Avaya Solution & Interoperability Test Lab

Application Notes for Beijing InfoQuick SinoVoice Speech Technology jTTS 6.0 with Avaya Aura® Experience Portal 6.0 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Beijing InfoQuick SinoVoice Speech Technology (SinoVoice) jTTS 6.0 with Avaya Aura® Experience Portal 6.0. SinoVoice jTTS uses the Media Resource Control Protocol (MRCP) version 2 for its Text-To-Speech (TTS) features to interface with VoiceXML applications running on the Avaya Aura® Experience Portal.

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 to integrate Beijing InfoQuick SinoVoice Speech Technology (SinoVoice) jTTS 6.0 with Avaya Aura® Experience Portal 6.0. Beijing InfoQuick SinoVoice jTTS uses the Media Resource Control Protocol (MRCP) version 2 for its Text-To-Speech (TTS) features to interface with the VoiceXML (VXML) applications running on Avaya Aura® Experience Portal.

Beijing InfoQuick SinoVoice jTTS is the core text-to-speech technology of SinoVoice which uses large scale recorded voice library and algorithm based on hierarchical prosody structure matching.

2. General Test Approach and Test Results

The general test approach is to place calls manually to Avaya Aura® Experience Portal running VXML applications that uses the TTS resources of SinoVoice jTTS.

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

The interoperability compliance test included feature and serviceability testing. The feature testing focused on placing calls to Avaya Aura® Experience Portal 6.0 that ran VoiceXML applications that use the TTS engines on the SinoVoice jTTS solution. The compliance test focused on placing calls to verify accurate TTS synthesis.

The serviceability testing focused on verifying the ability of the SinoVoice jTTS solution to recover from adverse conditions, such as rebooting of SinoVoice jTTS and Avaya Aura® Experience Portal 6.0 and disconnecting the LAN cables to the SinoVoice jTTS 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 SinoVoice jTTS solution.

2.3. Support

For technical support on SinoVoice jTTS, contact the SinoVoice support team at:

- Phone: +86-10-82826886
- Email: sinovoicesupport@sinovoice.com.cn

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify the SinoVoice jTTS solution. SinoVoice jTTS was installed on a Microsoft Windows 2003 R2 Server with Service Pack 2. VoiceXML applications were installed on a HTTP server. 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 SinoVoice jTTS Server for speech synthesis.

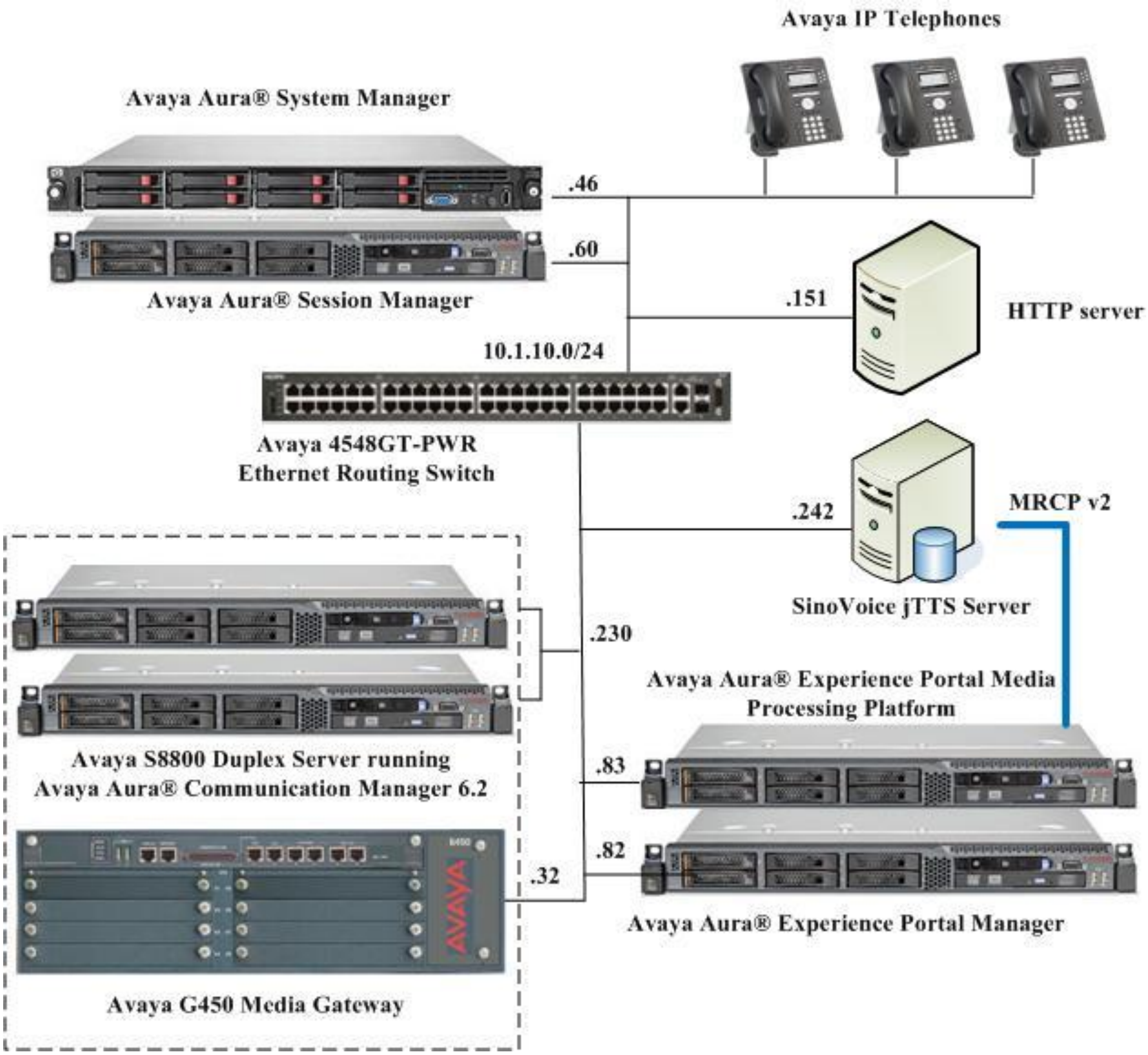


Figure 1: Test Configuration of SinoVoice jTTS with Avaya Aura® Experience Portal 6.0

