Avaya Solution & Interoperability Test Lab

Application Notes for Nuance OpenSpeech Attendant with Avaya Voice Portal – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate the Nuance OpenSpeech Attendant with Avaya Voice Portal and Avaya Communication Manager. Nuance OpenSpeech Attendant allows callers to speak the name of a person, department, service, or location and be automatically transferred to the requested party without waiting to speak to an operator.

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 Nuance OpenSpeech Attendant with Avaya Voice Portal and Avaya Communication Manager. Nuance OpenSpeech Attendant allows callers to speak the name of a person, department, service, or location and be automatically transferred to the requested party without waiting to speak to an operator.

Figure 1 illustrates the configuration used to verify the Nuance OpenSpeech Attendant (OSA) solution with Avaya Voice Portal, Avaya Communication Manager, and the Nuance Speech Server. Nuance OSA is deployed on a dedicated application server running Windows 2003 Server. Avaya Voice Portal interfaces to Avaya Communication Manager using a VoIP H.323 interface. Avaya Voice Portal manages the interactions with speech server resources (i.e., speech recognition and text-to-speech) used by VXML applications. VXML pages generated by Nuance OSA are loaded and interpreted by Avaya Voice Portal, which controls the interaction with the user. To access the Nuance OSA application, a VoIP channel on Avaya Voice Portal must be configured to invoke the VXML application when an incoming call is received on that channel.

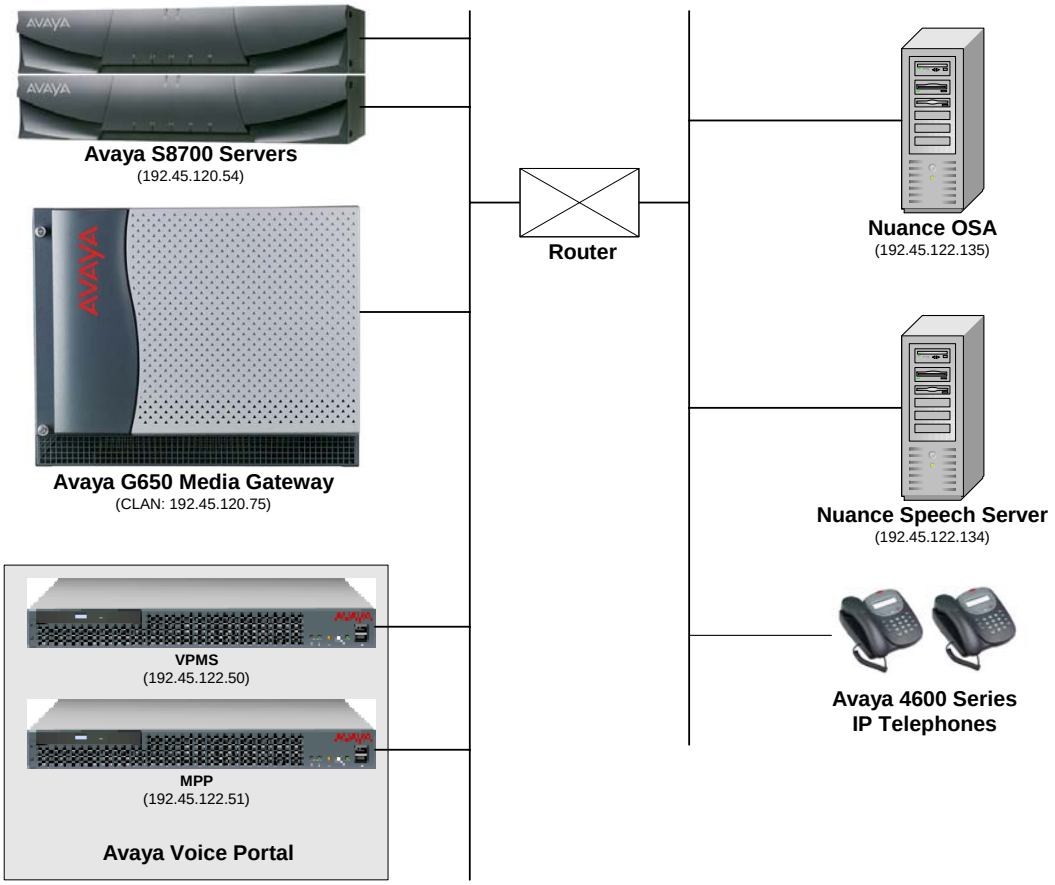

Figure 1: Configuration with Avaya Voice Portal and Nuance OpenSpeech Attendant

1.1. Equipment and Software Validated

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

Equipment	Software
Avaya Voice Portal	4.1.0.1.2710 and Hotfixes wi00089856 and wi00075203
Avaya S8700 Servers with a G650 Media Gateway	Avaya Communication Manager 4.0 (R014x.00.1.731.2)
Avaya 4600 Series IP Telephones	2.8 (H.323)
Nuance OpenSpeech Attendant (OSA)	3.0 with Hotfix 300HF04
Nuance Speech Server ▪ Nuance Recognizer ▪ Nuance RealSpeak ▪ Nuance MRCP Server	 9.0.4 4.5 5.0.3

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. In addition, special application SA8874 – Call Status Messages for 7434ND IP Softphone is required to support supervised transfers from Avaya Voice Portal.

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 the Nuance OSA. 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.

