



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for Sestek Automatic Speech Recognition, Sestek Text-to-Speech 10.7.2 Server with Avaya Aura® Experience Portal 7.2.3 – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required to integrate Sestek Automatic Speech Recognition, Text-to-Speech 10.7.2 Server with Avaya Aura® Experience Portal 7.2.3.

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

The objective of compliance test was to validate interoperability of Sestek Automatic Speech Recognition, Text-to-Speech Server with Avaya Aura® Experience Portal.

Sestek provides a complete set of speech recognition and text-to-speech technologies for use in interactive voice response (IVR) applications. The product set includes the Sestek Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) Server. Both products provide an interface to Avaya Aura® Experience Portal using the Media Resource Control Protocol (MRCP).

Sestek ASR also reduces need for agents through increased automation and freeing up employees for more important tasks. Eliminating agents from data collection and processing not only increases automation and efficiency but also contributes to increased security in terms of protection of customer data. Voice recognition technology increases the volume of automated calls, which reduces the number of agent hours. With the higher automation it delivers, Sestek Speech Recognition drives efficiency and cost savings. Sestek Speech Recognition reduces call duration and agent need as a result of increased automation. Since agents are eliminated from data collection and processing Sestek Speech Recognition contributes to increased security.

Sestek Speech Recognition integrates with VoiceXML, MRCP, native (SESTEK) API and web service.

## 2. General Test Approach and Test Results

The general test approach was to test various VoiceXML scripts that exercise various types of grammars in Sestek ASR and TTS. A predefined set of VoiceXML scripts tested built-in grammars, menu grammars and SRGS grammars.

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 this Application Note, the interface between Avaya systems and Sestek did not include use of any specific encryption features as requested by Sestek.

## **2.1. Interoperability Compliance Testing**

The testing focuses on the following areas:

- Verification of connectivity between Sestek Speech Server and Experience Portal.
- Verification TTS and ARS output by Sestek Speech Server.
- TTS Voice prompt playback including speed and pitch changes.
- VoiceXML scripts with built-in grammars, menu grammars and SRGS grammars.
- Link Failure\Recovery to ensure successful reconnection after link failure.

## **2.2. Test Results**

All test cases were passed and the following observations were noted:

- An issue was encountered during the initial testing where the response received from the Sestek server to a “<one-of>” choice request did not include the necessary tag for Experience Portal to process the response properly, and therefore Experience Portal responded with the last entry in the list. Sestek implemented a fix which resolved the issue.
- The long duration TTS test required changing mpp.mrcpsessionrefresh.timer (from 40 seconds to 50 seconds) in the mppconfig.xml of the MPP server.