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
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
SinoVoice jTTS on Microsoft Windows Server 2003 R2 Standard Edition SP2	6.0
HTTP server on Windows Vista Business Edition	Service Pack 2

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 SinoVoice jTTS. The configuration is performed via the System Access Terminal (SAT).

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>1.</td><td>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 SinoVoice jTTS. In this configuration, the G.711Mu codec was used.
<pre>
change ip-codec-set 6   Page   1 of   2

                          IP Codec Set

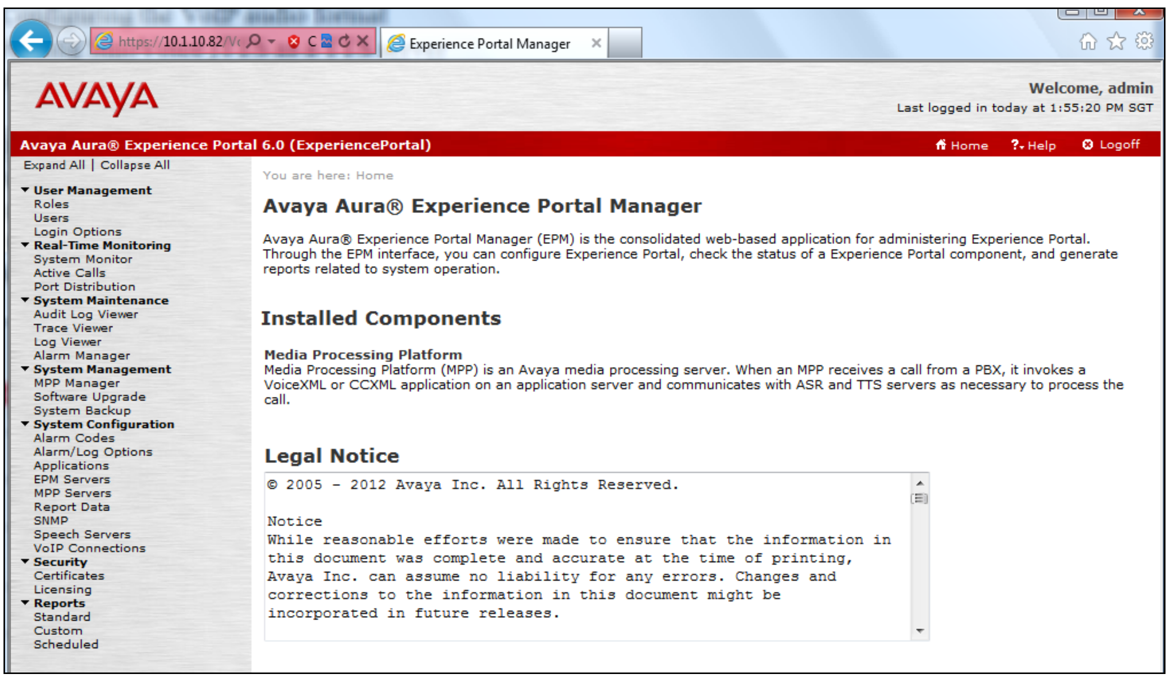
    Codec Set: 6

    Audio   Silence   Frames   Packet
    Codec   Suppression Per Pkt Size(ms)
 1: G.711MU   n   2   20
 2:
 3:
 4:
 5:
 6:
 7:
</pre></td></tr>
</table>

6. Configure Avaya Aura® Experience Portal

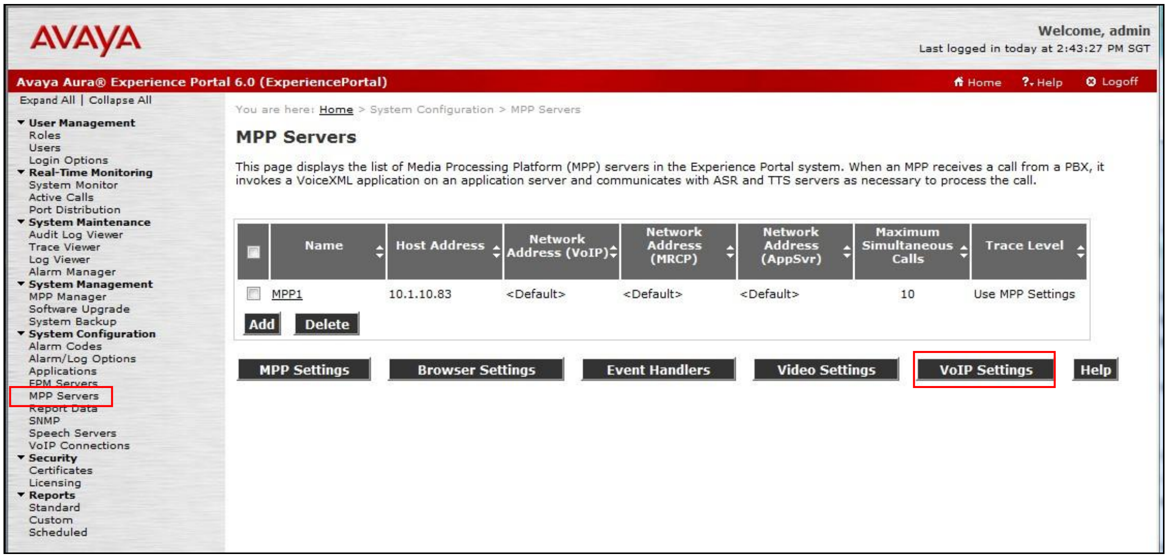
The initial administration of Avaya Aura® Experience Portal and the configuration of the SIP VoIP Connection to Session Manager are assumed to be in place and will not be discussed here. This section covers the additional procedures of Avaya Aura® Experience Portal that is required for the purpose of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

