



Avaya Solution & Interoperability Test Lab

Application Notes for Loquendo Speech Suite with Avaya Voice Portal – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate the Loquendo Speech Suite with Avaya Voice Portal and Avaya Communication Manager. Loquendo Speech Suite 7.0 uses the Media Resource Control Protocol (MRCP) version 1 for its Text-to-Speech (TTS) and advanced speech recognition (ASR) features to interface with VoiceXML applications running on Avaya Voice 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.

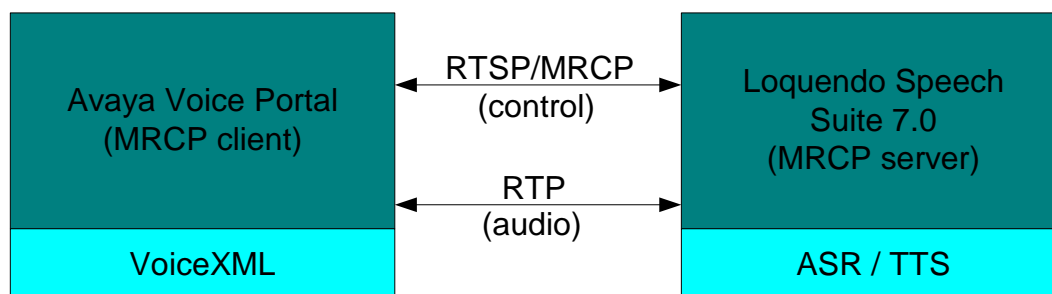
1. Introduction

These Application Notes describe the configuration steps required to integrate the Loquendo Speech Suite with Avaya Voice Portal and Avaya Communication Manager. Loquendo Speech Suite 7.0 uses the Media Resource Control Protocol (MRCP) version 1 for its Text-to-Speech (TTS) and automatic speech recognition (ASR) features to interface with VoiceXML applications running on Avaya Voice Portal.

Loquendo's TTS engine provides synthetic multilingual/multivoice for all types of voice applications such as e-mail reading, real-time news, and self-service applications. Loquendo's Advanced Speech Recognition (ASR) engine supports speech enabled applications such as automated directory assistance services, mobile public voice ports and embedded applications by providing speaker-independent, large scale vocabulary, barge-in facilities and multi-language capability.

The Loquendo Speech Suite interfaces to Avaya Voice Portal via a TCP/IP connection using two different protocols:

- Signaling requests for call set-up and teardown between servers use Real-time Streaming Protocol (RTSP) connections.
- Audio data (speech delivered to an ASR engine for recognition and synthesized speech delivered from a TTS engine) is carried over a Real-time Transport Protocol (RTP) connection.



Avaya Voice Portal and Loquendo Speech Suite interoperating.

Figure 1 illustrates the configuration used for testing. In this configuration, Avaya Voice Portal interfaces with Avaya Communication Manager via H.323 and the Loquendo Speech Suite via Media Resource Control Protocol (MRCP). VoiceXML scripts were run by Avaya Voice Portal and used the ASR and TTS engines in the Loquendo Speech Suite.

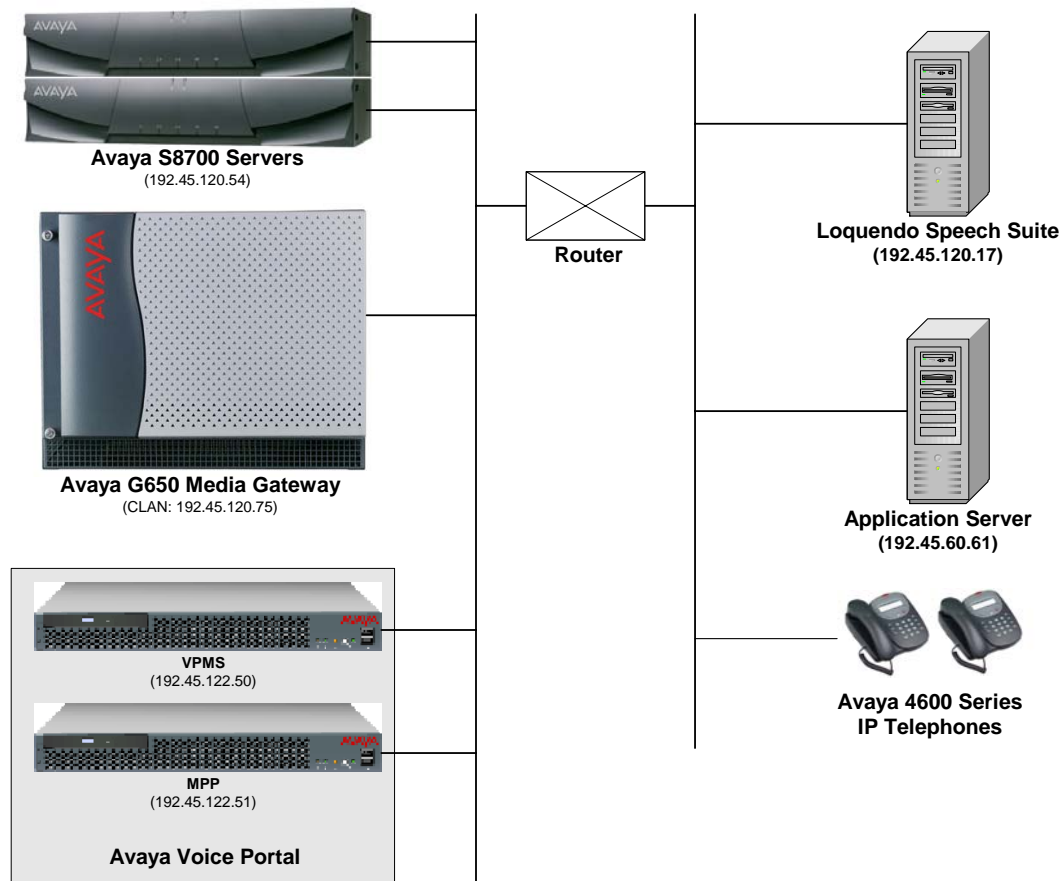


Figure 1: Configuration with Avaya Voice Portal and the Loquendo Speech Suite

1.1. Equipment and Software Validated

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

Equipment	Software
Avaya Voice Portal	4.0.0.0.2901
Avaya S8700 Servers with a G650 Media Gateway	Avaya Communication Manager 4.0 (R014x.00.1.731.2)
Loquendo Speech Suite	7.0.12
Application Server – HTTP Server running Windows Server 2003	N/A
Avaya 4600 Series IP Telephones	2.8 (H.323)

2. Configure Avaya Communication Manager

This section describes the configuration of H.323 stations and the IP codec set for Avaya Voice Portal. This configuration also requires a C-LAN and Media Processor board for IP communication. This configuration is outside the scope of these application notes, but the reader may refer to [1] and [2] for additional information.

