



Avaya Solution & Interoperability Test Lab

Application Notes for Verbio TTS 9.49 with Avaya Experience Portal 8.1.2 using MRCP Version 1 and 2 - Issue 1.1

Abstract

These application notes describe the configuration steps required for Verbio Text-To-Speech (TTS) 9.49 to successfully interoperate with Avaya Experience Portal 8.1.2 using Media Resource Control Protocol (MRCP) Version 1 and Version 2. Verbio TTS allows Voice XML applications to play written text.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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.

1. Introduction

These application notes describe the configuration steps required for Verbio TTS 9.49 to successfully interoperate with Avaya Experience Portal 8.1.2 using MRCP Version 1 and Version 2. Verbio TTS is added as a speech server on the Experience Portal Management Server.

2. General Test Approach and Test Results

The general test approach was to configure Verbio TTS to communicate with Experience Portal as implemented on a customer's premises. See **Figure 1** for a network diagram. The feature testing focused on placing calls to Experience Portal to invoke sample VXML applications that use Verbio TTS. The serviceability testing introduced failure scenarios to see if Verbio can resume after a failure.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and Verbio TTS did not include use of any specific encryption features as requested by Verbio.

2.1. Interoperability Compliance Testing

The interoperability compliance testing covered the following features and functionality:

- Experience Portal and Verbio communicating via MRCP V1 and MRCP V2.
- Calls to Experience Portal that invoke sample VXML applications and utilize Verbio TTS, which include plain text and SSML tags.
- Male and female TTS voices and TTS prosody to change rate, volume, and pitch of the TTS voice.
- Proper response from Verbio TTS for both text and pre-recorded audio files together.
- Verbio is not a standard option when configuring the speech server in Experience Portal. To allow Verbio to be displayed as an option in the Speech Engine drop-down box, the

languages.properties files in Experience Portal were modified. This replaced one of the pre-existing speech engine options.

- Proper system recovery after a restart of the Verbio TTS server and loss of IP connectivity.

2.2. Test Results

Tests were performed to ensure full interoperability between Verbio TTS and Experience Portal. The tests were all functional in nature and performance testing was not included. The following observations were noted.

- Currently, Verbio is not a type of TTS server that can be administered and there is a work around to add this functionality documented.
- In MRCP V2, for mixed text and audio prompts, the last TTS announcement after audio prompts is not heard. Timeout is observed in the status of the TTS. Trace indicates SIP BYE message is received from Verbio before SPEAK. Verbio is investigating this issue.

2.3. Support

For technical support on Verbio TTS, contact **Verbio Technologies S.L.** at:

- Phone: +34 934 44 79 79
- Web: <https://verbio.com> (Click Support at bottom)
- Email: support@verbio.com

3. Reference Configuration

Figure 1 illustrates the network topology used in the compliance testing. In the configuration, Experience Portal is connected to Session Manager via a SIP trunk and interfaced to the Verbio Server via MRCP. Both Version 1 and Version 2 were tested. Sample VXML applications were hosted in a web server on a Windows Server.

Calls were placed from Avaya 96x1 Series H.323 and J100 Series SIP Deskphones to Experience Portal and routed through Communication Manager and Session Manager. The G430 Media Gateway and Media Server were used for media resources and System Manager was used to configure Session Manager and SIP users.

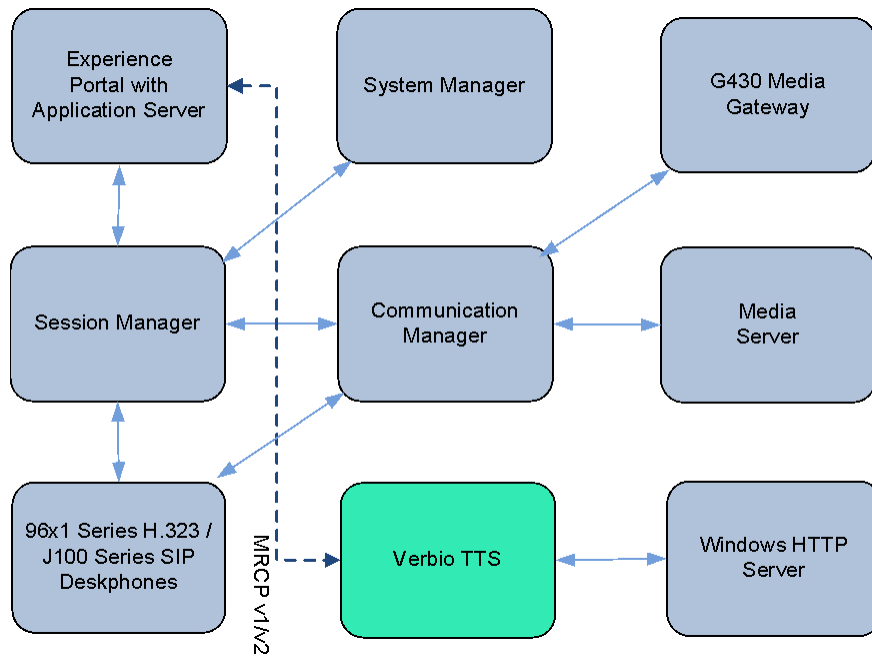


Figure 1: Avaya Experience Portal and Verbio TTS Reference Configuration

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	10.1 SP2 (10.1.0.2.0.974.27607)
Avaya G430 Media Gateway	FW 42.4.0
Avaya Aura® Media Server	10.1.0.101
Avaya Aura® System Manager	10.1 SP 2 Build 10.1.0.0.537353 Hot Fix 1010215160
Avaya Aura® Session Manager	10.1 SP2 (10.1.0.2.1010215)
Avaya Experience Portal <ul style="list-style-type: none">EPMMPP	8.1.2.0.328 8.1.2.0.328
Avaya 96x1 Series H.323 Deskphones	6.8532
Avaya J100 Series SIP Deskphones	4.0.13.0
Verbio TTS Server via MRCP v1/v2	9.49.75

5. Configure Avaya Experience Portal

Configuration and verification operations on the Experience Portal illustrated in this section were all performed using either the Experience Portal Management (EPM) web interface or SSH connection to the server.