- Configuring the VoIP audio format
- Adding SinoVoice jTTS as a TTS server
- Adding applications

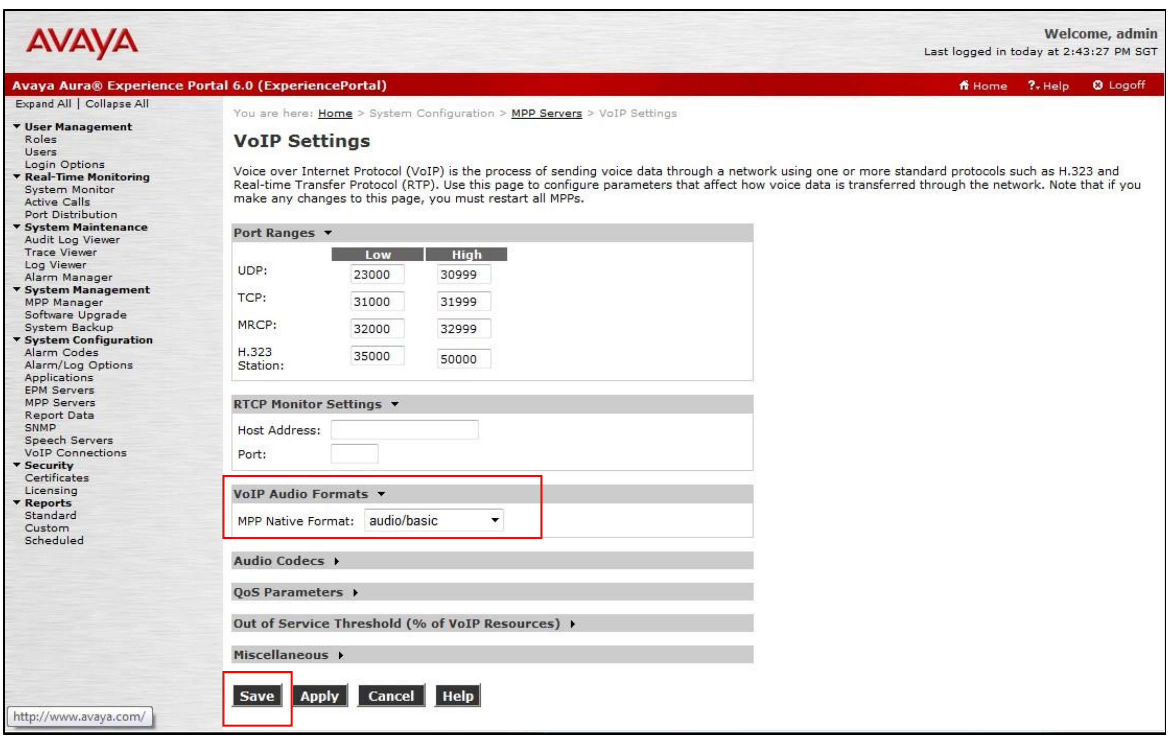
<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>1.</td><td>Avaya Aura® Experience Portal is configured via the Experience Portal Manager (EPM) web interface. To access the web interface, enter https://<ip-addr> as the URL in an internet browser, where <ip-addr> is the IP address of the EPM.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


</td></tr>
</table>

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>2.</td><td>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.



</td></tr>
<tr><td>3.</td><td>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.



</td></tr>
</table>

Step	Description
4.	SinoVoice jTTS is not natively included in the set of TTS engines supported by Avaya Aura® Experience Portal and will not initially appear in the TTS configuration screen. To add SinoVoice jTTS 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.