From the System Access Terminal (SAT), add an H.323 station for Avaya Voice Portal. A call to this station will be routed to Avaya Voice Portal which will run a VXML script that uses the Loquendo Speech Suite. In the station form, set the **Type** to *7434ND*, provide a descriptive **Name**, set the **Security Code**, and set the **IP Softphone** field to 'y'.

add station 23802		Page 1 of 6
STATION		
Extension: 23802	Lock Messages? n	BCC: 0
Type: 7434ND	Security Code: XXXXX	TN: 1
Port: S00059	Coverage Path 1:	COR: 1
Name: VP 192.45.122.50	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
	Time of Day Lock Table:	
Loss Group: 2	Personalized Ringing Pattern: 1	
Data Module? n	Message Lamp Ext: 23802	
Display Module? y		
Display Language: english	Coverage Module? n	
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? y	
	IP Video Softphone? n	

Figure 2: Station Form

In the IP codec set form associated with the IP network region of the H.323 station, configured in **Figure 2**, set the **Audio Codec** field to the appropriate value. In this configuration, *G.711MU* was used.

change ip-codec-set 1		Page 1 of 2	
IP Codec Set			
Codec Set: 1			
Audio	Silence	Frames	Packet
Codec	Suppression	Per Pkt	Size(ms)
1: G.711MU	n	2	20
2:			
3:			
4:			

Figure 3: IP Codec Set Form

3. Configure Avaya Voice Portal

This section covers the administration of Avaya Voice Portal. The following Voice Portal configuration steps will be covered:

- Configuring an H.323 VoIP connection
- Adding an MPP server
- Configuring the VoIP audio format (mu-law or a-law)
- Adding a speech server
- Adding applications
- Starting the MPP server

Avaya Voice Portal is configured via the Voice Portal Management System (VPMS) web interface. To access the web interface, enter `http://<ip-addr>/VoicePortal` as the URL in an internet browser, where `<ip-addr>` is the IP address of the VPMS. Log in using the Administrator user role. The screen shown in **Figure 4** is displayed.

Note: All of the screens in this section are shown after the Avaya Voice Portal had been configured. Save the screen parameters during configuration of Avaya Voice Portal.

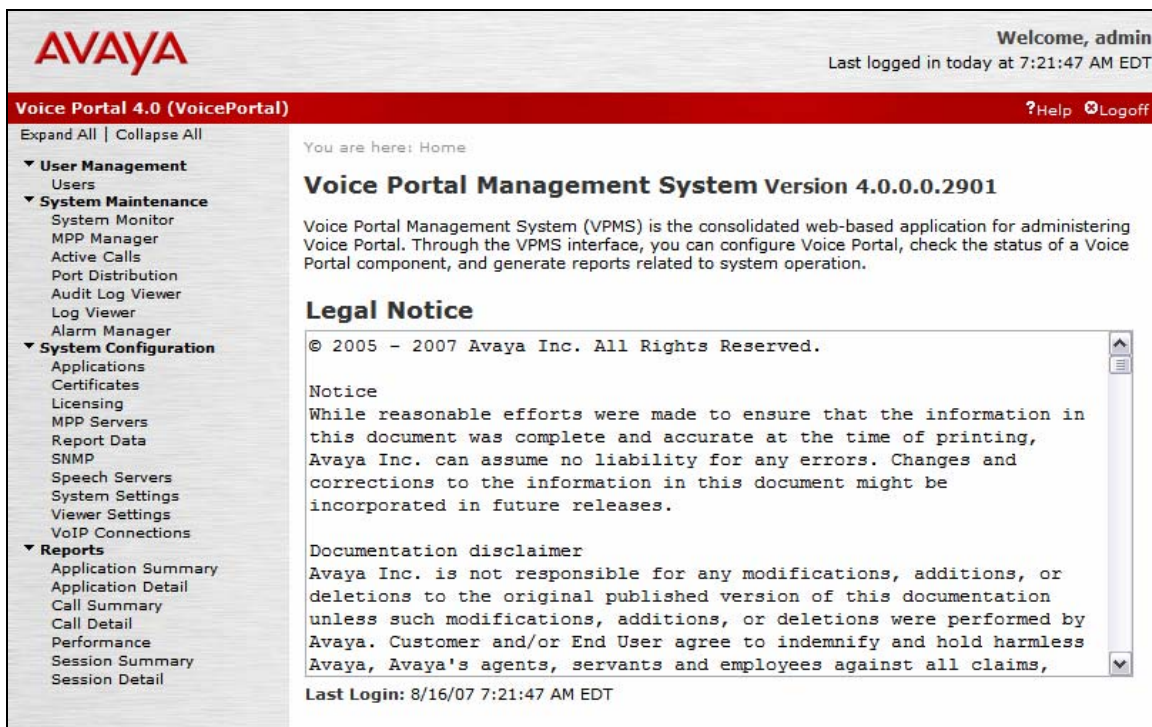


Figure 4: VPMS Main Screen

Configure the H.323 VoIP Connection. To configure an H.323 connection, navigate to the **VoIP Connections** page and then click on the **H.323** tab. In the H.323 tab shown in **Figure 5**, set the **Gatekeeper Address** to the IP address of the C-LAN in the G650 media gateway and the **Gatekeeper Port** to *1719*. Next, configure the stations for Avaya Voice Portal, which map to the 7434ND stations configured in Avaya Communication Manager. In addition, set the **Password** for the stations and set the **Station Type** to *Inbound and Outbound*. In this configuration, only station 23802 is mapped to the Avaya Voice Portal application that used the Loquendo Speech Suite.

AVAYA Welcome, admin
Last logged in today at 9:46:27 AM EST

Voice Portal 4.0 (VoicePortal) ? Help Logoff

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You are here: [Home](#) > [System Configuration](#) > [VoIP Connections](#) > [Change H.323 Connection](#)

Change H.323 Connection

Use this page to change the configuration of an H.323 connection.