The information provided in this section describes the configuration of the Experience Portal for this solution. It is implied a working system is already in place, including Media Processing Platform, Apache Tomcat application Server and SIP routing via Session Manager. Installation of Voice XML applications is also outside the scope of this document. For all other provisioning information, such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Update languages.properties Files
- Launch Experience Portal Manager
- Add Verbio TTS Server
- Add Application

5.1. Update languages.properties Files

Verbio does not appear in the drop-down list of TTS server types when using Experience Portal 8.1. Therefore, two **languages.properties** files need to be updated on the Experience Portal on the EPM server. The files are available in the **Appendices** of these Application Notes.

Note: **\$CATALINA_HOME** is the default Tomcat directory, /opt/Tomcat/tomcat.

- Copy the new language files on to the EPM server. The files will be named as:
 - languages.properties_lib
 - languages.properties_webapps
- Log into Experience portal with appropriate credentials.
- Switch user to a privileged administrator account with permissions to make these changes.
 - Use **cd \$CATALINA_HOME/lib/config** to change to the appropriate directory.
 - Rename the current **languages.properties** file to save the original file (e.g., **mv languages.properties languages.properties.orig**).
 - Copy languages.properties_lib to this directory and rename it as **languages.properties** (e.g., **mv languages.properties_lib languages.properties**).
 - Use **chown avayavp languages.properties** to set the correct owner for this file.
 - Use **chgrp avayavpgroup languages.properties** to set the correct group for this file.
 - Use **chmod 750 languages.properties** to set the correct permissions.
- Next, use **cd \$CATALINA_HOME/webapps/VoicePortal/WEB-INF/classes/messages/** to change the directory for the location of the next file.
 - Rename the current **languages.properties** file (e.g., **mv languages.properties languages.properties.orig**).

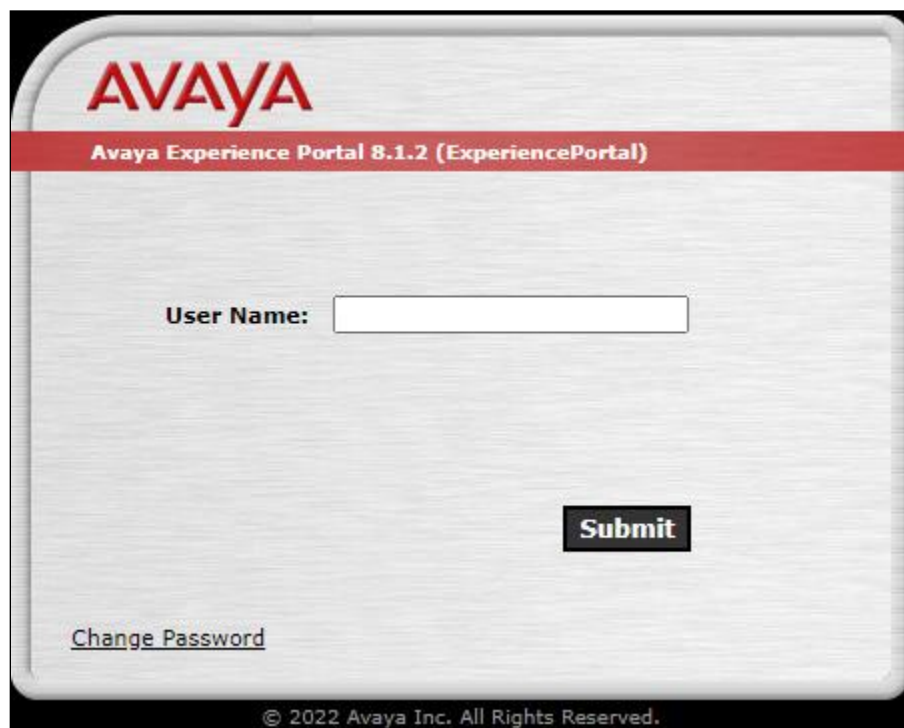
- Copy `languages.properties_webapps` to this directory and rename it as **languages.properties** (e.g., `mv languages.properties_webapps languages.properties`).
- Use `chown avayavp languages.properties` to set the correct owner for this file.
- Use `chgrp avayavpgroup languages.properties` to set the correct group for this file.
- Use `chmod 750 languages.properties` to set the correct permissions.

Tomcat must now be restarted.

- Use `cd $CATALINA_HOME/bin` to change directory and enter:
 - `./shutdown.sh`
- Wait for the first command to complete, and then enter:
 - `./startup.sh`

5.2. Launch Experience Portal Manager

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 a web browser, where `<ip-addr>` is the IP Address of EPM. Log in using the appropriate credentials.



The main page of the EPM web interface is displayed as shown below.

AVAYA Welcome, epadmin
Last logged in yesterday at 11:42:08 PM MST

Avaya Experience Portal 8.1.2 (ExperiencePortal) Home Help Logoff

Expand All | Collapse All

You are here: Home

Avaya Experience Portal Manager

Avaya Experience Portal Manager (EPM) is the consolidated web-based application for administering Experience Portal. Through the EPM interface you can configure Experience Portal, check the status of an Experience Portal component, and generate reports related to system operation.

Installed Components

Media Processing Platform
Media Processing Platform (MPP) is an Avaya media processing server. When an MPP receives a call from a PBX, it invokes a VoiceXML (or CCXML) application on an application server. It then communicates with ASR and TTS servers as necessary to process the call.

Email Service
Email Service is an Experience Portal feature which provides e-mail capabilities.

HTML Service
HTML Service is an Experience Portal feature which supports web applications with HTML5 capabilities. It includes support for browser based services for mobile devices.

SMS Service
SMS Service is an Experience Portal feature which provides SMS capabilities.