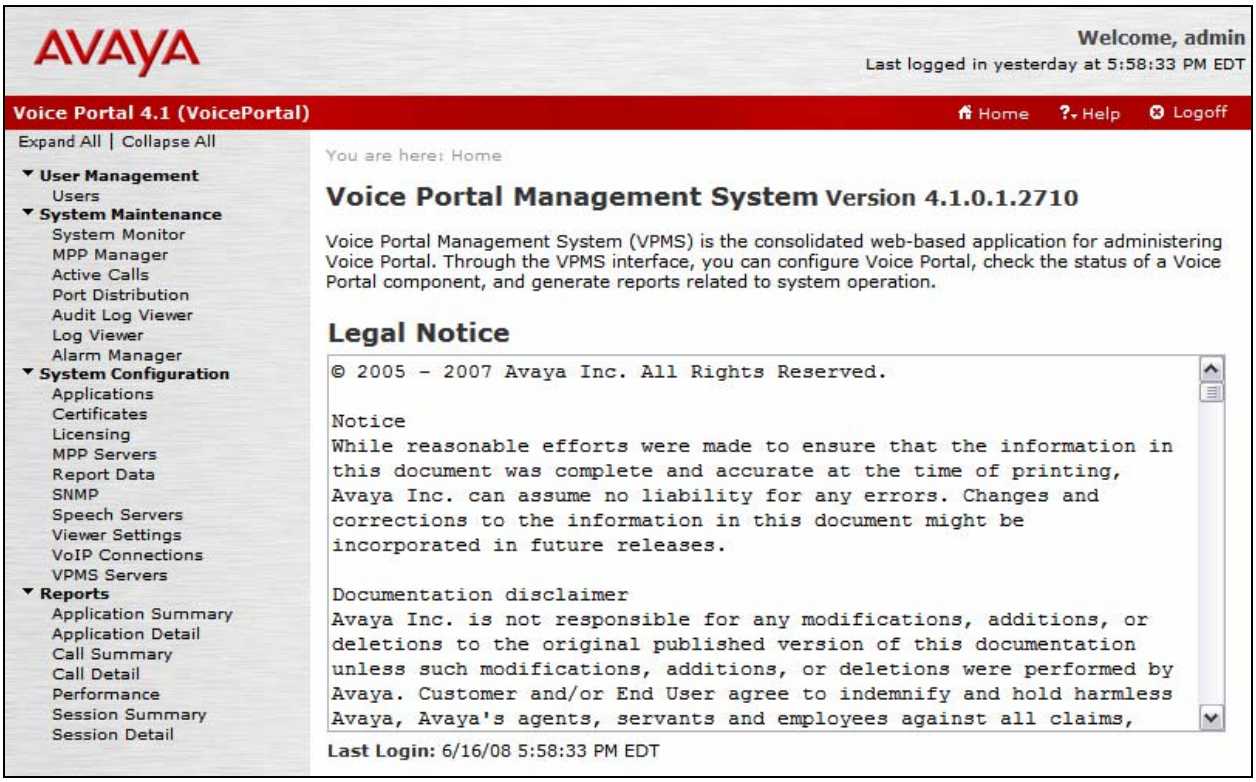

Figure 4: VPMS Main Screen

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, stations 23801 to 23808 are assigned to Avaya Voice Portal, but only stations 23802 and 23803 are mapped to the Nuance OSA on Avaya Voice Portal.