Name: devcon14

Gatekeeper Address:

Alternative Gatekeeper Address:

Gatekeeper Port:

Media Encryption: ☒ Yes ☐ No

New Stations

From	To
Station: <input type="text"/>	<input type="text"/>
Password: <input type="text"/>	
<input checked="" type="radio"/> Same Password <input type="radio"/> Use sequential passwords	
Station Type: <input type="text" value="Inbound and Outbound"/>	<input type="button" value="Add"/>

Configured Stations (M for Maintenance, I for Inbound Only)

23801 - 23808	<input type="button" value="Remove"/>
---------------	---------------------------------------

Figure 5: H.323 Connection

Add an MPP Server. Add the MPP server by navigating to the **MPP Servers** screen by selecting the option from the left pane. In the MPP Server configuration page, specify a descriptive **Name** and the **Host Address** of each MPP server. Also, specify the **Maximum Simultaneous Calls** supported by each MPP server. **Figure 6** shows the configuration for the first MPP server.

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You are here: [Home](#) > System Configuration > [MPP Servers](#) > Change MPP Server

Change MPP Server

Use this page to change the configuration of an MPP. Take care when changing the MPP Trace Logging Thresholds. Do not set Trace Levels to Finest if your Voice Portal system has heavy call traffic. The system might experience performance issues if Trace Levels are set to Finest. Set Trace Levels to Finest only when you are troubleshooting the system.

Name: mpp1

Host Address:

Network Address (VoIP):

Network Address (MRCP):

Maximum Simultaneous Calls:

Restart Automatically: ☐ Yes ☒ No

MPP Certificate

```
Owner: CN=mpp1,O=Avaya,OU=MPP
Issuer: CN=mpp1,O=Avaya,OU=MPP
Serial Number: afb12d5e630df5db
Valid from: Mon Jun 25 10:22:03 EDT 2007 until: Thu Jun 22 10:22:03 EDT 2017
Certificate fingerprints
    MD5: 80:83:03:06:ba:c5:dd:c0:18:0c:74:d5:c9:f5:07:59
    SHA: d8:10:66:b9:00:2a:42:84:64:87:9e:30:6d:69:a4:40:cb:fd:c3:99
```

Categories and Trace Levels ▶

Save **Apply** **Cancel** **Help**

Figure 6: MPP Server

Configure the VoIP Audio Format. The **VoIP Audio Format** for the MPP server is configured in the **VoIP Settings** screen accessible by selecting **MPP Servers** in the left pane. The **MPP Native Format** field in **Figure 7** is set to *audio/basic* for mu-law.

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You are here: [Home](#) > [System Configuration](#) > [MPP Servers](#) > [VoIP Settings](#)

VoIP Settings

Voice over Internet Protocol (VoIP) is the process of sending voice data through a network using one or more standard protocols such as H.323 and Real-time Transfer Protocol (RTP). Use this page to configure parameters that affect how voice data is transferred through the network. Note that if you make any changes to this page, you must restart all MPPs.

Port Ranges

	Low	High
UDP:	30000	30999
TCP:	31000	31999
MRCP:	32000	32999

RTCP Monitor Settings

Host Address:

Port:

VoIP Audio Formats

MPP Native Format:

QoS Parameters

	VLAN	Diffserv
H.323:	6	46
SIP:	6	46
RTSP:	6	46

Out of Service Threshold (% of VoIP Resources)

	Trigger	Reset
Warn:	10	0
Error:	20	10
Fatal:	70	50

Save **Apply** **Cancel** **Help**

Figure 7: VoIP Settings

The Loquendo Speech Suite is not natively included in the set of speech engines supported by Avaya Voice Portal and will not initially appear in the ASR and TTS configuration screen. To add Loquendo Speech Suite to the list of supported speech engines, log into the VPMS server, either locally or remotely through telnet, and locate the `languages.properties` file which, by default, can be found in `/opt/Tomcat/apahce-tomcat-5.0.20/webapps/VoicePortal/WEB-INF/classes/messages/`. Edit the file and add the lines shown below to the appropriate section. Contact Loquendo customer support for the latest languages and voices supported by the Speech Suite.

```
#
# Engine Type options displayed on the page
#
asrEngines=IBM WVS,Nuance,Loquendo Speech Suite
ttsEngines=IBM WVS,Nuance,Loquendo Speech Suite

# Engine Type conversion from display to internal data in the database
LoquendoSpeechSuiteASR=loquendo speech suite
LoquendoSpeechSuiteTTS=loquendo speech suite

# Engine Type conversion from internal data in the database to display
loquendospeechsuite=Loquendo Speech Suite

#
# Languages
#
LoquendoSpeechSuiteASRlanguages=English(USA) en-us,English(British) en-
GB,Spanish(Spain) es-ES,Spanish(Colombia) es-CO,Spanish(Argentina) es-
AR,Spanish(Chile) es-CL,Spanish(Mexico) es-MX,Catalan(Spain) ca-ES,German(Germany) de-
DE,Greek(Greece) el-GR,French(France) fr-FR,Italian(Italy) it-IT,Dutch(Netherlands)
nl-NL,Polish(Poland) pl-PL,Portuguese(Brazil) pt-br,Portuguese(Portugal) pt-
PT,Chinese(Simplified) zh-CN,Swedish(Sweden) sv-SE

LoquendoSpeechSuiteTTSlanguages=English(US) en-US Dave M,English(US) en-US Kenneth
M,English(US) en-US Susan F,English(British) en-GB Simon M,English(British) en-GB Kate
F,English(British) en-GB Elizabeth F,Spanish(Spain) es-ES Jorge M,Spanish(Spain) es-ES
Carmen F,Spanish(Spain) es-ES Juan M,Spanish(Colombia) es-CO Carlos
M,Spanish(Argentina) es-AR Diego M,Spanish(Chile) es-CL Francisca F,Spanish(Mexico)
es-MX Esperanza F,Catalan(Spain) ca-ES Jordi M,Catalan(Spain) ca-ES Montserrat
F,German(Germany) de-DE Stefan M,German(Germany) de-DE Katrin F,German(Germany) de-DE
Ulrike F,Greek(Greece) el-GR Afroditi F,Greek(Greece) el-GR Artemis F,French(France)
fr-FR Bernard M,French(France) fr-FR Juliette F,French(France) fr-FR Sophie
F,Italian(Italy) it-IT Giulia F,Italian(Italy) it-IT Luca M,Italian(Italy) it-IT Paola
F,Italian(Italy) it-IT Fabio M,Italian(Italy) it-IT Marcello M,Italian(Italy) it-IT
Matteo M,Italian(Italy) it-IT Roberto M,Italian(Italy) it-IT Silvana
F,Dutch(Netherlands) nl-NL Saskia F,Dutch(Netherlands) nl-NL Willelm M,Polish(Poland)
pl-PL Zosia F,Potuguese(Portugal) pt-PT Amalia F,Potuguese(Portugal) pt-PT Eusebio
M,Potuguese(Brazil) pt-PT Gabriela F,Chinese(Simplified) zh-CN Linlin
F,Swedish(Sweden) sv-SE Annika F
#
# Language Default
#
LoquendoSpeechSuiteASRlanguagesDefault=English(USA) en-us
LoquendoSpeechSuiteTTSlanguagesDefault=English(US) en-US Susan F
#
# default base port
#
LoquendoSpeechSuiteBasePort=554
#
# default New Connection per Session
#
LoquendoSpeechSuitePerPort=Yes
#
# default URL
#
LoquendoSpeechSuiteRtspUrlAsr=/recognizer
```