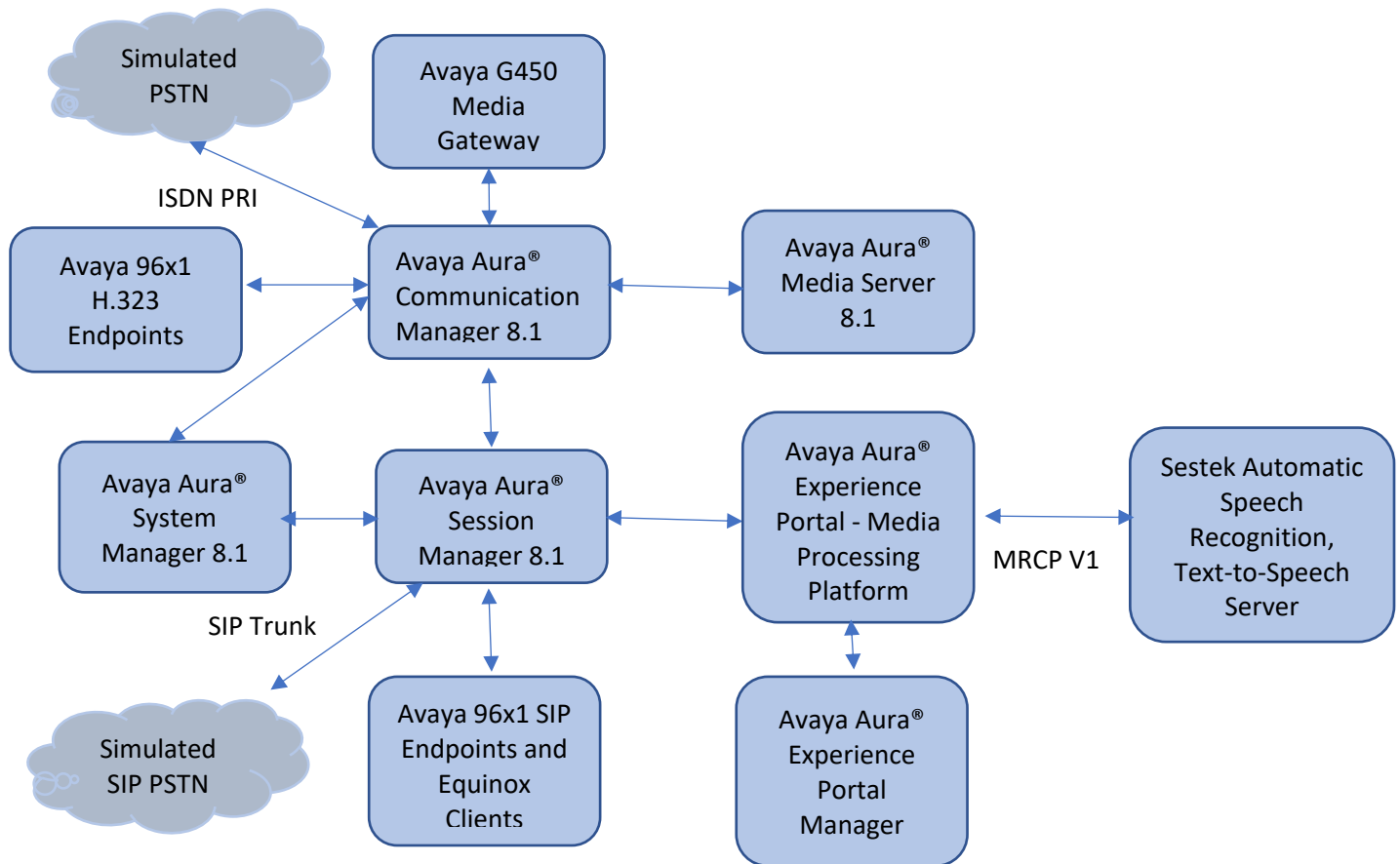
## **2.3. Support**

Technical support for the Sestek Speech solution can be requested on the Sestek customer request management portal. Visit the URL <https://support.sestek.com/en-US/> to register.

### 3. Reference Configuration

The configuration used for the compliance testing is shown in **Figure 1** - The detailed administration of basic connectivity between Avaya Aura® Experience Portal and Sestek Automatic Speech Recognition, Text-to-Speech Server.

The devices used in the compliance testing are shown in the table below.



**Figure 1: Compliance Testing 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 in Virtual Environment	8.1
Avaya Aura® Session Manager in Virtual Environment	8.1
Avaya Aura® System Manager in Virtual Environment	8.1
Avaya G450 Media Gateway in Virtual Environment	40.10.1
Avaya Aura® Media Server in Virtual Environment	8.0 SP2
Avaya Aura® Experience Portal in Virtual Environment	7.2.3
Avaya 9608G IP Deskphone (H.323) Avaya 9641G IP Deskphone (H.323) Avaya IX Workplace Avaya 9621 IP Deskphone (SIP) Avaya 9641G IP Deskphone (SIP)	6.8.3 6.8.3 3.7.0.102.3 7.1.8 7.1.8
Sestek Speech Server: <ul style="list-style-type: none"><li>- Sestek Automatic Speech Recognition</li><li>- Sestek Text-to-Speech Server</li></ul>	10.7.2