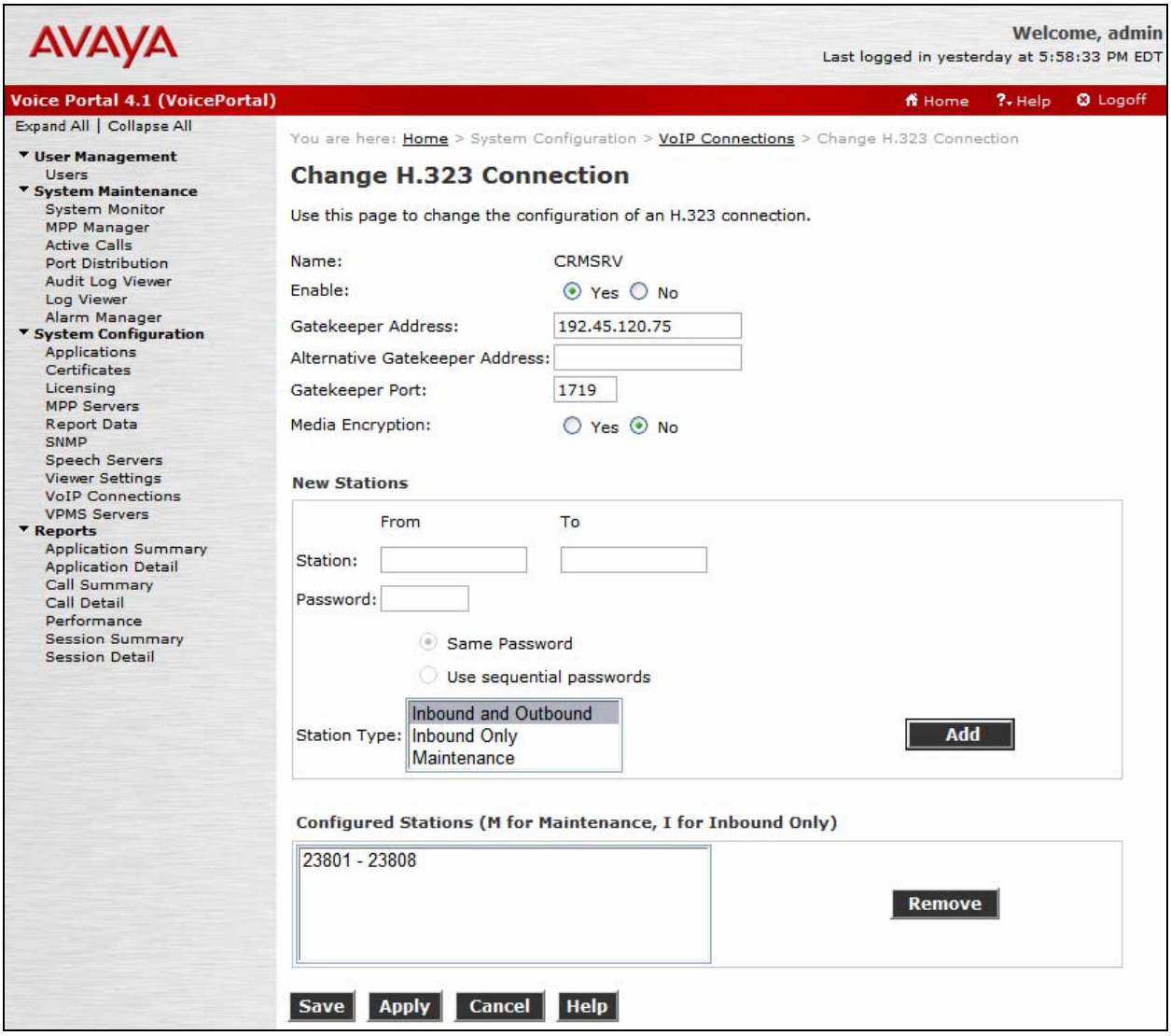

Figure 5: H.323 Connection

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.

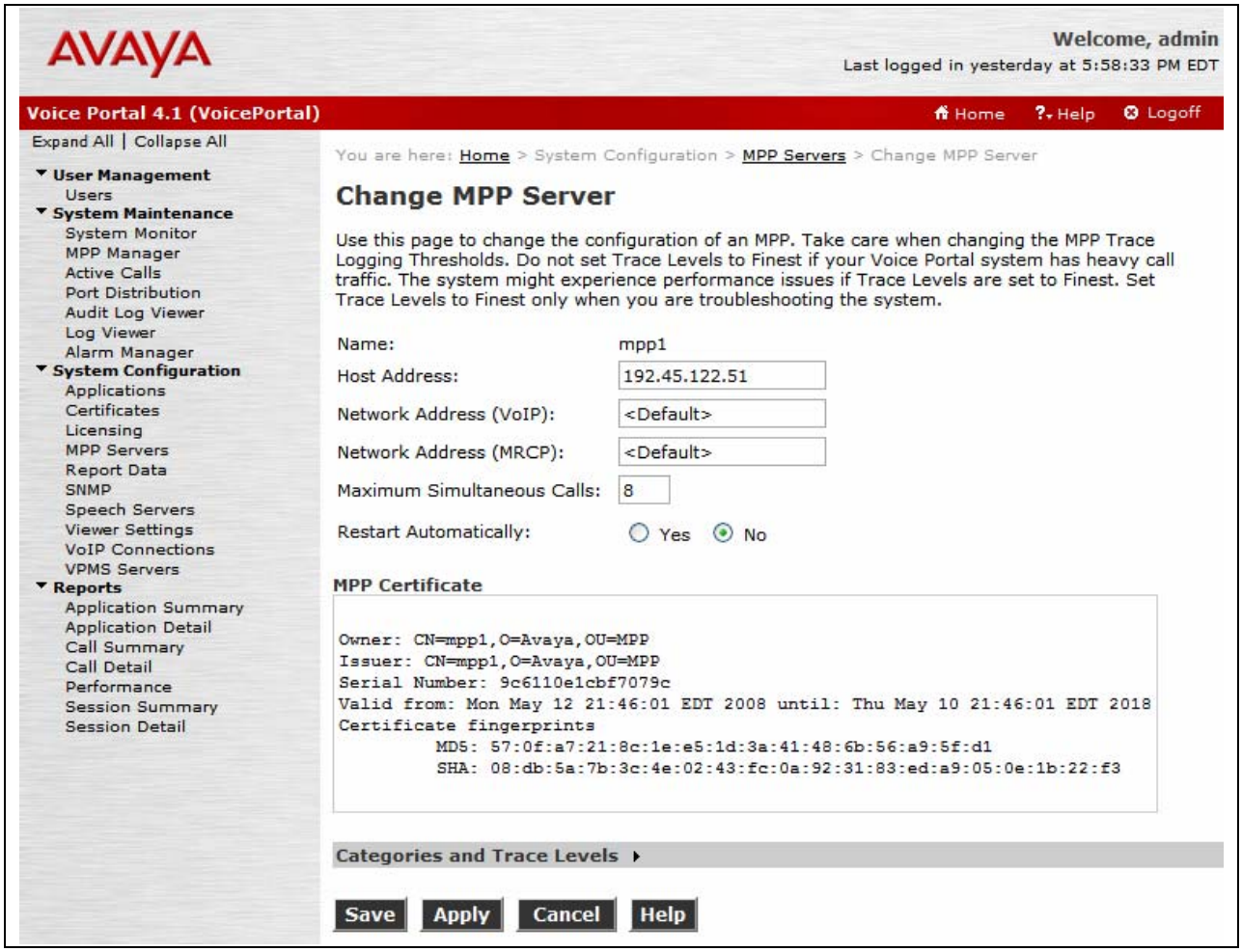

Figure 6: MPP Server

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.