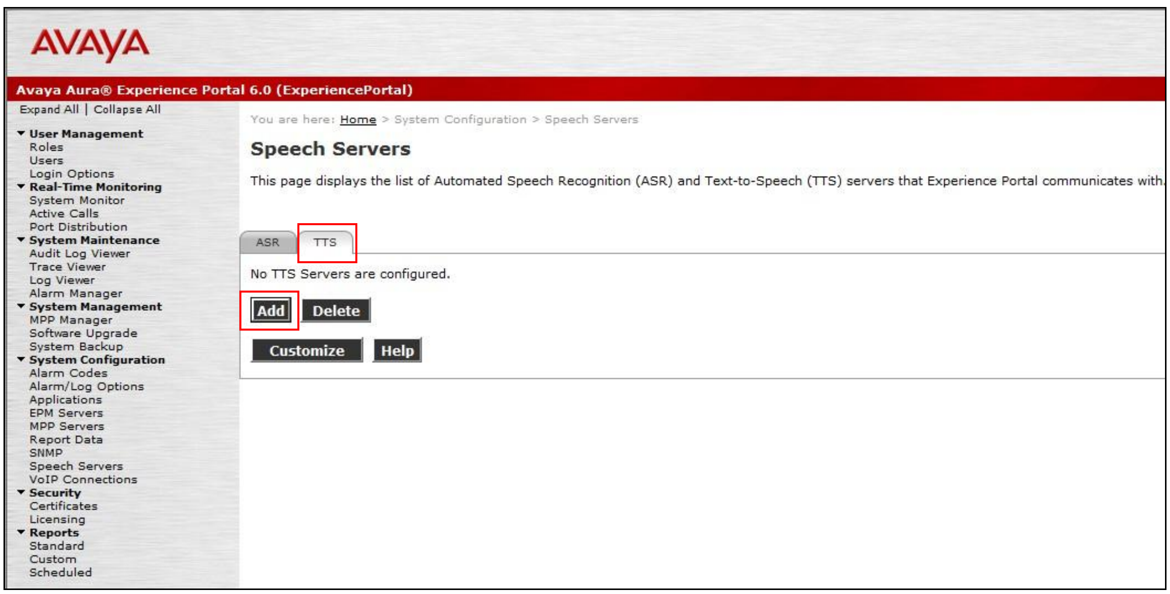
```
< Some lines removed for brevity >

#>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
#{{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.
SinoVoiceMRCPLabels=MRCP V1,MRCP V2
SinoVoiceTransportLabels=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.

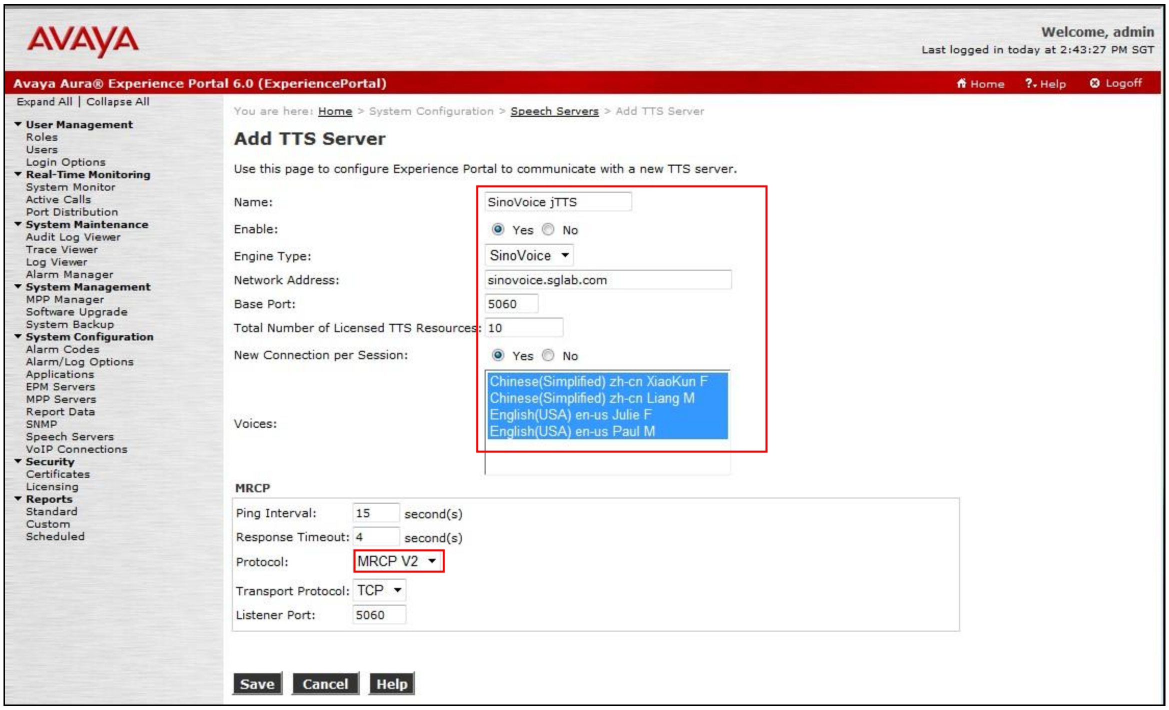
```
#
# Engine Type options displayed on the page
#
asrEngines=IBM WVS,Loquendo,Nuance
ttsEngines=IBM WVS,Loquendo,Nuance,SinoVoice
asrEnginesAmsOnly=Nuance
ttsEnginesAmsOnly=Nuance

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

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

# TTS LANGUAGE

< Some lines removed for brevity >
SinoVoiceTTSlanguages=zh-cn XiaoKun F,zh-cn Liang M,en-us Julie F,en-us Paul M

#
# Language Default
#
< Some lines removed for brevity >
#
SinoVoiceTTSlanguagesDefault=zh-cn XiaoKun F
#
# default base port
#
< Some lines removed for brevity >
SinoVoiceBasePort=5060
#
# default New Connection per Session
#
< Some lines removed for brevity >