Figure 8: languages.properties File

Add an ASR Server. To configure the automatic speech recognition (ASR) server, click on **Speech Servers** in the left pane, select the **ASR** tab, and then click **Add**. **Figure 9** shows the screen after the ASR server has already been configured. For the Loquendo Speech Suite, the **Engine Type** should be set to *Loquendo Speech Suite*. This engine type option was added by modifying the `languages.properties` file shown in **Figure 8**. Set the **Network Address** field to the IP address of the Loquendo Speech Suite and select the desired **Languages** supported by the applications. The **Total Number of Licensed ASR Resources** should also be set to the appropriate value. The other fields were left at their default values.

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Voice Portal 4.0 (VoicePortal) ? Help Logoff

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You are here: [Home](#) > [System Configuration](#) > [Speech Servers](#) > Change ASR Server

Change ASR Server

Use this page to change the configuration of an ASR server. Note that if you make any changes to this page, you must restart all MPPs.

Name:	Loquendo ASR		
Engine Type:	Loquendo Speech Suite		
Network Address:	192.45.120.17		
Base Port:	554		
Total Number of Licensed ASR Resources:	10		
MRCP Ping Interval:	15	second(s)	
MRCP Response Timeout:	4	second(s)	
New Connection per Session:	<input checked="" type="radio"/> Yes <input type="radio"/> No		
RTSP URL:	192.45.120.17/recognizer		
Languages:	English(USA) en-us English(British) en-GB Spanish(Spain) es-ES Spanish(Colombia) es-CO Spanish(Argentina) es-AR Spanish(Chile) es-CL		

Save **Apply** **Cancel** **Help**

Figure 9: ASR Speech Server

Add a TTS Server. To configure the TTS server, click on **Speech Servers** in the left pane, select the **TTS** tab, and then click **Add**. **Figure 10** shows the screen after the TTS server has already been configured. For the Loquendo Speech Suite, the **Engine Type** should be set to *Loquendo Speech Suite*. This engine type option was added by modifying the `languages.properties` file shown in **Figure 8**. Set the **Network Address** field to the IP address of the Loquendo Speech Suite and select the desired **Voices** supported by the applications. The **Total Number of Licensed TTS Resources** should also be set to the appropriate value. The other fields were left at their default values.

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Voice Portal 4.0 (VoicePortal) ? Help X Logoff

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Change TTS Server

Use this page to change the configuration of a TTS server. Note that if you make any changes to this page, you must restart all MPPs.

Name: Loquendo TTS

Engine Type: Loquendo Speech Suite

Network Address:

Base Port:

Total Number of Licensed TTS Resources:

MRCP Ping Interval: second(s)

MRCP Response Timeout: second(s)

New Connection per Session: ☒ Yes ☐ No

RTSP URL:

Voices:

- English(USA) en-US Dave M
- English(USA) en-US Kenneth M
- English(USA) en-US Susan F
- English(British) en-GB Simon M
- English(British) en-GB Kate F
- English(British) en-GB Elizabeth F

Save **Apply** **Cancel** **Help**

Figure 10: TTS Server

Add an Application. On the **Applications** page, add an Avaya Voice Portal application. Specify a **Name** for the application, set the **MIME Type** field to the appropriate value (e.g., VoiceXML), and set the **VoiceXML URL** field to point to a VoiceXML application hosted in the application server. Next, specify the type of ASR and TTS servers to be used by the application and the called number that invokes the application. The **Applications** screen is shown in **Figure 11**.

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Change Application

Use this page to change the configuration of a VoiceXML or CCXML application.

Name: DevconTest

MIME Type:

VoiceXML URL:

Speech Servers

ASR: TTS:

Languages: Voices:

Application Launch

Type: ☒ Inbound ☐ Inbound Default ☐ Outbound

☒ Number ☐ Number Range ☐ URI

Called Number:

Speech Parameters ▶

Reporting Parameters ▶

Advanced Parameters ▶

Figure 11: Applications

Start the MPP Server. Start the MPP server from the **MPP Manager** page shown in **Figure 12**. Select each MPP and then click the **Start** button. After the MPP is started, the **Mode** of the MPP should be *Online* and the **State** should be *Running*.

Welcome, admin

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Voice Portal 4.0 (VoicePortal)

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You are here: [Home](#) > System Maintenance > MPP Manager

MPP Manager (12/10/07 10:56:22 AM EST)

[Refresh](#)

This page displays the current state of each MPP in the Voice Portal system. To enable the state and mode commands, select one or more MPPs. To enable the mode commands, the selected MPPs must also be stopped.

Last Poll: 12/10/07 10:56:18 AM EST

<input checked="" type="checkbox"/>	Server Name	Mode	State	Config	Auto Restart	Restart Schedule	Active Calls		
						Today	Recurring	In	Out
<input checked="" type="checkbox"/>	mpp1	Online	Stopped	None	No	No	None	0	0

State Commands

Mode Commands

Restart/Reboot Options

☐ One server at a time
☒ All selected servers at the same time

[Help](#)

Figure 12: MPP Manager

4. Configure Loquendo Speech Suite

This section covers the administration required on the Loquendo Speech Suite server. The Loquendo Speech Suite can be configured through the Management Console, a graphical SNMP-based application, shipped with the Speech Suite. This section assumes that the Management Console is already installed and configured to manage the Loquendo Speech Suite instance that will interoperate with Avaya Voice Portal.

Start the Management Console by navigating to **Start→Loquendo→Loquendo Speech Suite 7.0→Management Console**. The initial screen is displayed as shown in **Figure 13**.