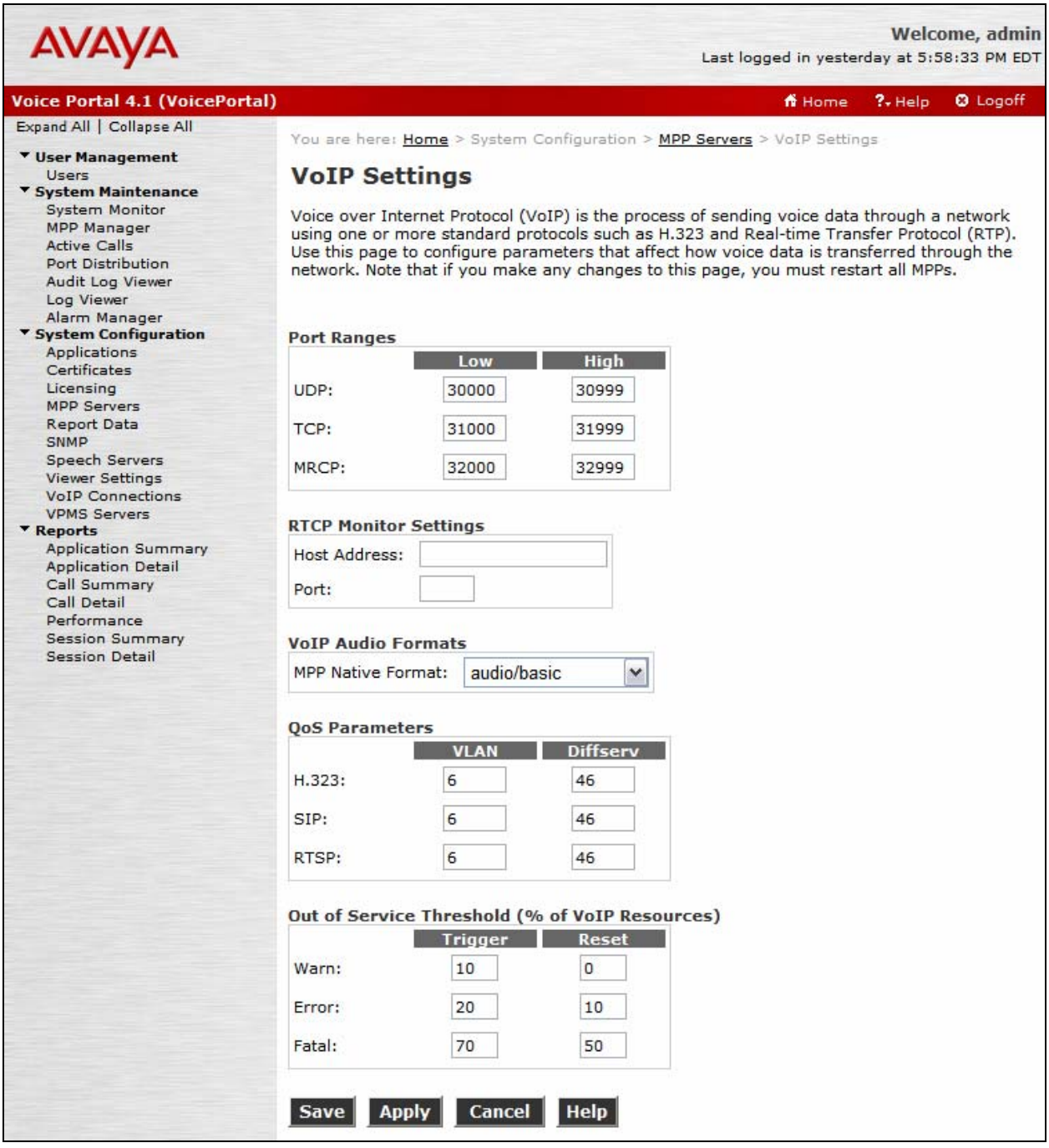

Figure 7: VoIP Settings

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 8** shows the screen after the ASR server has already been configured. For a Nuance Speech Server, the **Engine Type** should be set to *Nuance*. Set the **Network Address** field to the IP address of the Nuance Speech Server 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.

Figure 8: 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 9** shows the screen after the TTS server has already been configured. For a Nuance Speech Server, the **Engine Type** should be set to *Nuance*. Set the **Network Address** field to the IP address of the Nuance Speech Server 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.