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

SinoVoiceRtspUrlTts=/media/sinovoicesynthesizer
```

Step	Description

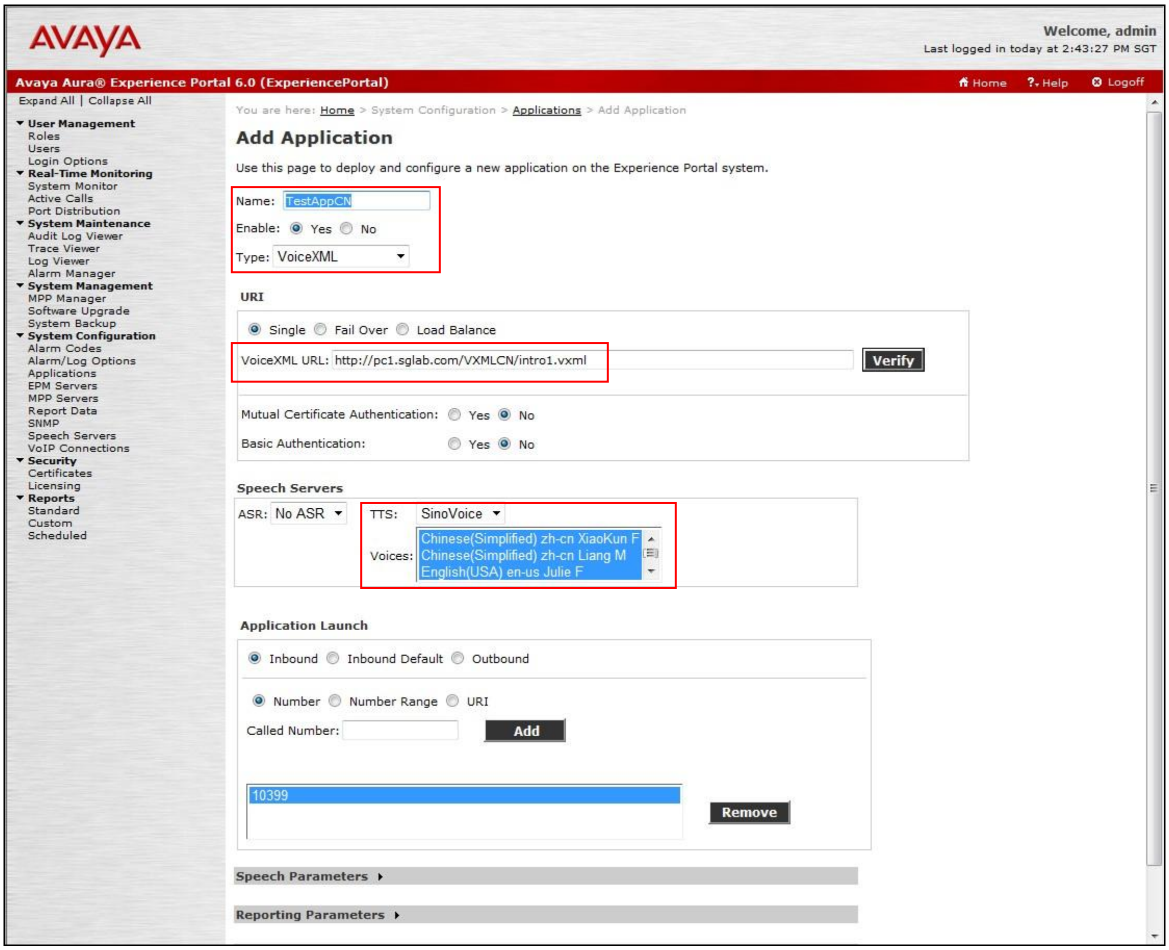
	`< Some lines removed for brevity >`
	`#`
	`# MRCP Protocol`
	`#`
	`< Some lines removed for brevity >`
	
	`SinoVoiceMRCPValues=mrcpv1,mrcpv2`
	`#`
	`# Transport`
	`#`
	`< Some lines removed for brevity >`
	
	`SinoVoiceTransportValues=tcp`
	
	`< remaining lines removed for brevity >`

6.	Reboot the EPM server for the above changes to take effect.
7.	To configure the SinoVoice jTTS server, click **System Configuration → Speech Servers**. Click the **TTS** tab and click **Add**. 

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>8.</td><td>In the Add TTS Server page, select SinoVoice as the Engine Type. This engine type option was added by modifying the <code>languages.properties</code> 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 SinoVoice jTTS 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 SinoVoice jTTS Server. All other fields were left at their default values. Click Save.


</td></tr>
</table>

Step	Description