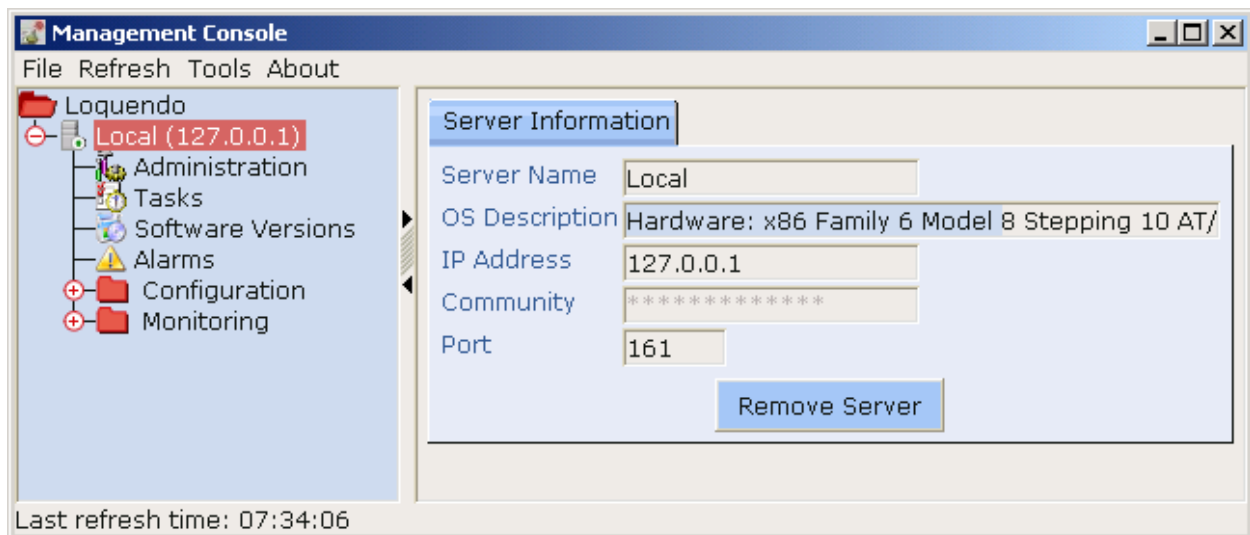


Figure 13: Initial Screen

From the Management Console, access the **Basic** configuration screen. Enable the **dtmfCodecAlwaysOffered** field as shown in **Figure 14**.

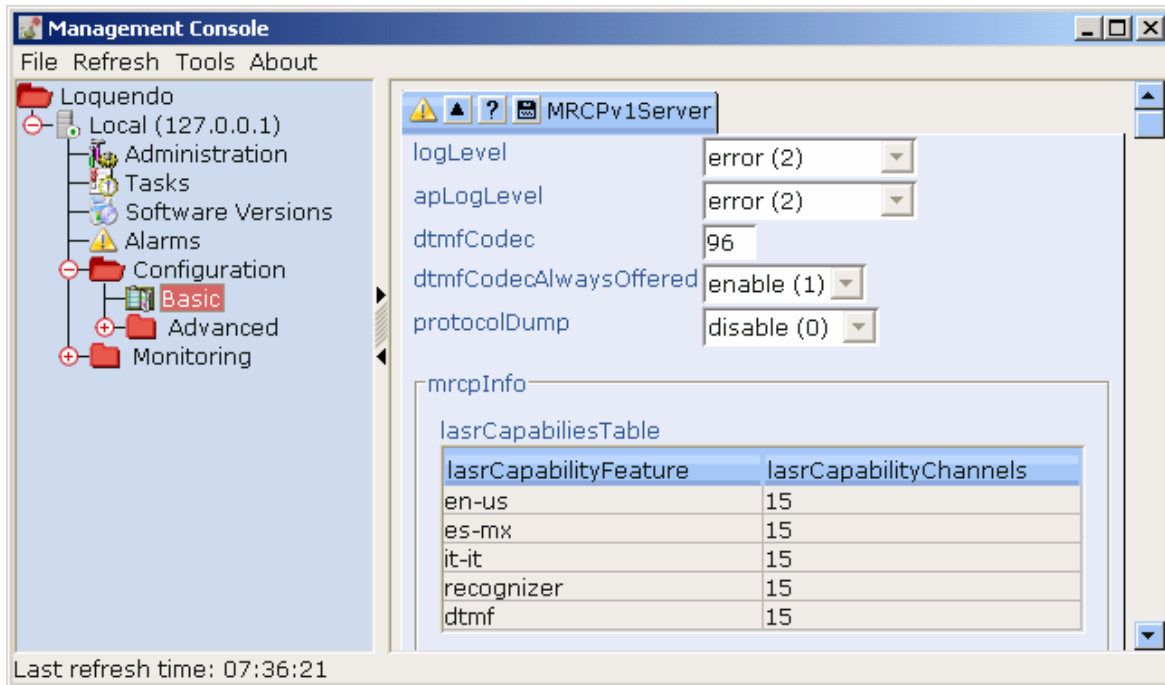


Figure 14: dtmfCodecAlwaysOffered Parameter

In the **Basic** configuration screen, scroll down to the **mrcpHeader** section. Optionally, set the default language and voice.