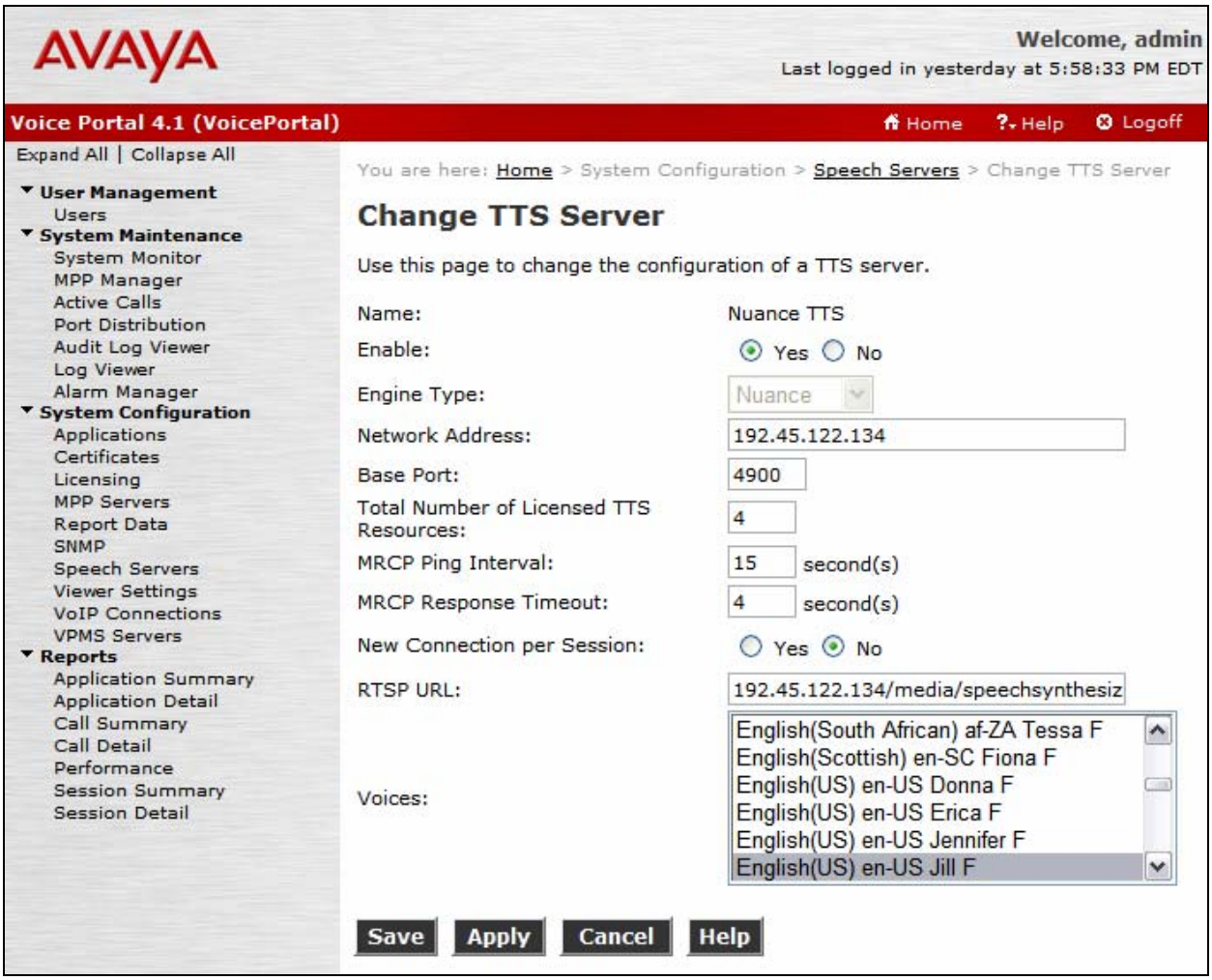

Figure 9: TTS Server

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 the Nuance OSA application. Next, specify the type of ASR and TTS servers to be used by the application and the called number that invokes the Nuance OSA application. The **Applications** screen is shown in **Figure 10**.

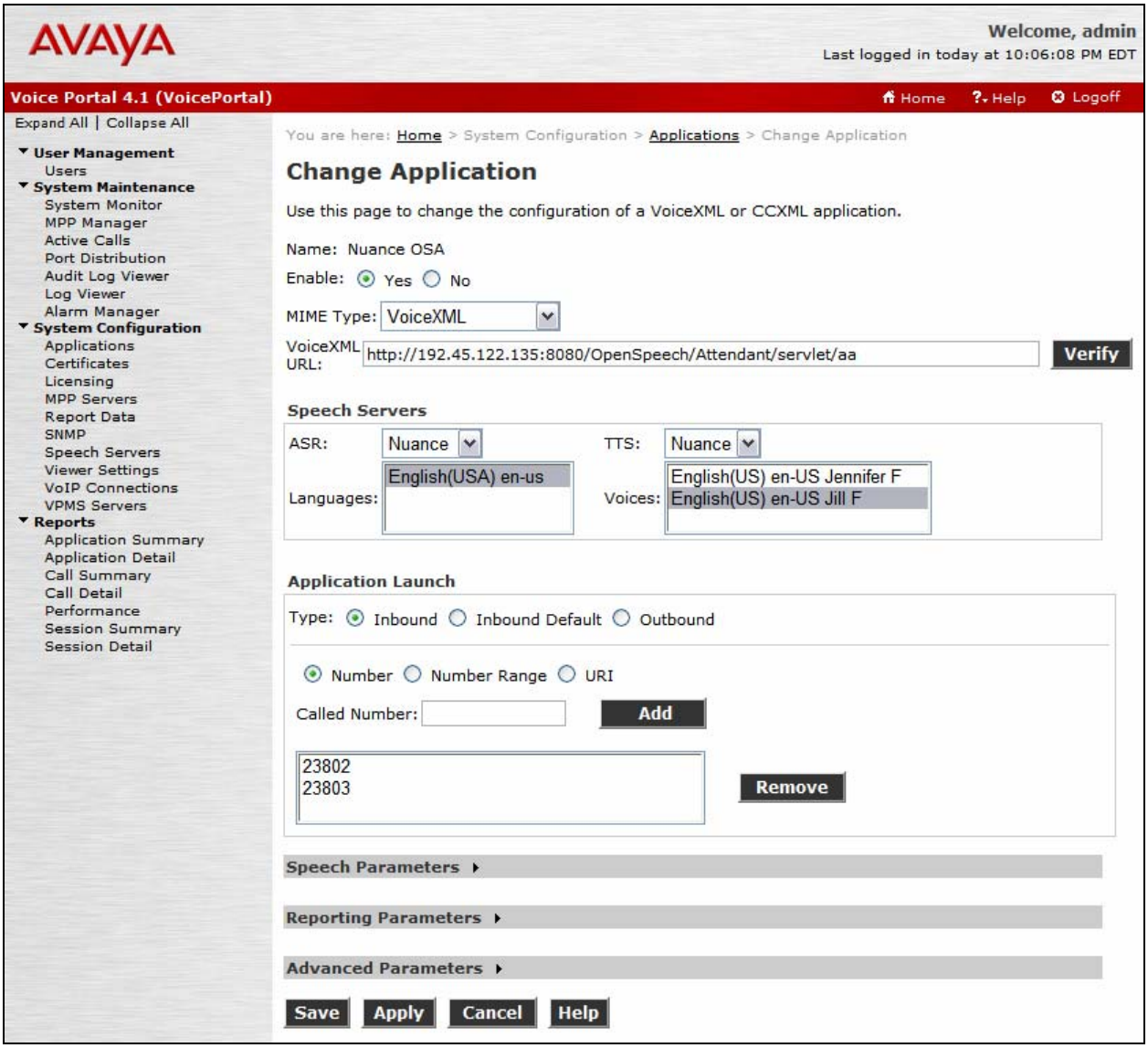

Figure 10: Applications

Start the MPP Server. Start the MPP server from the **MPP Manager** page shown in **Figure 11**. 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*.