9.	To assign SinoVoice jTTS 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 Aura® Experience Portal test application deployed on the http server to the called number **10399**. 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 **SinoVoice** for **TTS** and then select the appropriate **Voices** to use. Click **Save** (not shown). Repeat this procedure to assign SinoVoice jTTS to other Experience Portal applications.

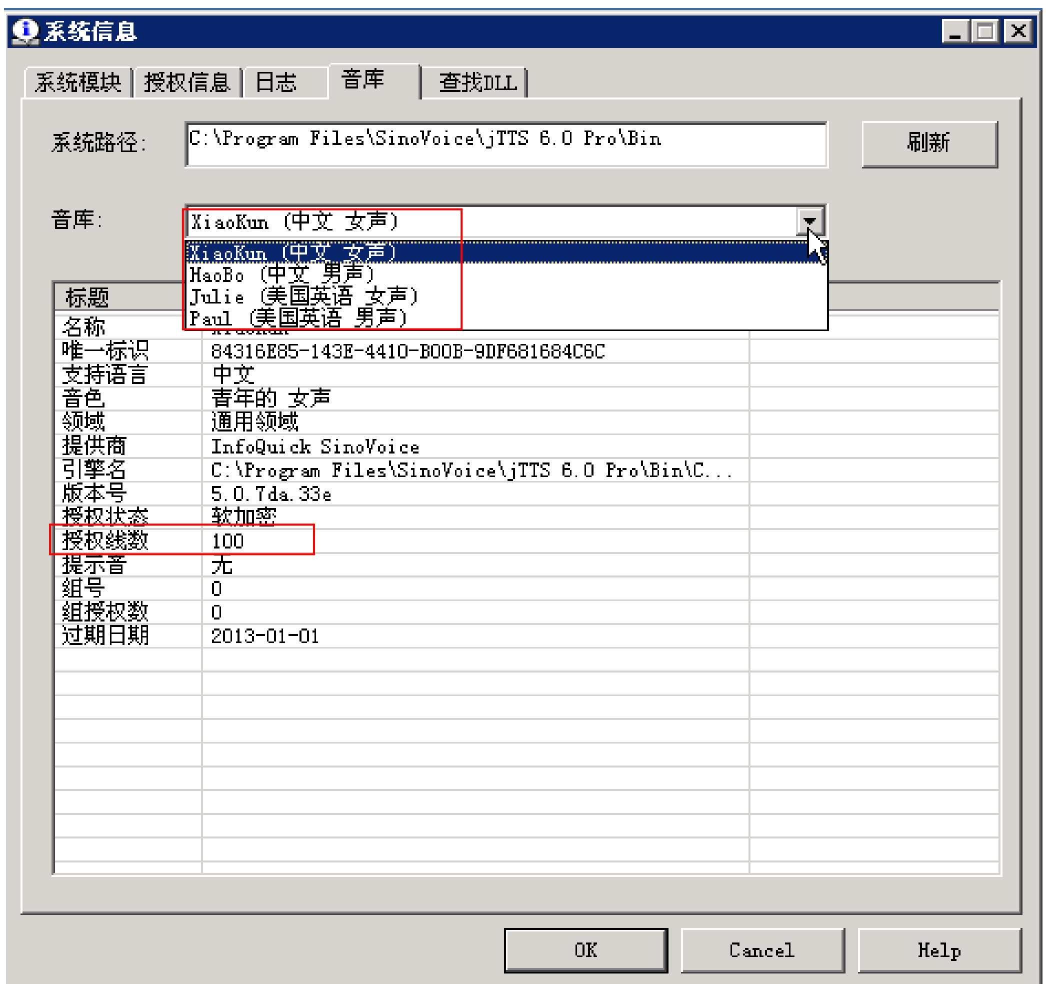


7. Configure SinoVoice jTTS

The following components are required to run the SinoVoice jTTS MRCP Server. In this test configuration, both the jTTS Platform Engine and jMRCP Server are installed on the same server.

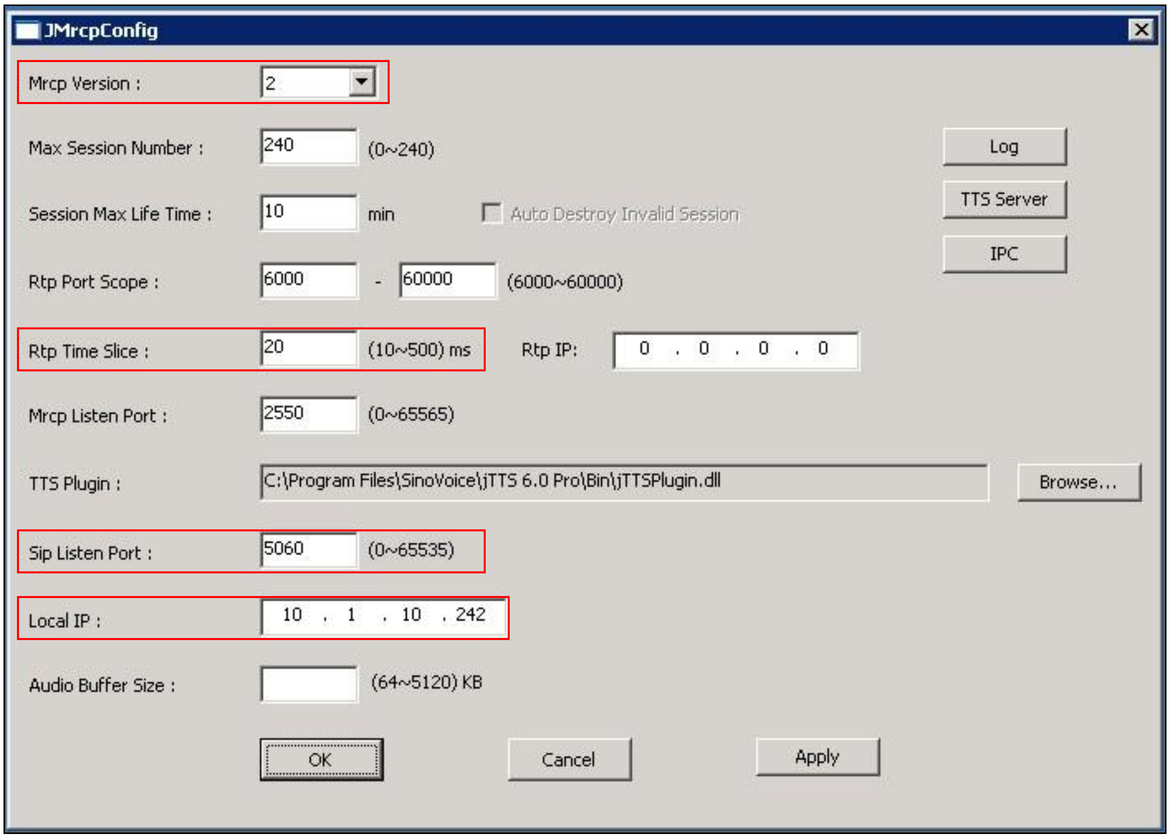
- jTTS Platform Engine
- jTTS Voice Library
- jMRCP Server

Step	Description
1.	On the SinoVoice jTTS server, click **Start → All Programs → jTTS 6.0 Professional → jTTS System Information**. On the jTTS SysInfo (系统信息)window, click the **Voice (音库)**tab. Verify that the desired voices are installed. Verify also that the value for **Lines (授权线数)** shows sufficient number of license required. Click **OK** to close the window.