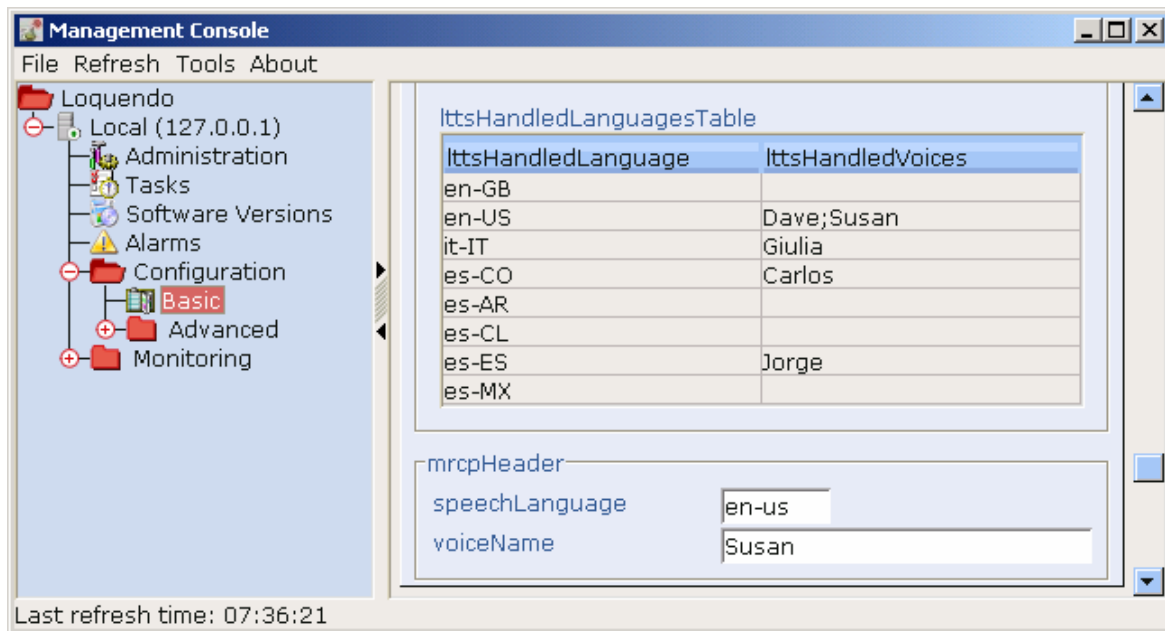


Figure 15: Default Language and Voice Parameters

Next, access the **Advanced** configuration screen for the **MRCpv1Server** and scroll down to the **speechRecognition** section. Note that this screen contains many parameters and the user needs to scroll to the desired section. The complete screen with all of the parameters cannot be shown in one screenshot. Set the **lasrAudioCodec** to *u-law* or *a-law* according to the Avaya Voice Portal configuration. In this configuration, u-law was used. Set the **lasrLooseSISRSemantic** field to *enable* and the **lasrDefaultTagFormat** field to *SISR-semantics(2)*.

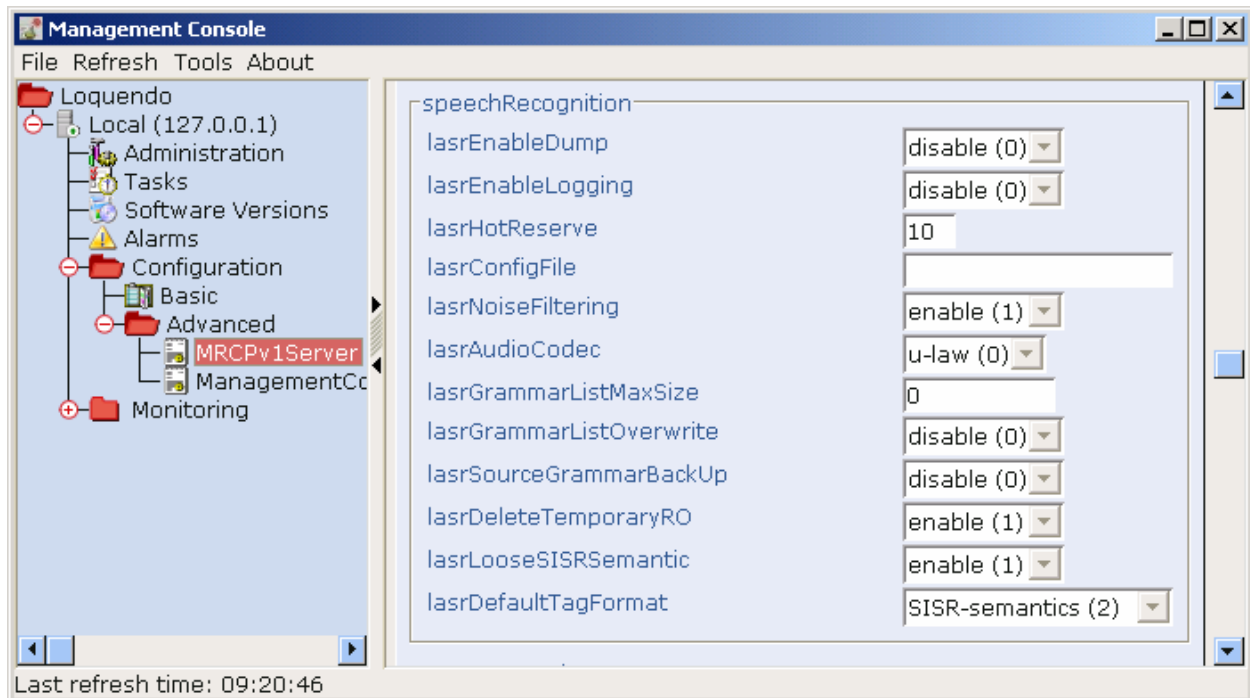


Figure 16: Speech Recognition Parameters

Scroll down to the **textToSpeech** section as shown in **Figure 17** and set the **lttsDefaultAudioCodec** to *u-law* or *a-law* according to the Avaya Voice Portal configuration. In this configuration, u-law was used.

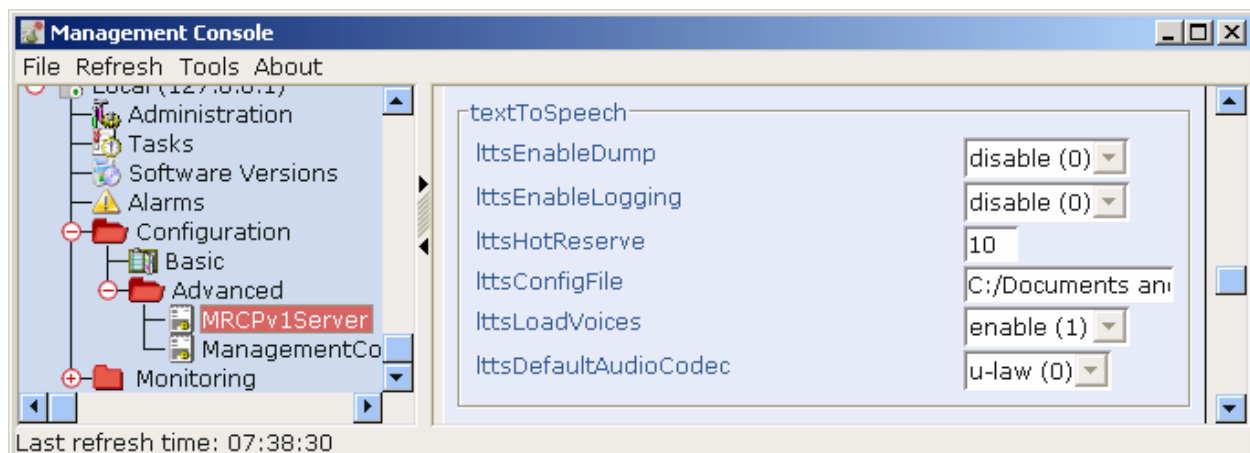


Figure 17: Text-to-Speech Parameters

In the same **Advanced** configuration screen, scroll down to the **nlsmlResult** section and set the highlighted parameters as shown in **Figure 18**.