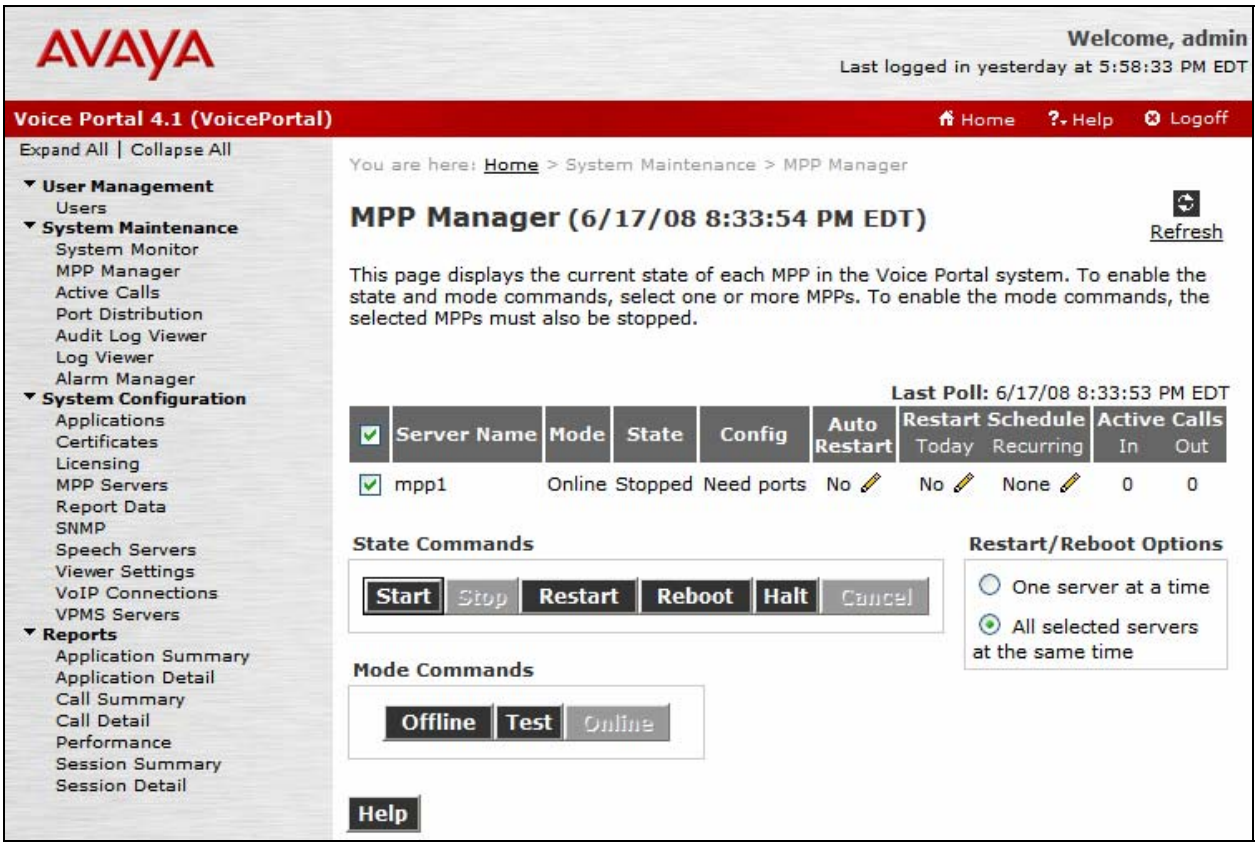

Figure 11: MPP Manager

4. Configure Nuance OpenSpeech Attendant

This section covers the procedure for configuring Nuance OpenSpeech Attendant (OSA). The procedure includes the following areas:

- Administer settings in the Configuration Panel
- Administer transfer entries in the Phone Directory and Menu Editor
- Administer top-level menu in the Phone Directory and Menu Editor

Nuance OSA is configured through Admin Tools which can be started by navigating to Start→Nuance→Admin Tools. The initial screen is displayed as shown in **Figure 12**.

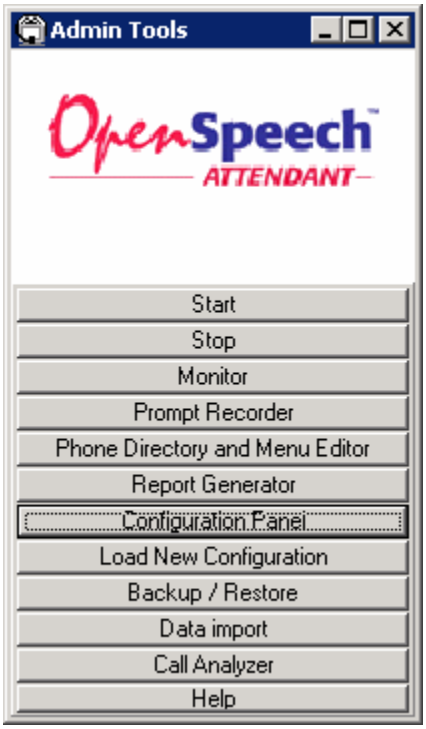

Figure 12: Admin Tools

4.1. Administer Settings in the Configuration Panel

To open the **Configuration Panel**, click on this option in the **Admin Tools** window in **Figure 12**. The login prompt will be displayed to the user as shown in **Figure 13**. Log in with the appropriate credentials using *Level 2* access level.

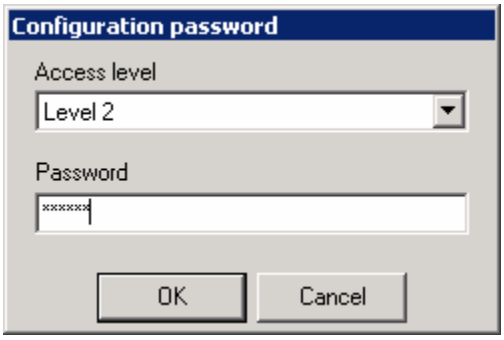

Figure 13: Configuration Panel Login Window

The **Configuration Panel** show in **Figure 14** is displayed. The **Configuration Panel** allows the transfer mode and operator extension number to be configured. Nuance OSA supports blind, supervised, and bridged transfers with Avaya Voice Portal. To enable OSA for blind transfers, set the **Gateway Transfer Mode Supervised** and **Gateway Transfer Mode Bridged** fields to *NO* as shown in the figure below. For supervised and bridged transfers set the corresponding fields to *YES*. The **Operator Extension Number** field should be set to a valid extension on Avaya Communication Manager. Click **Apply**.