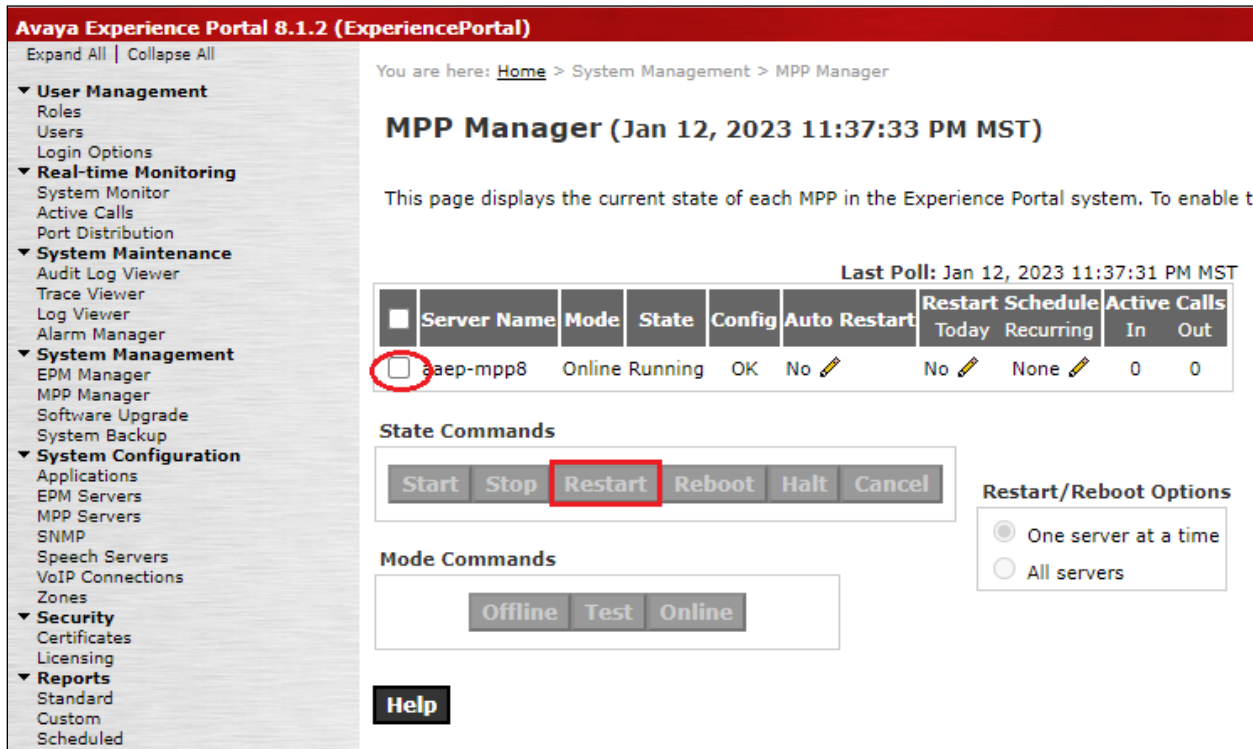
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REVISED: June 1st, 2020

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5.3. Add Verbio TTS Server

The following sub-section details the addition of Verbio as a TTS server using MRCP v1 and MRCP v2. Note that the MPP Server(s) has to be restarted to take effect as detailed below. Navigate to **System Management** → **MPP Manager** to restart the MPP server. Select the MPP and then click **Restart**. After the MPP is started, the **Mode** of the MPP should be *Online* and the **State** should be *Running*.



5.3.1. Using MRCP v1

Verbio TTS must be added as a Speech Server using the EPM web interface. To add a TTS server, navigate to **System Configuration** → **Speech Servers** on the left pane. In the **Speech Servers** page (not shown), select the **TTS** tab and click **Add**. Configure the following parameters in the **Add TTS Server** page. Below screenshot shows a completed screen.

- **Name:** Provide a descriptive name (e.g., *VerbioTTS*).
- **Enable:** Select *Yes* to enable the TTS server.
- **Engine Type:** Set to *Verbio*.
- **Network Address:** Set to Verbio IP Address (e.g., *10.1.10.125*).
- ***Base Port:** This is auto populated on Verbio Engine Type corresponding to the config in **Section 6.1.1**.
- **Total Number of Licensed TTS Resources:** Set to number of TTS resources per license.
- **New Connection per Session:** Set to *No*.

- **Selected Voices:** Select supported TTS voices.
- **Protocol:** Select *MRCP V1* from the drop-down menu.
- ***RTSP URL:** This is auto populated on Verbio Engine Type.

**These parameters are auto-populated per languages.properties file in the Appendix and needs to match Verbio TTS.*

Leave the rest as default. Click **Save** below to complete.

Add TTS Server

Use this page to configure Experience Portal to communicate with a new TTS server.

Name:	<input type="text" value="VerbioTTS"/>
Enable:	<input checked="" type="radio"/> Yes <input type="radio"/> No
Engine Type:	<input style="border: none; background-color: #f0f0f0; width: 100%;" type="text" value="Verbio"/>
Network Address:	<input type="text" value="10.1.10.125"/>
Base Port:	<input type="text" value="5540"/>
Total Number of Licensed TTS Resources:	<input type="text" value="10"/>
New Connection per Session:	<input type="radio"/> Yes <input checked="" type="radio"/> No

<p>Voices</p> <div style="border: 1px solid #ccc; padding: 5px; height: 150px;"> <ul style="list-style-type: none"> es-AR Silvana F es-VE Carmen F Basque(Spain) eu-ES Amaia F Catalan(Spain) ca-ES Meritxell F Catalan(Spain) ca-ES Oriol M French(France) fr-FR Brigitte F Portuguese(Brazil) pt-BR Luma F Portuguese(Portugal) pt-PT Adriana F Spanish(Argentina) es-AR Javier M Spanish(Latin_American) es-MX Celia F </div>	<input type="button" value="▶"/> <input type="button" value="◀"/>	<p>Selected Voices</p> <div style="border: 1px solid #ccc; padding: 5px; height: 100px;"> <ul style="list-style-type: none"> English(USA) en-US Jane F English(USA) en-US Lucy F </div>
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MRCP	
Ping Interval:	<input type="text" value="15"/> seconds
Response Timeout:	<input type="text" value="4"/> seconds
Protocol:	<input style="border: none; background-color: #f0f0f0; width: 100%;" type="text" value="MRCP V1"/>
RTSP URL:	<input type="text" value="10.1.10.125/media/speechsynthesizer"/>

5.3.2. Using MRCP v2

Verbio must be added as a Speech Server using the EPM web interface. To add a TTS server, navigate to **System Configuration** → **Speech Servers** on the left pane. In the **Speech Servers** page (not shown), select the **TTS** tab and click **Add**. Configure the following parameters in the **Add TTS Server** page. Below screenshot shows a completed screen.