## 5. Configure Avaya Aura® Experience Portal

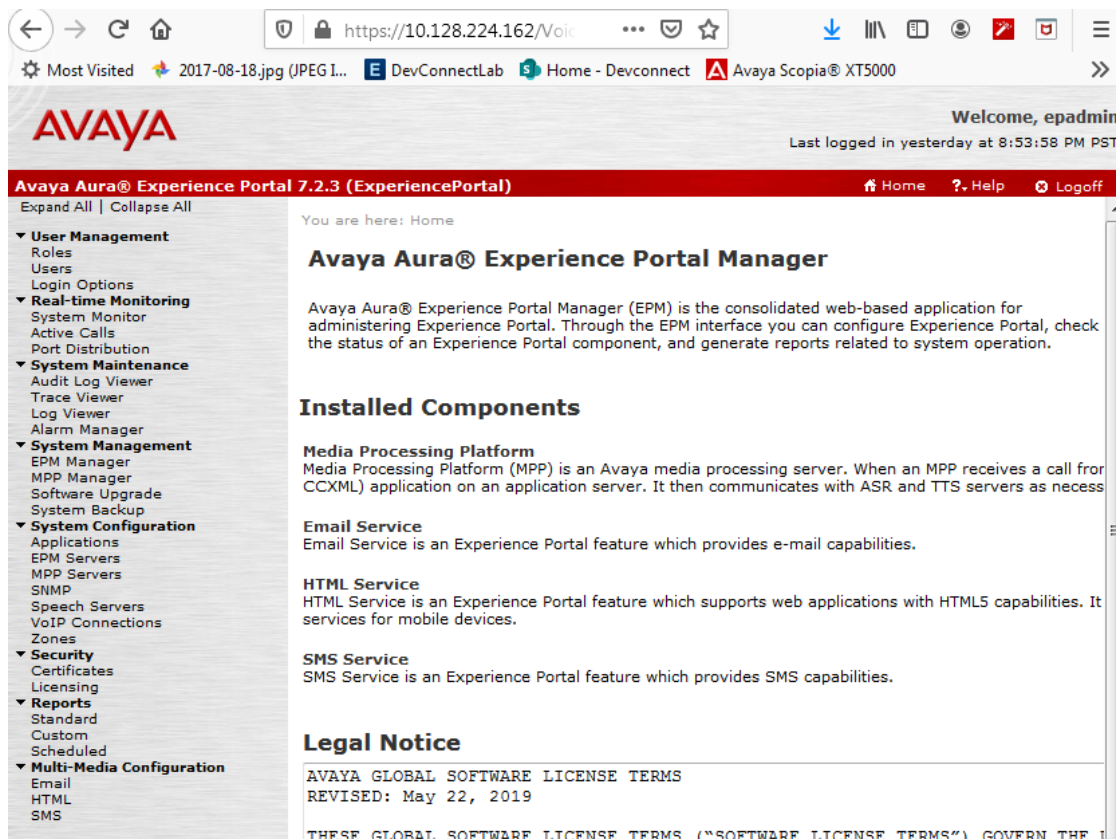
Configuration and verification for Experience Portal illustrated in this section were all performed using either the Experience Portal Manager (EPM) or SSH connection to the Experience Portal server. It is implied a working system is already in place, including Media Processing Platform (MPP), Apache Tomcat Application Server and SIP routing via Session Manager. Installation of Voice XML applications is also out with 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 described in this section can be summarized as follows:

- Add Sestek Speech servers
- Change MPP VoIP Audio Format
- Change default value of mpp.mrcpsessionrefresh.timer to 50

### 5.1. Add Sestek Speech Servers

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.

On the left pane, click on **Speech Servers**.



### 5.1.1. Add ASR Server

To add an **ASR** server, click on the **ASR** tab (not shown), and click **Add**.

- Type in a **Name**.
- Set **Enable** to **Yes**.
- Set **Engine Type** to **Nuance**.
- Type in the IP address of Sestek Automatic Speech Recognition in **Network Address**.
- Type **2554** in **Base Port**
- Type in appropriate value in **Total Number of Licensed ASR Resources**.
- Set **New Connection per Session** to **Yes**.
- Set **Languages** to **English(USA) en-US**.
- Set **Protocol** to **MRCP V1**.
- Type **10.103.3.101:2554/media/speechrecognizer** in **RTSP URL**
- Click **Save** to save changes.

Note that the screen capture below displays the configuration during compliance testing.

The screenshot shows the Avaya Aura Experience Portal 7.2.3 (ExperiencePortal) interface. The top navigation bar includes the Avaya logo, a welcome message for 'epadmin', and a logoff button. The main navigation menu on the left lists various system management options. The 'Add ASR Server' page is displayed, showing the following configuration details:

- Name:** Sestek SR
- Enable:** Yes (selected)
- Engine Type:** Nuance
- Network Address:** 10.103.3.101
- Base Port:** 2554
- Total Number of Licensed ASR Resources:** 20
- New Connection per Session:** Yes (selected)
- Languages:** Afrikaans(South\_Africa) af-ZA, Arabic(Jordan) ar-JO, Arabic(WorldWide) ar-WW, Assamese(India) as-IN, Basque(Spain) eu-ES, Bengali(Bangladesh) bn-BD, Bengali(India) bn-IN, Bhojpuri(India) bh-IN, Bulgarian(Bulgaria) bg-BG, Cantonese(Hong\_Kong) cn-HK
- Selected Languages:** English(USA) en-US
- MRCP:**
  - Ping Interval:** 15 seconds
  - Response Timeout:** 4 seconds
  - Protocol:** MRCP V1
  - RTSP URL:** 10.103.3.101:2554/media/speechrecognizer

## 5.1.2. Add TTS Server

To add a **TTS** server, click on the **TTS** tab on **Speech Servers** page, and click **Add** (not shown).