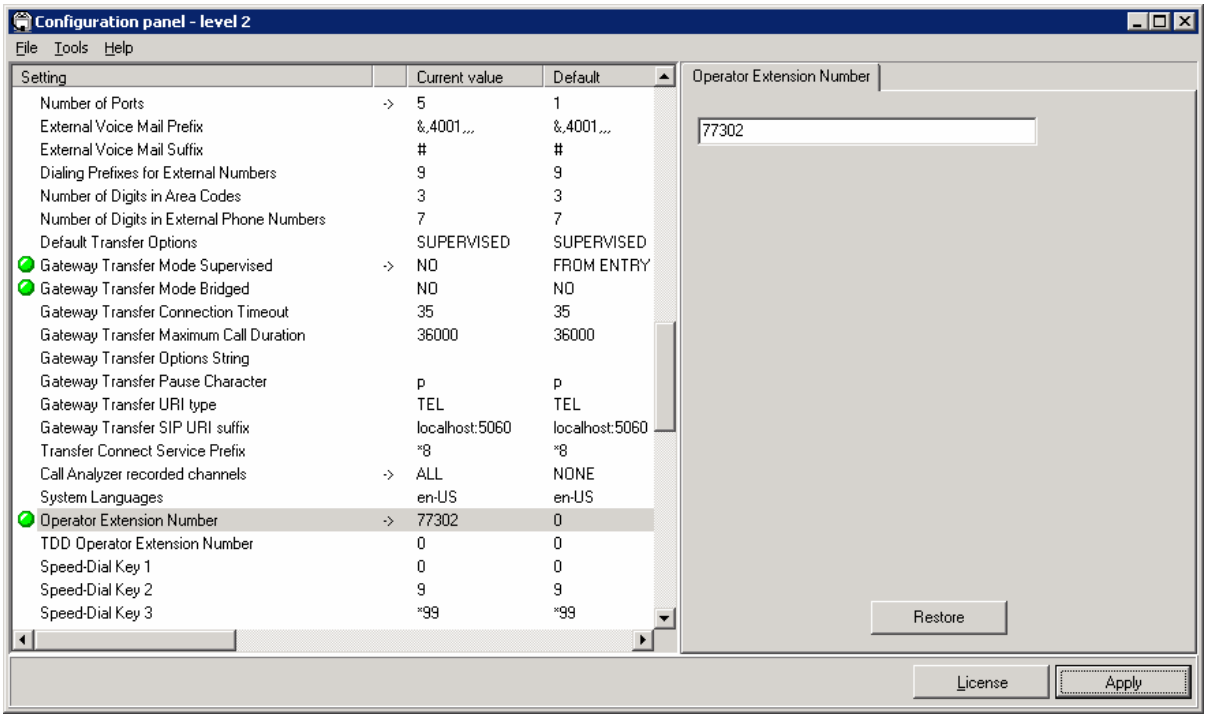

Figure 14: Configuration Panel

Note: To support supervised transfers, the special application SA8874 – Call Status Messages for 7434ND IP Softphone must be enabled on Avaya Communication. When using supervised transfers, the caller won't hear any ringing during the transfer attempt.

Next, close the **Configuration Panel**. Activate the changes when prompted by the system as shown **Figure 15**.

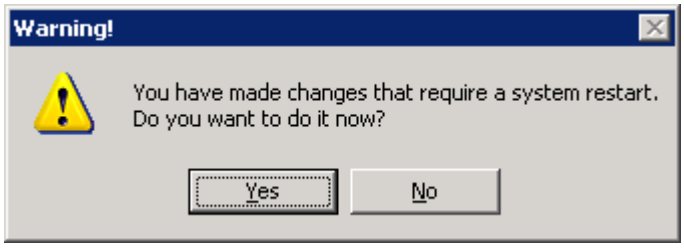

Figure 15: Activate Changes in Configuration Panel

The following window is displayed. Click **OK**.

Figure 16: Startup in Progress Window

4.2. Administer Transfer Entries in Phone Directory and Menu Editor

From **Admin Tools**, click on the **Phone Directory and Menu Editor** option. **Figure 17** is displayed.