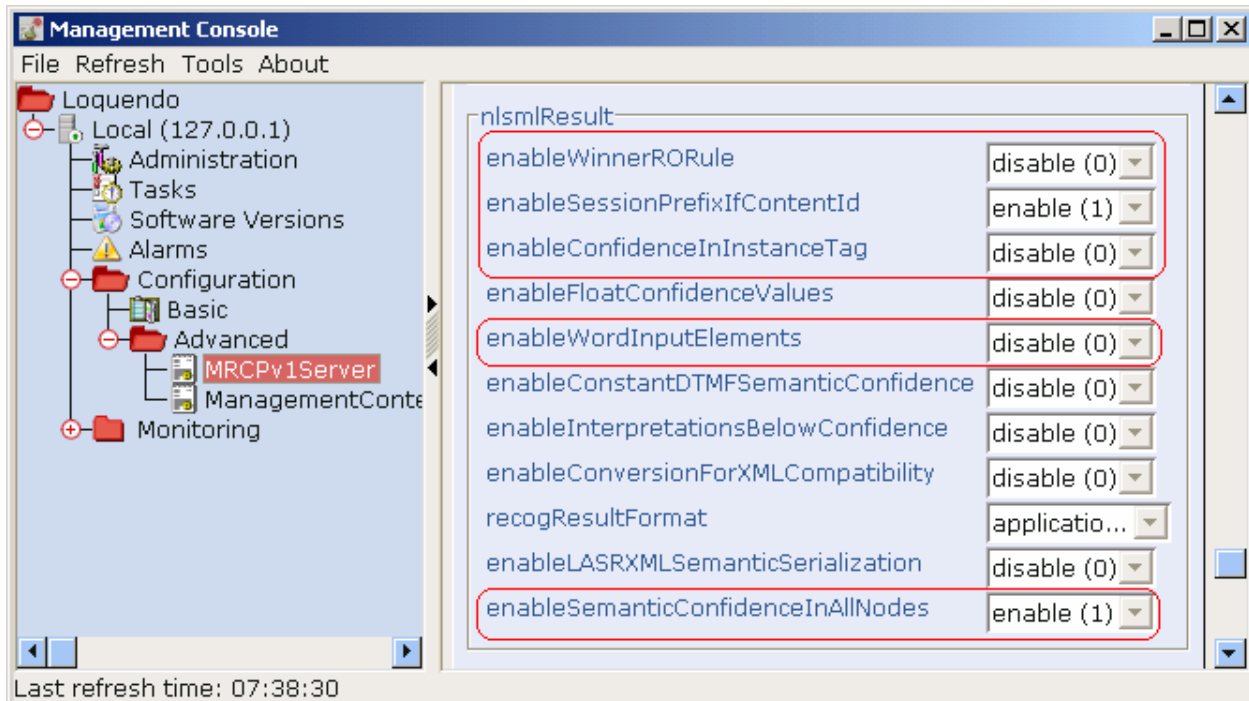


Figure 18: NLSML Parameters

Lastly, scroll down to the **ports** section and configure the **rtspPort** field to '554' as shown in

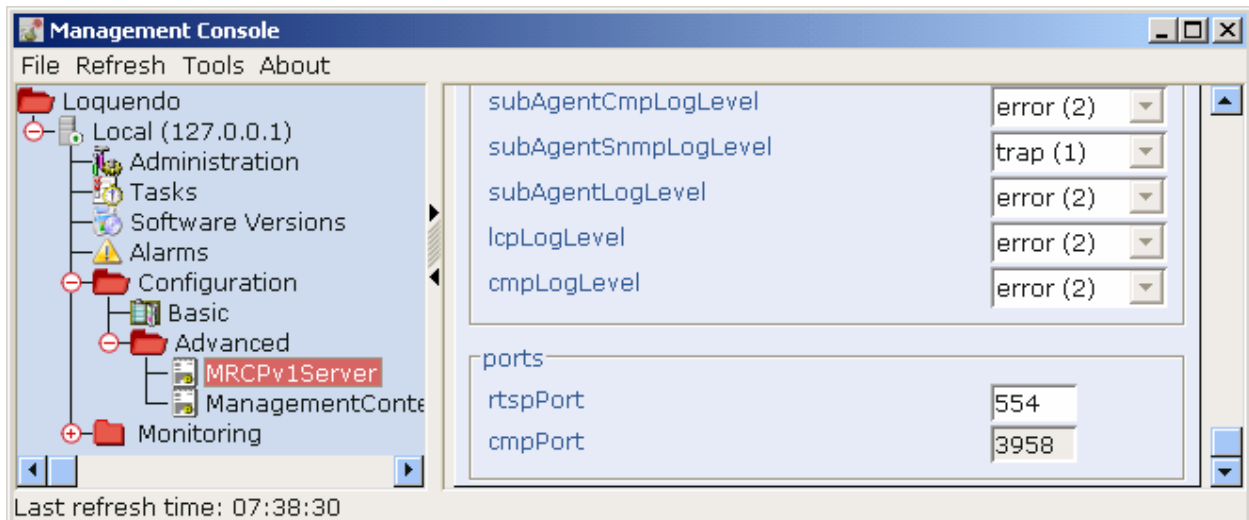


Figure 19: Ports Parameters

The Management Console will notify the user if a restart is required after changing a parameter. If necessary, the user may issue a restart by setting the **lifeCycleCmd** field to *restart(2)* under the **Administration** screen as shown in **Figure 20**.