- **Name:** Provide a descriptive name (e.g., *VerbioTTS*).
- **Enable:** Select *Yes* to enable the TTS server.
- **Engine Type:** Set to *Verbio*.
- **Network Address:** Set to Verbio IP Address (e.g., *10.1.10.125*).
- ***Base Port:** This is auto populated as 5060 based on Verbio Engine Type corresponding to the config in **Section 6.1.2**.
- **Total Number of Licensed TTS Resources:** Set to number of TTS resources per license.
- **New Connection per Session:** This does not apply to MRCP V2.
- **Selected Voices:** Select supported TTS voices.
- **Protocol:** Select *MRCP V2* from the drop-down menu.
- ***Transport Protocol:** This is auto populated as *TCP*.
- ***Listener Port:** This is auto populated as *5060*.

Leave the rest as default. Click **Save** below to complete.

These parameters are auto-populated per languages.properties file in the Appendices and needs to match Verbio TTS. Note that the **VerbioBasePort=5060 parameter in the languages.properties file had to be set for the Base Port to be auto populated for MRCP v2.*

Add TTS Server

Use this page to configure Experience Portal to communicate with a new TTS server.

Name:

Enable: Yes No

Engine Type:

Network Address:

Base Port:

Total Number of Licensed TTS Resources:

New Connection per Session: Yes No

Voices

- es-AR Silvana F
- Basque(Spain) eu-ES Amaia F
- Catalan(Spain) ca-ES Meritxell F
- Catalan(Spain) ca-ES Oriol M
- French(France) fr-FR Brigitte F
- Portuguese(Brazil) pt-BR Luma F
- Portuguese(Portugal) pt-PT Adriana F
- Spanish(Argentina) es-AR Javier M
- Spanish(Latin_American) es-MX Celia F
- Spanish(Latin_American) es-MX Lucia F

Selected Voices

- English(USA) en-US Jane F
- English(USA) en-US Lucy F

MRCP

Ping Interval: seconds

Response Timeout: seconds

Protocol:

Enable Session XML: Yes No

Transport Protocol:

Listener Port:

5.4. Add Application

This section covers the configuration of a sample VXML application that uses TTS resources from Verbio.

On the left pane, navigate to **System Configuration → Applications**. The **Applications** page is displayed (not shown). For the compliance test, one of the sample VXML applications was configured as shown on next page.

- **Name:** Provide a descriptive name (e.g., *Verbio*).
- **Enable:** Set to *Yes* to enable the application.
- **Type:** Set to *VoiceXML*.
- **VoiceXML URL:** Specify the VXML application URL. For the compliance test, the application was located on web server in Windows server.

Expand the **TTS Speech Servers** section.

- **Selected TTS:** Select *Verbio*.
- **Selected Voices:** Select the Voices (e.g., *English(USA) en-US Jane F*).

In the **Application Launch** section, set the **Called Number** (e.g., *10392*) associated with the application and click **Add**. The called number will be added to the text below the field.

Change Application

Use this page to change the configuration of an application.

Name: Verbio
Enable: Yes No
Type: VoiceXML
Reserved SIP Calls: None Minimum Maximum
Requested:

URI

Single Fail Over Load Balance

VoiceXML URL:

Verify

Mutual Certificate Authentication: Yes No

Basic Authentication: Yes No

ASR Speech Servers

TTS Speech Servers

TTS: Verbio

Voices
<None>

Selected Voices
English(USA) en-US Jane F
English(USA) en-US Lucy F

Application Launch

Inbound Inbound Default Outbound

Number Number Range URI

Called Number:

Add

10392

Remove

SIP Header Source: Any

Speech Parameters

Reporting Parameters

Advanced Parameters

In the **Advance Parameters** section, select the **Support Remote DTMF Processing** to **Yes** to allow Verbio to perform DTMF processing.

Advanced Parameters ▾

Support Remote DTMF Processing: Yes No

DTMF Type Ahead Enabled: Yes No

Converse-On: Yes No

Network Media Service: Yes No

Early Media: Yes No

Sync FROM and PAI Headers: Yes No

Dialog URL Pattern:

VoiceXML Event Handler: ▾

CCXML Event Handler: ▾

Generate UCID: Yes No

Operation Mode: ▾

Transport UCID in Shared Mode: Yes No

Maximum UUI Length:

Fax Detection Enabled: Yes No

Fax Phone Number:

Video Enabled: Yes No

Video Screen Format: ▾

Video Minimum Picture Interval:

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

6. Configure Verbio TTS

The following sections describe the steps required to configure the base configuration required to enable Verbio to interoperate with Experience Portal. It is implied a working system is already in place. For all other provisioning information, such as initial installation and configuration, please refer to the product documentation in **Section 9**. The sub-section below will be used to verify configuration of MRCP settings.

6.1. Verify MRCP Settings

In the Verbio ASR server, locate the MRCP config file “software-verbio-mrcp” in `/opt/Verbio/config` directory. The Platform Type must be set, IP Address configured, MRCP Version and the MRCP local port for connection set as below:

- **PLATFORM:** Set to *Avaya*.
- **IP ADDRESS:** Set to *10.1.10.125* for the server IP Address.