- Type in a **Name**.
- Set **Enable** to **Yes**.
- Set **Engine Type** to **Nuance**.
- Type in the IP address of Sestek Text-to-Speech in **Network Address**.
- Type **1554** to **Base Port**
- Type in appropriate value in **Total Number of Licensed TTS Resources**.
- Set **New Connection per Session** to **Yes**.
- Set **Voices** to **English(USA) en-US Ava F** and **English(USA) en-US Tom M**.
- Set **Protocol** to **MRCP V1**.
- Type **10.103.3.101:1554/media/speechsynthesizer** in **RTSP URL**.
- Click **Save** to save changes.

Note that the screen capture below displays the configuration during compliance testing.

**AVAYA** Welcome, epadmin  
Last logged in yesterday at 8:53:58 PM PST

**Avaya Aura® Experience Portal 7.2.3 (ExperiencePortal)** Home ? Help Logoff

Expand All | Collapse All

**▼ User Management**  
Roles  
Users  
Login Options

**▼ Real-time Monitoring**  
System Monitor  
Active Calls  
Port Distribution

**▼ System Maintenance**  
Audit Log Viewer  
Trace Viewer  
Log Viewer  
Alarm Manager

**▼ System Management**  
EPM Manager  
MPP Manager  
Software Upgrade  
System Backup

**▼ System Configuration**  
Applications  
EPM Servers  
MPP Servers  
SNMP  
Speech Servers  
VoIP Connections  
Zones

**▼ Security**  
Certificates  
Licensing

**▼ Reports**  
Standard  
Custom  
Scheduled

**▼ Multi-Media Configuration**  
Email  
HTML  
SMS

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

### 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**

Czech(Czech_Republic) cs-CZ Zuzana F	▶
Danish(Denmark) da-DK Ida F	
Danish(Denmark) da-DK Magnus M	
Danish(Denmark) da-DK Nanna F	
Danish(Denmark) da-DK Sara F	
Dutch(Belgium) nl-BE Ellen F	
Dutch(Netherlands) nl-NL Claire F	
Dutch(Netherlands) nl-NL Claire-ml F	
Dutch(Netherlands) nl-NL Xander M	
English(Australia) en-AU Karen F	▼

**Selected Voices**

English(USA) en-US Ava F	▶
English(USA) en-US Tom M	

**MRCP**

Ping Interval:  seconds

Response Timeout:  seconds

Protocol:

RTSP URL:



## 5.2. Change VoIP Audio Formats

Sestek TTS only work with MPP Native Format audio/basic.

Select **System Configuration** → **MPP Servers** on the left pane. The **MPP Servers** configuration screen is displayed, as shown below.

**AVAYA** Welcome, epadmin  
Last logged in yesterday at 8:53:58 PM PST

**Avaya Aura® Experience Portal 7.2.3 (ExperiencePortal)** Home Help Logoff

Expand All | Collapse All

- ▼ **User Management**
  - Roles
  - Users
  - Login Options
- ▼ **Real-time Monitoring**
  - System Monitor
  - Active Calls
  - Port Distribution
- ▼ **System Maintenance**
  - Audit Log Viewer
  - Trace Viewer
  - Log Viewer
  - Alarm Manager
- ▼ **System Management**
  - EPM Manager
  - MPP Manager
  - Software Upgrade
  - System Backup
- ▼ **System Configuration**
  - Applications
  - EPM Servers
  - MPP Servers
  - SNMP
  - Speech Servers
  - VoIP Connections
  - Zones
- ▼ **Security**
  - Certificates
  - Licensing
- ▼ **Reports**
  - Standard
  - Custom
  - Scheduled
- ▼ **Multi-Media Configuration**
  - Email
  - HTML
  - SMS

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

### MPP Servers

This page displays the list of Media Processing Platform (MPP) servers in the Experience Portal system. When an MPP receives a call from a PBX, it invokes a VoiceXML application on an application server and communicates with ASR and TTS servers as necessary to process the call.