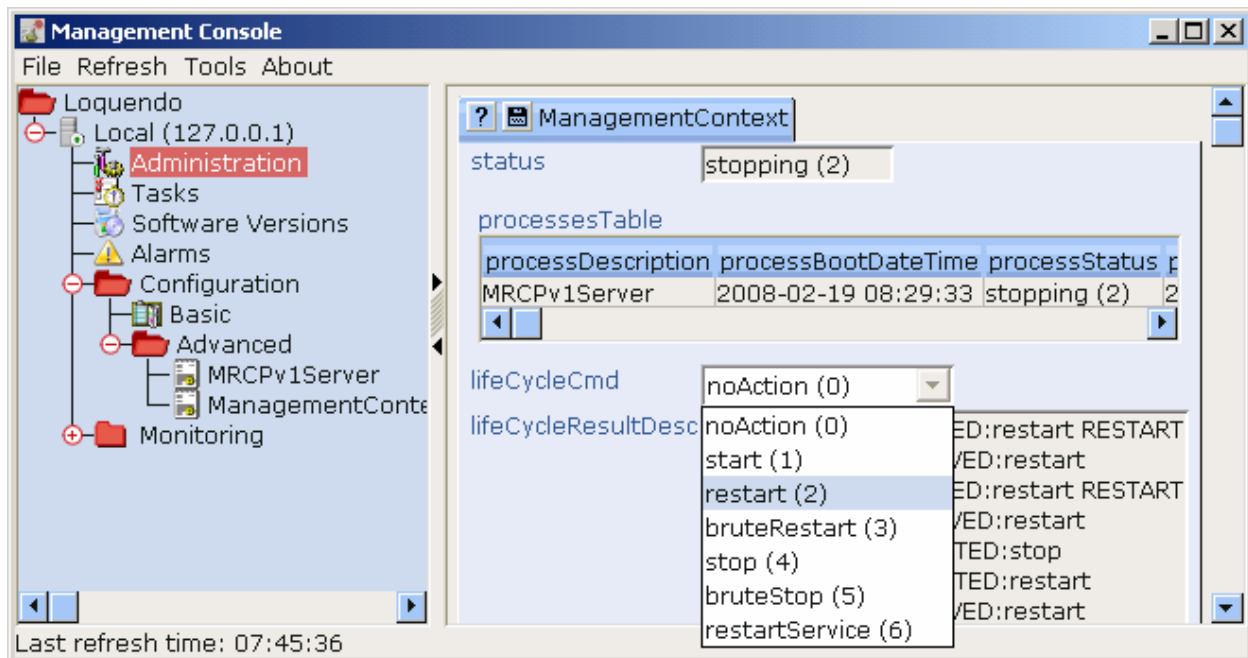


Figure 20: Restarting Loquendo Speech Suite

5. Interoperability Compliance Testing

This section describes the interoperability compliance testing used to verify Avaya Voice Portal VoiceXML applications that use the ASR and TTS engines in the Loquendo Speech Suite. This section covers the general test approach and the test results.

5.1. General Test Approach

The interoperability compliance test included feature and serviceability testing. The feature testing focused on placing calls to Avaya Voice Portal that ran VoiceXML applications that use the ASR engine in the Loquendo Speech Suite. The testing verified Text-to-Speech, speech recognition, and DTMF tone recognition.

The serviceability testing focused on verifying the ability of the Loquendo Speech Suite to recover from adverse conditions, such as power failures and disconnecting cables to the IP network.

5.2. Test Results

All test cases passed. Avaya Voice Portal was successful in running applications that use the ASR engine of the Loquendo Speech Suite.

6. Verification Steps

This section provides the verification steps that may be performed to verify that Avaya Voice Portal can run IVR applications that use the Loquendo Speech Suite.

1. From the VPMS web interface, verify that the MPP servers are online and running in the **MPP Manager** page shown in **Figure 21**.

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MPP Manager (12/10/07 11:04:24 AM EST)

[Refresh](#)

This page displays the current state of each MPP in the Voice Portal system. To enable the state and mode commands, select one or more MPPs. To enable the mode commands, the selected MPPs must also be stopped.

Last Poll: 12/10/07 11:04:21 AM EST

<input type="checkbox"/>	Server Name	Mode	State	Config	Auto Restart	Restart Schedule		Active Calls	
						Today	Recurring	In	Out
<input type="checkbox"/>	mpp1	Online	Running	OK	No	No	None	0	0

State Commands

[Start](#) [Stop](#) [Restart](#) [Reboot](#) [Halt](#) [Cancel](#)

Mode Commands

[Offline](#) [Test](#) [Online](#)

Restart/Reboot Options

☐ One server at a time
☒ All selected servers at the same time

[Help](#)

Figure 21: MPP Manager

2. From the VPMS web interface, verify that the ports on the MPP server are in-service in the **Port Distribution** page shown in **Figure 22**.

AVAYA Welcome, admin
Last logged in today at 9:46:27 AM EST

Voice Portal 4.0 (VoicePortal) ?Help Logoff

Expand All | Collapse All

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 - Port Distribution**
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You are here: [Home](#) > System Maintenance > Port Distribution

Port Distribution (12/10/07 11:05:42 AM EST) [Refresh](#)

This page displays information about how the telephony resources have been distributed to the MPPs. You configure the telephony resources on the VoIP Connections page.

Total Ports: 8 **Last Poll: 12/10/07 11:05:42 AM EST**

Port	Mode	State	Port Group	Protocol	Current Allocation	Base Allocation
23801	Online	In service	devcon14	H323	mpp1	
23802	Online	In service	devcon14	H323	mpp1	
23803	Online	In service	devcon14	H323	mpp1	
23804	Online	In service	devcon14	H323	mpp1	
23805	Online	In service	devcon14	H323	mpp1	
23806	Online	In service	devcon14	H323	mpp1	
23807	Online	In service	devcon14	H323	mpp1	
23808	Online	In service	devcon14	H323	mpp1	

[Help](#)

Figure 22: Port Distribution

3. Place a call to Avaya Voice Portal that runs a VoiceXML script and uses the Loquendo Speech Suite. Verify that the application answers the call and that the application is able to recognize the speech and DTMF tones input provided by the caller.

7. Support

To obtain technical support for the Loquendo Speech Suite, contact Loquendo via email or through their website.

- **Email:** lss@loquendo.com
- **Web:** <http://www.loquendo.com/customerarea>

8. Conclusion

These Application Notes describe the configuration steps required to integrate the Loquendo Speech Suite with Avaya Voice Portal. All feature and serviceability test cases were completed successfully.

9. Additional References

This section references the product documentation that is relevant to these Application Notes.

- [1] *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 3.1, February 2007, available at <http://support.avaya.com>.
- [2] *Feature Description and Implementation for Avaya Communication Manager*, Document 555-245-205, Issue 5, February 2007, available at <http://support.avaya.com>.
- [3] *Feature Description and Implementation for Avaya Communication Manager*, Document 555-245-205, Issue 5, February 2007, available at <http://support.avaya.com>.
- [4] *Avaya Interactive Response (IR) Release 3.0 Documentation Library*, June 2007, available at <http://support.avaya.com>.
- [5] *Loquendo Speech Suite 7.0 Product Description*, Version 7.0.23, December 18, 2007, available with product CDs.
- [6] *Loquendo Speech Suite 7.0 Operation Manual*, Version 7.0.9, December 20, 2007, available with product CDs.

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