6.1.1. MRCP Version 1

- **VERSION:** Set to *1* for MRCP Version 1.
- **LOCAL PORT:** Set to *5540* as configured on Experience Portal **Section 5.3.1**.

```
#
# == mrcp2d configuration file ==
#

string ASR_SERVER = "127.0.0.1";
string ASR_START = "verbio8k.en-us";
string ASR_LANG = "en-us";
string ASR_CONFS = "verbio8k.en-us";
string ASR_LANGS = "en-us";
string TTS_SERVER = "127.0.0.1";
string TTS_START = "en-es";
string PLATFORM = "Avaya";
string MRCPDIR = "/opt/verbio/mrcp";
string IP_ADDRESS = "10.1.10.125";
string EXTERNAL_IP_ADDRESS = "10.1.10.125";
int LOGGING_LEVEL = 7;
int LOGGING_DEST = 0;
# -- For MRCPV1
int VERSION = 1;
int LOCAL_PORT = 5540;
# -- For MRCPV2
#int VERSION = 2;
#int LOCAL_PORT = 5060;
int MRCP_PORT = 32416;
int RTP_PORT_MIN = 6000;
int RTP_PORT_MAX = 8000;
string TTS_SERVER_STATUS = "1";
string ASR_SERVER_STATUS = "1";
string NORMALIZATION = "/opt/verbio/mrcp/ttscnf.kv";
string CLS_CONF = "";
string CLS_LANG = "";
string CLS_SERVER = "";
string CLS_RULES = "";
```


6.1.2. MRCP Version 2

- **VERSION:** Set to 2 for MRCP Version 2.
- **LOCAL PORT:** Set to 5060 as configured on Experience Portal **Section 5.3.2.**

```
#
# == mrcp2d configuration file ==
#

string ASR_SERVER = "127.0.0.1";
string ASR_START = "verbio8k.en-us";
string ASR_LANG = "en-us";
string ASR_CONFS = "verbio8k.en-us";
string ASR_LANGS = "en-us";
string TTS_SERVER = "127.0.0.1";
string TTS_START = "en-us";
string PLATFORM = "Avaya";
string MRCPDIR = "/opt/verbio/mrcp";
string IP_ADDRESS = "10.1.10.125";
string EXTERNAL_IP_ADDRESS = "10.1.10.125";
int LOGGING_LEVEL = 7;
int LOGGING_DEST = 0;
int VERSION = 2;
int LOCAL_PORT = 5060;
int MRCP_PORT = 32416;
int RTP_PORT_MIN = 6000;
int RTP_PORT_MAX = 8000;
string TTS_SERVER_STATUS = "1";
string ASR_SERVER_STATUS = "1";
string NORMALIZATION = "/opt/verbio/mrcp/ttsconf.kv";
string CLS_CONF = "";
string CLS_LANG = "";
string CLS_SERVER = "";
string CLS_RULES = "";
string NLP_DICTIONARY = "";
string NLP_TEMPLATE = "";
string NLP_SUBSTITUTIONS = "";
string CSR_MODEL = "";
int USE_INTENT_SERVICE = 0;
string INTENT_SERVICE_URI = "";
string MRCP_MASK_EXTENSIONS = "";
int MRCP_SET_SESSIONID = 0;
string EXPAND_RULES = "";
```

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Experience Portal and Verbio TTS.

After performing the verification in this section, place a call to an Experience Portal number that would launch a VXML application that uses the Verbio TTS resources. Verify that the application answers the call and that the correct TTS prompts are heard.

7.1. Avaya Experience Portal

This section provides the verification steps that may be performed to verify that Experience Portal can run Verbio TTS server.

From the EPM web interface, verify that the MPP server is online by navigating to **System Management** → **MPP Manager**. The **Mode** of the MPP should be *Online* and the **State** should be *Running*.

Avaya Experience Portal 8.1.2 (ExperiencePortal)

Expand All | Collapse All

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

MPP Manager (Jan 12, 2023 11:37:33 PM MST)

This page displays the current state of each MPP in the Experience Portal system. To enable t

Last Poll: Jan 12, 2023 11:37:31 PM MST

	Server Name	Mode	State	Config	Auto Restart	Restart Schedule		Active Calls	
						Today	Recurring	In	Out
<input type="checkbox"/>	aaep-mpp8	Online	Running	OK	No	No	None	0	0

State Commands

Mode Commands

Restart/Reboot Options

One server at a time
 All servers

From the EPM web interface, verify that the ports on the MPP server are in service in the by navigating to **Real-time Monitoring → Port Distribution** and selecting the MPP in the **Port Distribution** page (not shown). Verify that the SIP Trunk is in *Online Mode* and *In service State*.

Avaya Experience Portal 8.1.2 (ExperiencePortal)

Expand All | Collapse All

You are here: [Home](#) > [Real-Time Monitoring](#) > [Port Distribution](#) > Port Distribution Report

Port Distribution Report (Jan 13, 2023 12:10:22 AM MST)

This page displays information about how the telephony resources have been distributed to th

Total Ports: 25 Last Poll: Jan 13, 2023 12:10:22 AM MST

Port	Mode	State	Port Group	Protocol	Current Allocation	Base Allocation
10106	Online	In service	DuplexCM	H323	aaep-mpp8	
10107	Online	In service	DuplexCM	H323	aaep-mpp8	
10108	Online	In service	DuplexCM	H323	aaep-mpp8	
10109	Online	In service	DuplexCM	H323	aaep-mpp8	
10110	Online	In service	DuplexCM	H323	aaep-mpp8	
20	Online	In service	SM1	SIP_Trunk	aaep-mpp8	

[Help](#)

Navigate to **Real-time Monitoring → System Monitor** and select the **ExperiencePortal Details** tab. Click on the MPP under the **Server Name** (not shown). In the **MPP Details** page, click **Service Menu** and a new tab will be presented. Finally, navigate to **Resources → Speech Servers** in the left pane to view the status of the speech servers as shown below. The **Status** of the speech servers should be *UP* for **Verbio TTS** as shown below.