<input type="checkbox"/>	Name	Host Address	Network Address (VoIP)	Network Address (MRCP)	Network Address (AppSvr)	Simu
<input type="checkbox"/>	MPP105	aaep-mpp105.hcm.com	<Default>	<Default>	<Default>	20

[Add](#) [Delete](#)

[MPP Settings](#) [Browser Settings](#) [Video Settings](#) [VoIP Settings](#) [Help](#)

Click **VoIP Settings** and set **MPP Native Format** to **audio/basic**

**AVAYA** Welcome, epadmin  
Last logged in yesterday at 8:53:58 PM PST

**Avaya Aura® Experience Portal 7.2.3 (ExperiencePortal)** Home ? Help Logoff

Expand All | Collapse All

**▼ User Management**  
Roles  
Users  
Login Options

**▼ Real-time Monitoring**  
System Monitor  
Active Calls  
Port Distribution

**▼ System Maintenance**  
Audit Log Viewer  
Trace Viewer  
Log Viewer  
Alarm Manager

**▼ System Management**  
EPM Manager  
MPP Manager  
Software Upgrade  
System Backup

**▼ System Configuration**  
Applications  
EPM Servers  
MPP Servers  
SNMP  
Speech Servers  
VoIP Connections  
Zones

**▼ Security**  
Certificates  
Licensing

**▼ Reports**  
Standard  
Custom  
Scheduled

**▼ Multi-Media Configuration**  
Email  
HTML  
SMS

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.

	Low	High
UDP:	11000	30999
TCP:	31000	33499
MRCP:	34000	36499
H.323 Station:	37000	39499

**RTCP Monitor Settings**

Host Address:

Port:

**VoIP Audio Formats**

MPP Native Format: **audio/basic**

**Codecs**

**QoS Parameters**

**Out of Service Threshold (% of VoIP Resources)**

**Call Progress**

**Miscellaneous**

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

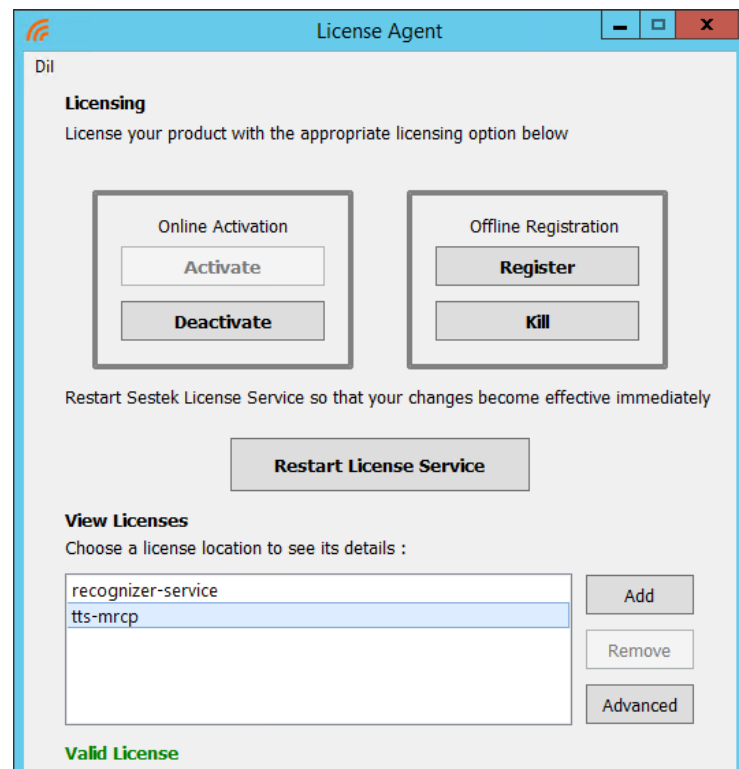
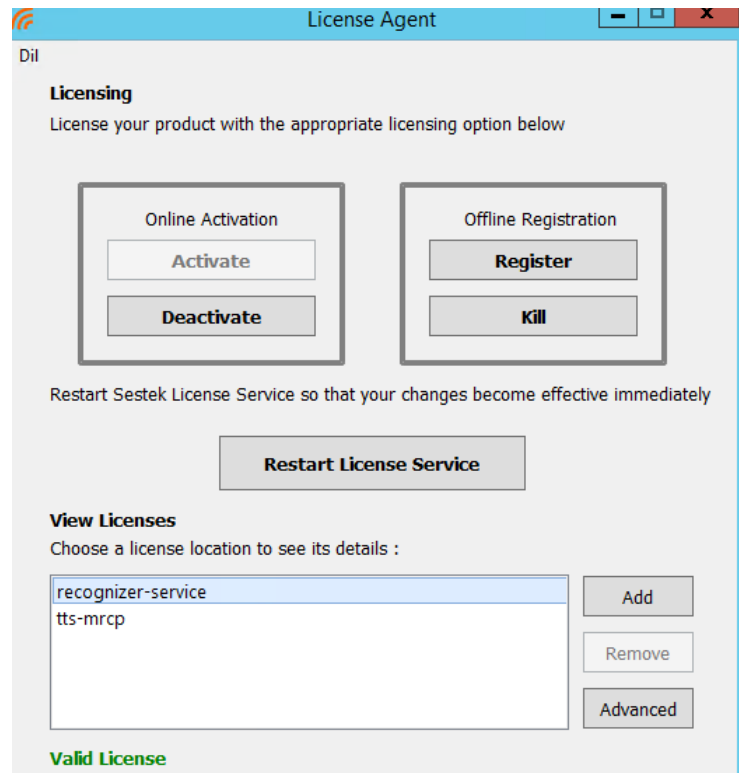
Click **Save** to save settings.

