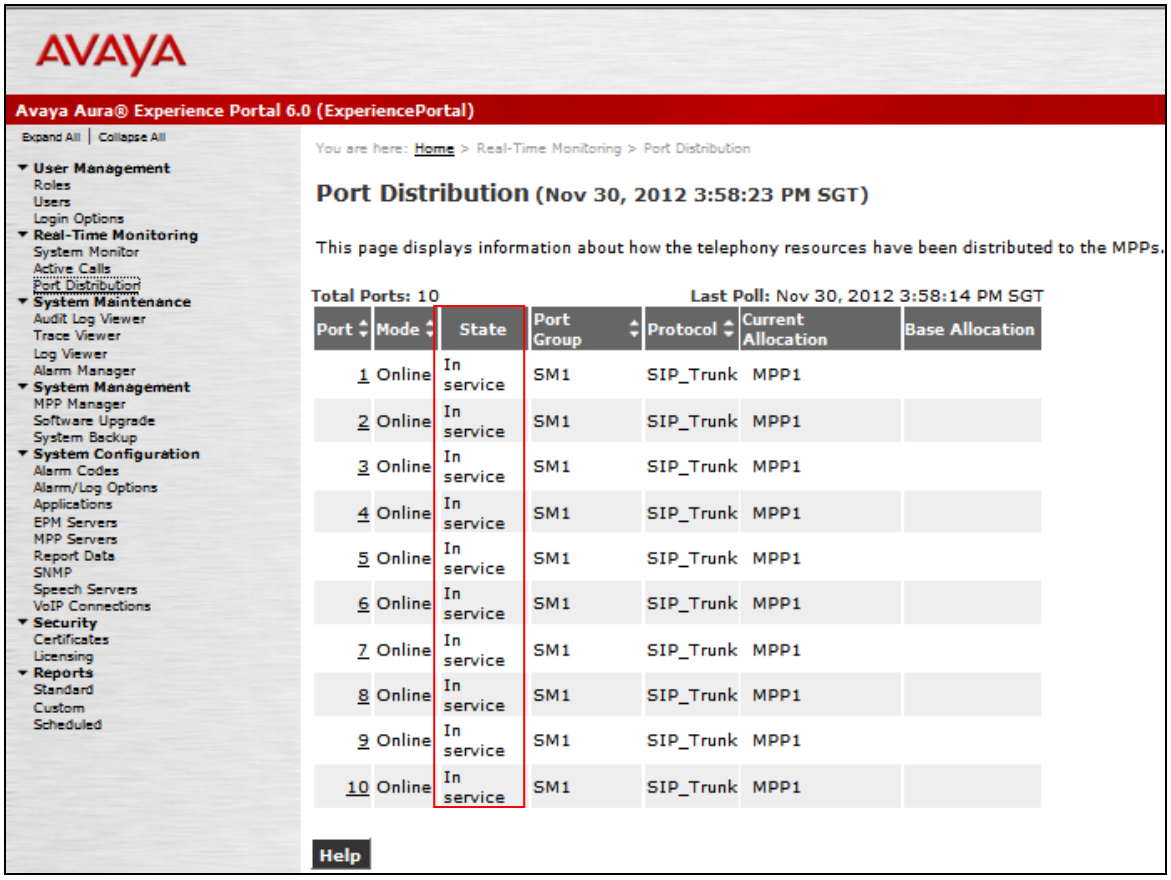
Step	Description
	Start up InfoTalk MRCP Server – Windows Service Mode
1	Run the batch file "**register_MRCP_Server.bat**" at **C:\InfoTalk\MRCPServer** to register the InfoTalk MRCP Server as a Windows service.
2	Go to Windows Services and start the service "**InfoTalk MRCP Server**"

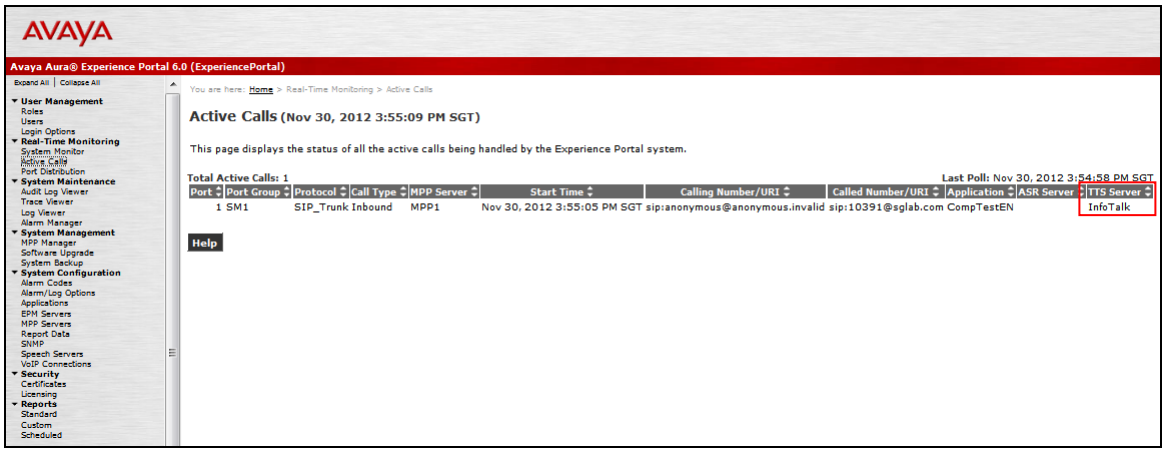
8. Verification Steps

This section provides the verification steps that may be performed to verify that Avaya Experience Portal can run VoiceXML applications that use the InfoTalk-Speaker for TTS speech synthesis.

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

Step	Description
2.	From the EPM web interface, click **Port Distribution** on the left pane. On the **Port Distribution** page, verify that the **State** of the ports on the MPP server is **In service**.



Step	Description
3.	Place some calls to Avaya Experience Portal that runs a VoiceXML script which uses the InfoTalk-Speaker for speech synthesis. Verify that the application answers the calls and that the application is able to announce the TTS synthesized prompts to the caller. From the Avaya Experience Portal web interface, click **Active Calls** on the left pane and verify that the **TTS Server** in use is **InfoTalk**. 

9. Conclusion

These Application Notes describe the compliance-tested configuration used to validate Avaya Aura® Experience Portal 6.0 with InfoTalk-Speaker 3.0 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 6.2, Feb 2012, Document ID 03-300509.
[2] *Administering Avaya Aura® Experience Portal*, Aug 2011.

The following documents are available from InfoTalk:

[3] *InfoTalk-Speaker Installation And User Guide*, Version 3.0.X.301
[4] *InfoTalk-Speaker Developer's Guide*, Version 3.0.X.301
[5] *Configuration Notes for Avaya Voice Portal*, Jul 2012

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.