Avaya Experience Portal MPP 8.1.2.0.0328 on aaep-mpp8.sglab.com

Home

You are here: [Home](#) > [Resources](#) > Speech Servers

Speech Servers

Name	Type	Status	Values	Ports	Errors	Latency
VerbioASR	ASR	Server is UP	H (Simultaneous): 10 M (Total): 10	Active: 0 Reserve: 0	Timeout: 0 Setup: 0 Application: 0	Average: 568 Maximum: 4600 Minimum: 0
VerbioTTS	TTS	Server is UP	H (Simultaneous): 10 M (Total): 10	Active: 0 Reserve: 0	Timeout: 0 Setup: 0 Application: 0	Average: 0 Maximum: 10 Minimum: 0

Fri Jan 13 00:11:18 2023

Activity

- Calls
- Sessions

Applications

- Statistics

Certificates

Configuration

Diagnostics

- VAD Tuning

Logs

Resources

- ASR
- TTS
- Speech Servers
- Telephony

8. Conclusion

These Application Notes describe the compliance tested configuration used to validate Verbio TTS Server Version 9.49 with Avaya Experience Portal Version 8.1.2 using MRCP Version 1 and Version 2. All feature and serviceability test cases were completed successfully with observations noted in **Section** Error! Reference source not found..

9. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from <http://support.avaya.com> or from your Avaya representative.

[1] *Deploying Avaya Aura® Experience Portal in an Avaya Customer Experience Virtualized Environment*, Release 8.1.2, Issue 1, Oct 2022.

Verbio documentation can be obtained by using the contact details listed in **Section 2.3**.

[2] *Verbio 9.40 Installation Guide*, Version 1.9, October 2020.

10. APPENDIX 1: languages.properties_lib

This file should replace **languages.properties** file in the **\$CATALINA_HOME/lib/config** directory in the EPM server. Note that the text in **bold** were either added for Verbio TTS or commented out to remove a pre-existing speech engine.

```
#
# Engine Type options displayed on the page
#
#asrEngines=Loquendo,Nuance,Nuance DLGaaS,Google Speech,Dialogflow
asrEngines=Loquendo,Verbio,Nuance DLGaaS,Google Speech,Dialogflow
#ttsEngines=Loquendo,Nuance
ttsEngines=Loquendo,Verbio
asrEnginesAmsOnly=Nuance
ttsEnginesAmsOnly=Nuance

# Engine Type conversion from display to internal data in the database
# Note: engine type names in the internal database should not exceed 16 characters
IBMWVSASR=ibm wvs
IBMWVSTTS=ibm wvs
#NuanceASR=nuance osr
%NuanceTTS=nuance realspeak
NuanceDLGaaSASR=nuancedlgaas
LoquendoASR=loquendo
LoquendoTTS=loquendo
GoogleSpeechASR=googleasr
DialogflowASR=dialogflowasr
VerbioASR=nuance osr
VerbioTTS=nuance realspeak

# Engine Type conversion from internal data in the database to display
# Note: engine type names in the internal database should not exceed 16 characters
ibmwvs=IBM WVS
nuanceosr=Verbio
nuancerealspeak=Verbio
#nuanceosr=Nuance
#nuancerealspeak=Nuance
#nuancequantum=Nuance
nuancedlgaas=Nuance DLGaaS
loquendo=Loquendo
googleasr=Google Speech
dialogflowasr=Dialogflow

# Number of seconds per usage unit for each internal engine code
ibmwvsUsageUnit=60
nuanceosrUsageUnit=60
nuancerealspeakUsageUnit=60
nuancequantumUsageUnit=60
nuancedlgaasUsageUnit=15
loquendoUsageUnit=60
googleasrUsageUnit=1
dialogflowasrUsageUnit=1

# Minimum usage requirement in seconds for each internal engine code (default is 0 if not
defined)
googleasrMinUsage=60
dialogflowasrMinUsage=60

#
# Languages
#
NuanceASRlanguages=af-za,ar-jo,ar-ww,as-in,eu-ES,bn-bd,bn-in,bh-in,bg-bg,cn-HK,ca-ES,hr-HR,cs-
CZ,da-DK,nl-BE,nl-nl,en-au,en-gb,en-in,en-SG,en-ZA,en-us,fi-FI,fr-BE,fr-ca,fr-FR,gl-ES,gu-
IN,de-at,de-DE,de-CH,el-GR,he-IL,hi-IN,hu-HU,is-IS,id-ID,it-IT,ja-JP,kn-IN,ko-KR,ms-MY,ml-
IN,zh-cn,zh-tw,mr-IN,ne-NP,no-NO,or-IN,pl-PL,pt-br,pt-PT,pa-IN,ro-RO,ru-RU,sr-rs,sk-SK,sl-
SL,es-ar,es-CO,es-ES,es-us,sv-SE,sv-fi,ta-IN,te-IN,th-TH,tr-TR,uk-UA,ur-IN,ur-PK,va-ES,vi-
```

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VN,cy-gb
IBMWVSASRlanguages=zh-CN,en-GB,en-AU,en-US,fr-CA,de-DE,ja-JP,es-MX,es-ES
LoquendoASRlanguages=ca-ES,zh-CN,nl-NL,en-US,en-GB,fr-FR,de-DE,el-GR,it-IT,pl-PL,pt-BR,pt-PT,ru-RU,es-AR,es-CL,es-CO,es-MX,es-ES,es-US,sv-SE
VerbioASRlanguages=es-ES,ca-ES,eu-ES,pt-PT,pt-BR,fr-FR,en-US,es-MX,es-AR,es-CL,es-VE,es-CO