## 6. Verify Sestek Speech Server licenses

These Application Notes assume that Sestek Speech Servers are already installed. To verify Sestek Speech Server licenses, start **License Agent** from Sestek Server:



Verify that Sestek ASR and TTS licences are still valid as shown below:



## 7. Verification Steps

### 7.1. Avaya Aura® Experience Portal

This section provides the verification steps that may be performed to verify that Experience Portal can run Sestek ASR and TTS servers.

On the left page, select **System Monitor** and navigate to **MPP → Service Menu → Resources → Speech Servers**. Verify the Speech Servers are **UP**.

The screenshot shows the Avaya Aura Experience Portal MPP 7.2.3.0.0441 interface. The left sidebar contains a navigation menu with the following items: Home, Activity (Calls, Sessions), Applications (Statistics), Certificates, Configuration, Diagnostics, Logs, Resources (ASR, TTS, Speech Servers, Telephony, Networking), and Users. The main content area displays the 'Speech Servers' status. At the top, it says 'You are here: Home > Resources > Speech Servers'. Below this, the title 'Speech Servers' is followed by a table. The table has columns: Name, Type, Status, Values, Ports, Errors, and Latency. There are two rows of data, both showing 'Sestek SR' as the Name and 'Server is UP' as the Status. The first row is for ASR and the second is for TTS. Both rows show 'H (Total): 20' and 'M (Simultaneous): 20' in the Values column, 'Active: 0' and 'Reserve: 0' in the Ports column, 'Timeout: 0', 'Setup: 0', and 'Application: 0' in the Errors column, and 'Average: 0', 'Maximum: 0', and 'Minimum: 0' in the Latency column. At the bottom of the main content area, the date and time 'Fri Feb 21 05:16:39 2020' are displayed.

Name	Type	Status	Values	Ports	Errors	Latency
Sestek SR	ASR	Server is UP	H (Total): 20 M (Simultaneous): 20	Active: 0 Reserve: 0	Timeout: 0 Setup: 0 Application: 0	Average: 0 Maximum: 0 Minimum: 0
Sestek SR	TTS	Server is UP	H (Total): 20 M (Simultaneous): 20	Active: 0 Reserve: 0	Timeout: 0 Setup: 0 Application: 0	Average: 0 Maximum: 0 Minimum: 0

### 7.2. Verify Sestek Speech Servers

Place a call from Avaya Deskphones to Test Application. Verify that Avaya Deskphones can receive IVR/prompt clearly.

## 8. Conclusion

These Application Notes describe the configuration steps required to integrate Sestek Automatic Speech Recognition, Sestek Text-to-Speech Server with Avaya Aura® Experience Portal. All feature and serviceability test cases were completed with observations noted in **Section 2.2.**

## 9. Additional References

This section references the Avaya and Sestek product documentation that are relevant to these Application Notes.

Product documentation for Avaya products may be found at <http://support.avaya.com>.

1. *Administering Avaya Aura® Experience Portal*, Release 7.2.3, Issue 1, Sept 2019.

Product documentation for Sestek can be requested from Sestek at [info@sestek.com](mailto:info@sestek.com).

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