<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>2.</td><td>
Click Start → All Programs → jTTS 6.0 Professional → Mrcp Config Tool. On the jMrcpConfig window, configure as shown below.

Mrcp Version: Select 2.
Rtp Time Slice: Enter 20.
Sip Listen Port: Enter 5060, which is the default port value for SIP.
Local IP: Enter the SinoVoice jTTS Server IP address as shown in Figure 1.

Click Apply, and then OK to complete the configuration.


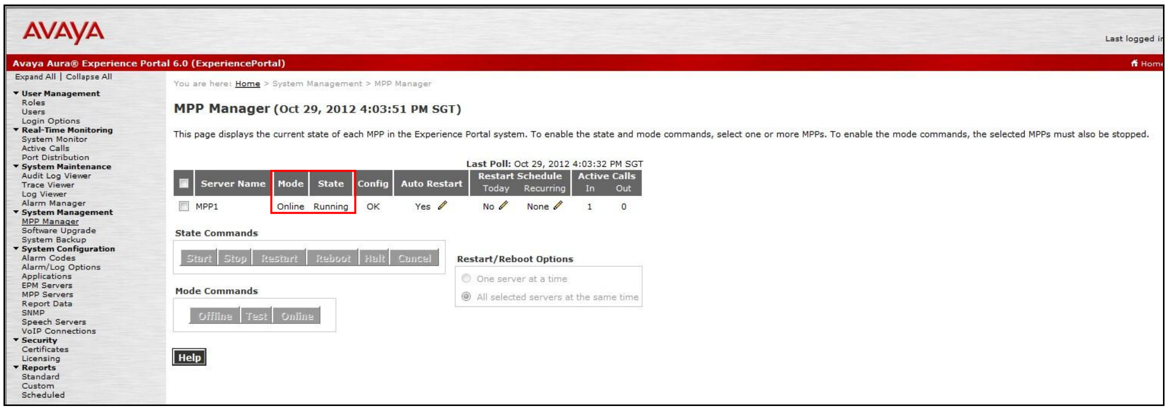
</td></tr>
</table>

8. Verification Steps

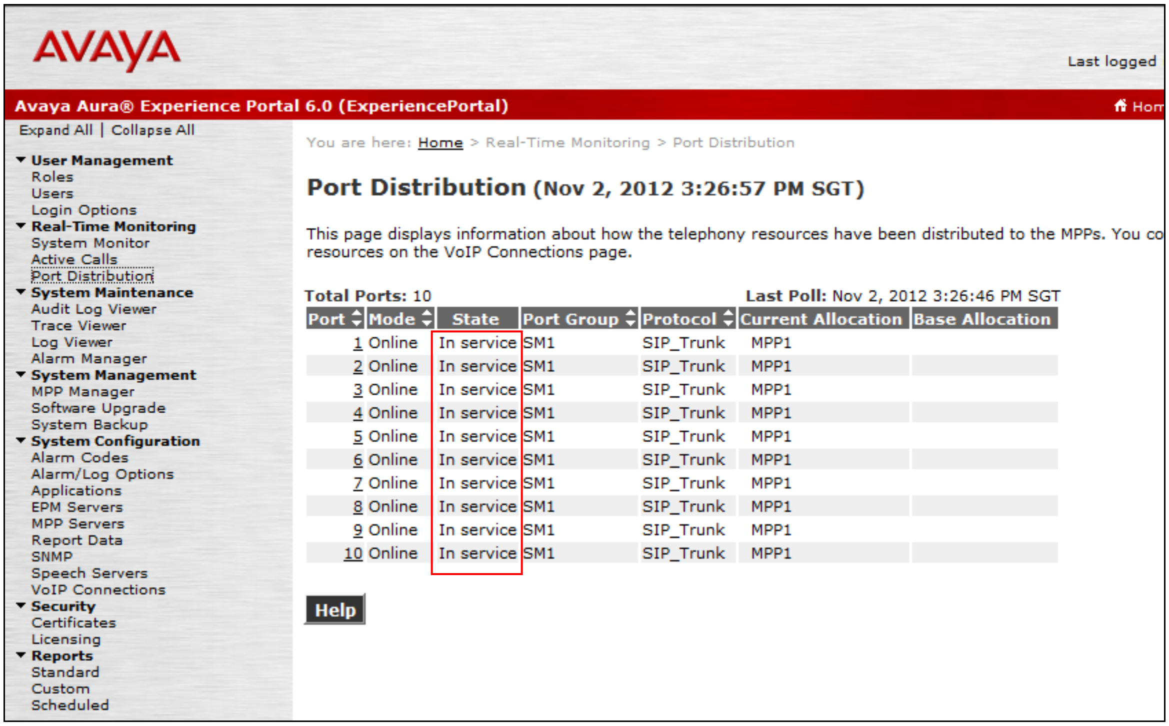
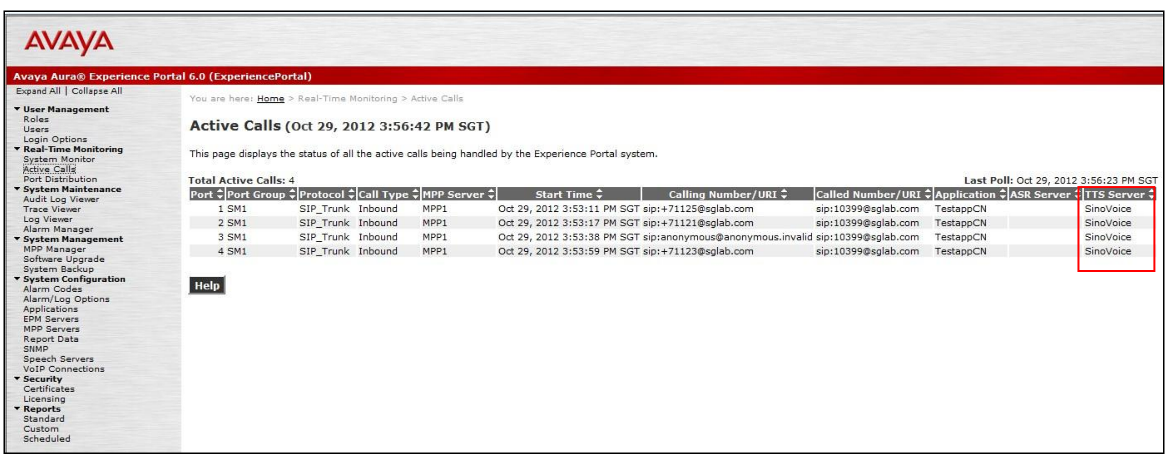
This section provides the verification steps that may be performed to verify that Avaya Aura® Experience Portal can run VoiceXML applications that use the SinoVoice jTTS for TTS speech synthesis.

8.1. Verify Avaya Aura® Experience Portal

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>1.</td><td>From the VPMS web interface, click MPP Manager on the left pane. On the MPP Manager page, verify that the MPP server is Online and Running.

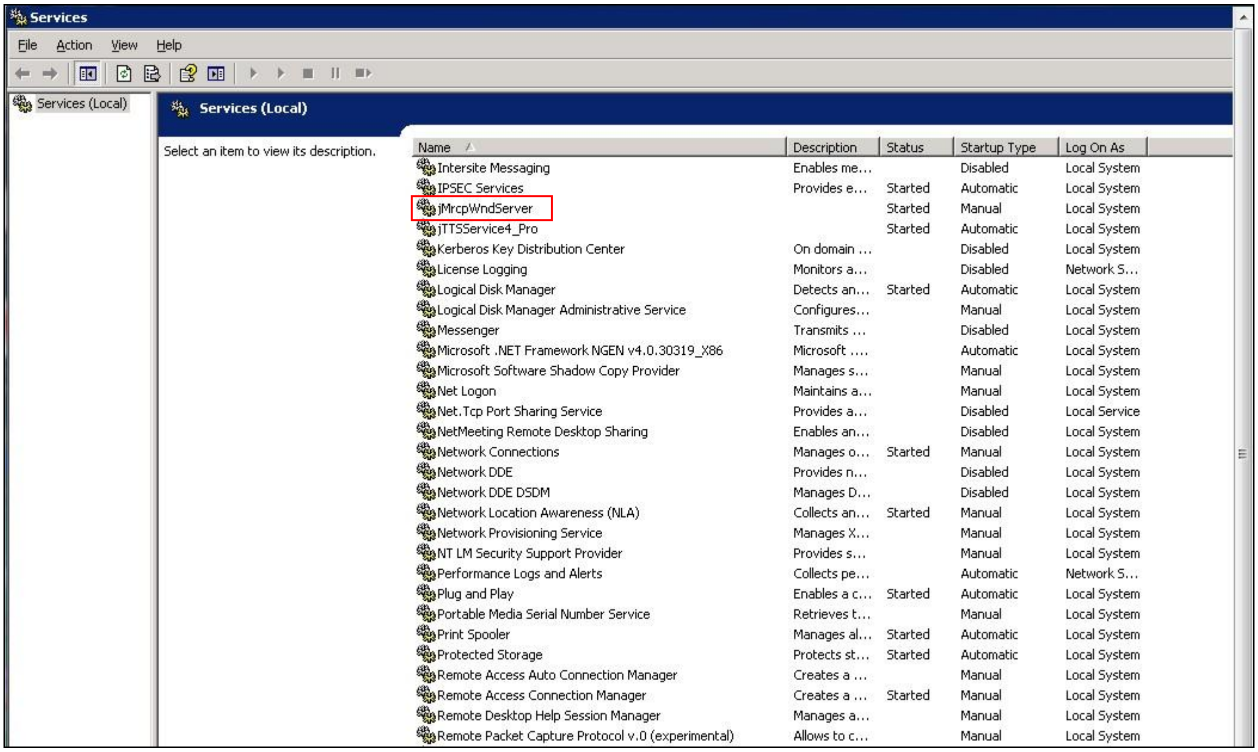


</td></tr>
</table>

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>2.</td><td>From the VPMS 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.

</td></tr>
<tr><td>3.</td><td>Place some calls to Avaya Aura® Experience Portal that runs a VoiceXML script which uses the SinoVoice jTTS 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 VPMS web interface, click Active Calls on the left pane and verify that the TTS Servers in use is SinoVoice jTTS.

</td></tr>
</table>

8.2. Verify SinoVoice jTTS

On the SinoVoice jTTS server, click **Start→ Administrative Tools → Services**. In the Services window, verify that the **jMrcpWndServer** is started.



9. Conclusion

These Application Notes describe the compliance-tested configuration used to validate Avaya Aura® Experience Portal 6.0 with Beijing InfoQuick SinoVoice jTTS 6.0. All test cases were completed successfully.

10. Additional References

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

[1] *Administering Avaya Aura® Experience Portal*, Aug 2011.

Product information on Beijing InfoQuick SinoVoice jTTS 6.0 can be found at http://www.sinovoice.com/english/jtts.html.

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.