# TTS LANGUAGE
NuanceTTSlanguages=ar-WW Laila F,ar-WW Maged M,ar-WW Tarik M,eu-ES Miren F,eu-ES Arantxa F,bg-BG Daria F,ca-ES Jordi M,ca-ES Montserrat F,ca-ES Nuria F,zh-HK Sin-Ji F,zh-CN Li-li F,zh-CN Mei-Ling F,zh-CN Tian-Tian F,zh-CN Ting-Ting F,cs-CZ Iveta F,cs-CZ Zuzana F,da-DK Ida F,da-DK Magnus M,da-DK Sara F,da-DK Nanna F,nl-BE Ellen F,nl-NL Claire F,nl-NL Claire-ml F,nl-NL Xander M,en-AU Karen F,en-AU Lee M,en-GB Daniel M,en-GB Emily F,en-GB Serena F,en-GB Kate F,en-GB Malcolm M,en-GB Oliver M,en-GB Stephanie F,en-IN Sangeeta F,en-IN Rishi M,en-IN Veena F,en-IE Moira F,af-ZA Tessa F,en-SC Fiona F,en-US Allison F,en-US Ava F,en-US Ava-ml F,en-US Ethan M,en-US Evelyn F,en-US Nathan M,en-US Susan F,en-US Evan M,en-US Zoe F,en-US Donna F,en-US Erica F,en-US Jennifer F,en-US Jill F,en-US Lisa F,en-US Samantha F,en-US Tom M,en-US Vicky F,fi-FI Onni F,fi-FI Satu F,fi-FI Mikko F,fr-CA Amelie F,fr-CA Chantal F,fr-CA Nicolas M,fr-CA Felix M,fr-CA Julie F,fr-FR Audrey-ml F,fr-FR Aurelie F,fr-FR Thomas M,fr-FR Audrey F,fr-FR Sebastien M,fr-FR Virginie F,gl-ES Carmela F,de-DE Steffi F,de-DE Beate F,de-DE Yannick M,de-DE Viktor M,de-DE Petra F,de-DE Petra-ml F,de-DE Markus M,de-DE Anna F,de-DE Anna-ml F,el-GR Melina F,el-GR Nikos M,el-GR Alexandros M,he-IS Carmit F,hi-IN Lekha F,hi-IN Neel M,hu-HU Mariska F,is-IS Ragga F,id-ID Damayanti F,it-IT Alice F,it-IT Alice-ml F,it-IT Federica F,it-IT Federica-ml F,it-IT Luca M,it-IT Paola F,it-IT Paolo M,it-IT Silvia F,ja-JP Otoya M,ja-JP Kyoko F,ko-KR Sora F,ko-KR Narae F,zh-TW Mei-Ling F,zh-TW Mei-Jia F,zh-TW Ya-Ling F,no-NO Henrik M,no-NO Nora F,no-NO Stine F,pl-PL Agata F,pl-PL Ewa F,pl-PL krzysztof M,pl-PL Zosia F,pt-BR Felipe M,pt-BR Luciana F,pt-BR Raquel F,pt-PT Catarina F,pt-PT Joana F,pt-PT Joaquim M,pt-PT Madalena F,ro-RO Ioana F,ru-RU Katya F,ru-RU Katya-ml F,ru-RU Katerina F,ru-RU Milena F,ru-RU Yuri M,en-ZA Tessa F,es-AR Diego M,es-CO Carlos M,es-CO Soledad F,es-ES Jorge M,es-ES Marisol F,es-ES Monica-ml F,es-ES Diego M,es-ES Isabel F,es-ES Monica F,es-MX Angelica F,es-MX Juan M,es-MX Javier M,es-MX Paulina F,sk-SK Laura F,sv-SE Klara F,sv-SE Ingrid F,sv-SE Oskar M,sv-SE Alva F,th-TH Kanya F,th-TH Narisa F,tr-TR Aylin F,tr-TR Cem M,tr-TR Cem-ml M,tr-TR Yelda F,va-ES Empar F
IBMWVSTTSlanguages=zh-CN Zhou-Hong F,en-US Andrew M,en-US Allison F,en-US Julie F,en-US Lisa F,en-US Tyler F,en-GB David M,en-GB Kate F,en-GB Sally F,en-GB Dawn F,fr-CA Pierre M,fr-CA Louise F,de-DE Dieter M,de-DE Erika F,ja-JP Daichi M,ja-JP Shizuka F,es-MX Rafael M,es-MX Sofia F
LoquendoTTSlanguages=ca-ES Jordi M,ca-ES Montserrat F,zh-CN Linlin F,nl-NL Saskia F,nl-NL Willelm M,en-GB Simon M,en-GB Kate F,en-GB Elizabeth F,en-US Allison F,en-US Dave M,en-US Susan F,en-US Kenneth M,fr-FR Bernard M,fr-FR Juliette F,fr-FR Sophie F,de-DE Stefan M,de-DE Katrin F,de-DE Ulrike F,el-GR Afroditi F,el-GR Artemis F,it-IT Giulia F,it-IT Luca M,it-IT Paola F,it-IT Fabio M,it-IT Marcello M,it-IT Matteo M,it-IT Roberto M,it-IT Silvana F,pl-PL Zosia F,pt-PT Amalia F,pt-PT Eusebio M,pt-BR Gabriela F,ru-RU Dmitri M,ru-RU Olga F,es-ES Jorge M,es-ES Carmen F,es-ES Juan M,es-CO Carlos M,es-AR Diego M,es-CL Francisca F,es-MX Esperanza F,es-US Carlos M,es-US Soledad F,es-US Ximena F,sv-SE Annika F
VerbioTTSlanguages=es-ES Laura F,es-ES Carlos M,es-ES Amaya F,es-ES Aurora F,es-ES David M,es-MX Lucia F,es-MX Celia F,es-AR Javier M,es-AR Silvana F,ca-ES Oriol M,ca-ES Meritxell F,ca-ES David M,ca-ES Anna F,ca-va Empar F,ca-va Miquel M,eu-ES Amaia F,pt-PT Adriana F,pt-BR Luma F,pt-BR Bel,en-US Jane F,en-US Lucy F,en-US Tommy M,en-GB Rose F,fr-FR Brigitte F,es-VE Carmen F

#
# Language Default
#
#NuanceASRlanguagesDefault=en-us
IBMWVSASRlanguagesDefault=en-US
LoquendoASRlanguagesDefault=en-US
VerbioASRlanguagesDefault=en-us

#
#NuanceTTSlanguagesDefault=en-US Jennifer F
IBMWVSTTSlanguagesDefault=en-US Andrew M
LoquendoTTSlanguagesDefault=en-US Dave M
VerbioTTSlanguagesDefault=en-US Jennifer F
#
# default base port
#
#NuanceBasePort=4900
IBMWVSBasePort=554

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```

LoquendoBasePort=554
#Verbio MRCP v2 default port
#VerbioBasePort=5060
#Verbio MRCP v1 default port
VerbioBasePort=5540
#
# default New Connection per Session
#
#NuancePerPort=No
IBMWVSPerPort=Yes
LoquendoPerPort=Yes
VerbioPerPort=No
#
# default URL
#
IBMWVSRtspUrlAsr=/media/recognizer
IBMWVSRtspUrlTts=/media/synthesizer
#NuanceRtspUrlAsr=/media/speechrecognizer
#NuanceRtspUrlTts=/media/speechsynthesizer
LoquendoRtspUrlAsr=/media/recognizer
LoquendoRtspUrlTts=/media/synthesizer
VerbioRtspUrlAsr=/media/speechrecognizer
VerbioRtspUrlTts=/media/speechsynthesizer
#
# Grammar Type
#
ibmwvsGrammarType=srgs
#nuanceosrGrammarType=srgs
#nuancequantumGrammarType=srgs
loquendoGrammarType=sisr
verbioasrTypeGrammar=srgs
#
# MRCP Protocol
#
IBMWVSMRCPValues=mrppv1
#NuanceMRCPValues=mrppv1, mrppv2
LoquendoMRCPValues=mrppv1
NuanceMRCPAmsOnlyValues=mrppv1, mrppv2
VerbioMRCPValues=mrppv1, mrppv2
#
# Transport
#
IBMWVSTransportValues=tcp
#NuanceTransportValues=tcp, tls
LoquendoTransportValues=tcp
VerbioTransportValues=tcp
#
# Resources
#
#NuanceASRResourcesDefault=asrAcquireCallStartRetain
IBMWVSASRResourcesDefault=asrAcquireCallStartRetain
LoquendoASRResourcesDefault=asrAcquireCallStartRetain
GoogleSpeechResourcesDefault=asrAcquireReleaseAsNeeded
DialogflowResourcesDefault=asrAcquireReleaseAsNeeded
VerbioASRResourcesDefault=asrAcquireCallStartRetain
#
# Google Speech Engine
#
configureGoogleSpeechNetworkAddress=false
configureGoogleSpeechBasePort=false
configureGoogleSpeechTotalLicensed=true
configureGoogleSpeechPerPort=false
configureGoogleSpeechLanguages=false
configureGoogleSpeechResources=false
configureGoogleSpeechNBestListLength=false
configureGoogleSpeechSpeechTimeouts=false
configureGoogleSpeechMRCP=false

```

```

configureGoogleSpeechCredentialsFile=true
configureGoogleSpeechProfanity=true
configureGoogleSpeechAudioChunkSize=true
configureGoogleSpeechLicense=true

#
# Google Dialogflow
#
configureDialogflowNetworkAddress=false
configureDialogflowBasePort=false
configureDialogflowTotalLicensed=true
configureDialogflowPerPort=false
configureDialogflowLanguages=false
configureDialogflowResources=false
configureDialogflowNBestListLength=false
configureDialogflowSpeechTimeouts=false
configureDialogflowMRCP=false

configureDialogflowCredentialsFile=true
configureDialogflowAudioChunkSize=true
configureDialogflowProjectParameters=true
configureDialogflowASRVariables=true
configureDialogflowVADVariables=true

#
# Nuance DLGaaS Engine
#
configureNuanceDLGaaSNetworkAddress=false
configureNuanceDLGaaSBasePort=false
configureNuanceDLGaaSTotalLicensed=true
configureNuanceDLGaaSPerPort=false
configureNuanceDLGaaSLanguages=false
configureNuanceDLGaaSResources=false
configureNuanceDLGaaSBestListLength=false
configureNuanceDLGaaSSpeechTimeouts=false
configureNuanceDLGaaSMRCP=false

configureNuanceDLGaaSCredentialsFile=false
configureNuanceDLGaaSCredentialsClientID=true
configureNuanceDLGaaSCredentialsClientSecret=true
configureNuanceDLGaaSProfanity=false
configureNuanceDLGaaSAudioChunkSize=true
configureNuanceDLGaaSLicense=true
configureNuanceDLGaaSASRVariables=true
configureNuanceDLGaaSVADVariables=true

# AVB XML:Language
#
# Please follow the ASR LOCALIZATION INSTRUCTIONS mentioned above.
avbLanguageLabels=af-za,ar-jo,ar-ww,as-in,eu-ES,bn-bd,bn-in,bh-in,bg-bg,cn-HK,ca-ES,hr-HR,cs-
CZ,da-DK,nl-BE,nl-nl,en-au,en-gb,en-in,en-SG,en-ZA,en-us,fi-FI,fr-BE,fr-ca,fr-FR,gl-ES,gu-
IN,de-at,de-DE,de-CH,e1-GR,he-IL,hi-IN,hu-HU,is-IS,id-ID,it-IT,ja-JP,kn-IN,ko-KR,ms-MY,ml-
IN,zh-cn,zh-tw,mr-IN,ne-NP,no-NO,or-IN,pl-PL,pt-br,pt-PT,pa-IN,ro-RO,ru-RU,sr-rs,sk-SK,sl-
SL,es-ar,es-CO,es-ES,es-us,sv-SE,sv-fi,ta-IN,te-IN,th-TH,tr-TR,uk-UA,ur-IN,ur-PK,va-ES,vi-
VN,cy-gb

# The following is for internal software to decide which default value to use for Speech
Complete Timeout in application advanced parameters.
# If Nuance, the default value is "0", otherwise, the default is "";
IBM=ibm wvs
LOQUENDO=loquendo

#
# Default engine type for speech servers
#
#defaultEngineType=Nuance
defaultEngineType=Verbio

```



```
# { { START:LANGUAGES:EXTENSIONS  
# } } END:LANGUAGES:EXTENSIONS
```

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