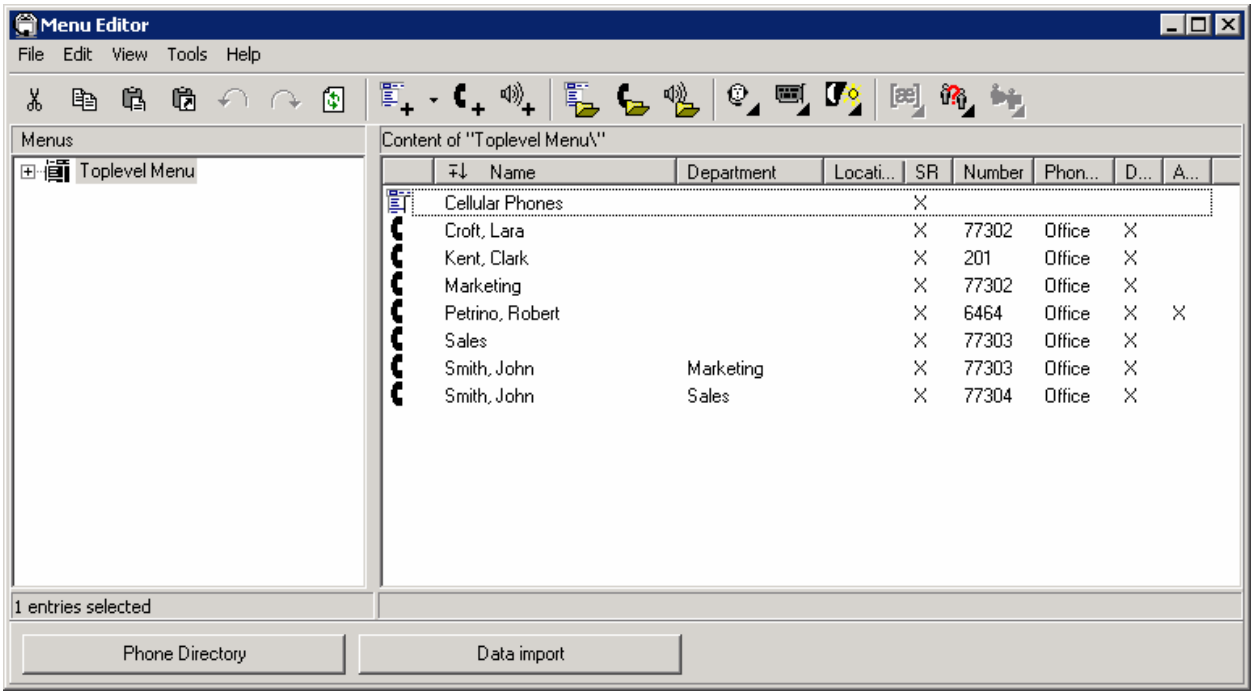

Figure 17: Phone Directory and Menu Editor

Next, select File→New→Transfer Entry from the menu options. The Creating transfer entry window is displayed as shown in **Figure 18**. Configure the **First names** and **Last names** for this entry and set the **Phone number** to a valid extension. Enable the **Access to personal functions** and **Access to name recorder** options and set the **PIN** field so that this user can access the Personal Administration Mode (PAM) to change their name recording. Click **OK**.

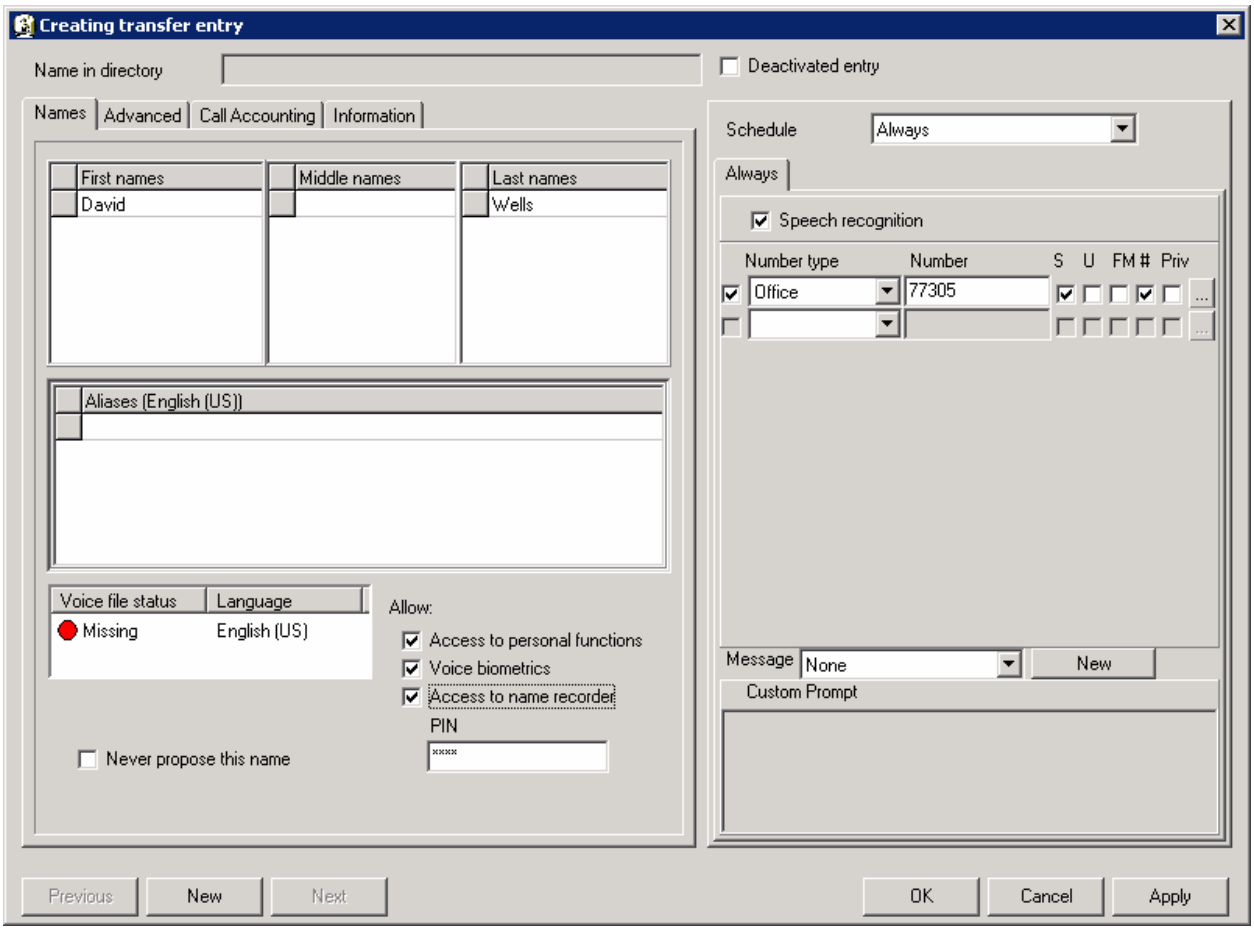

Figure 18: Creating Transfer Entry

The new transfer entry is now displayed in the Menu Editor window, but the entry has not been activated yet. Highlight the new transfer entry and then click on the **Activate Changes** icon  .

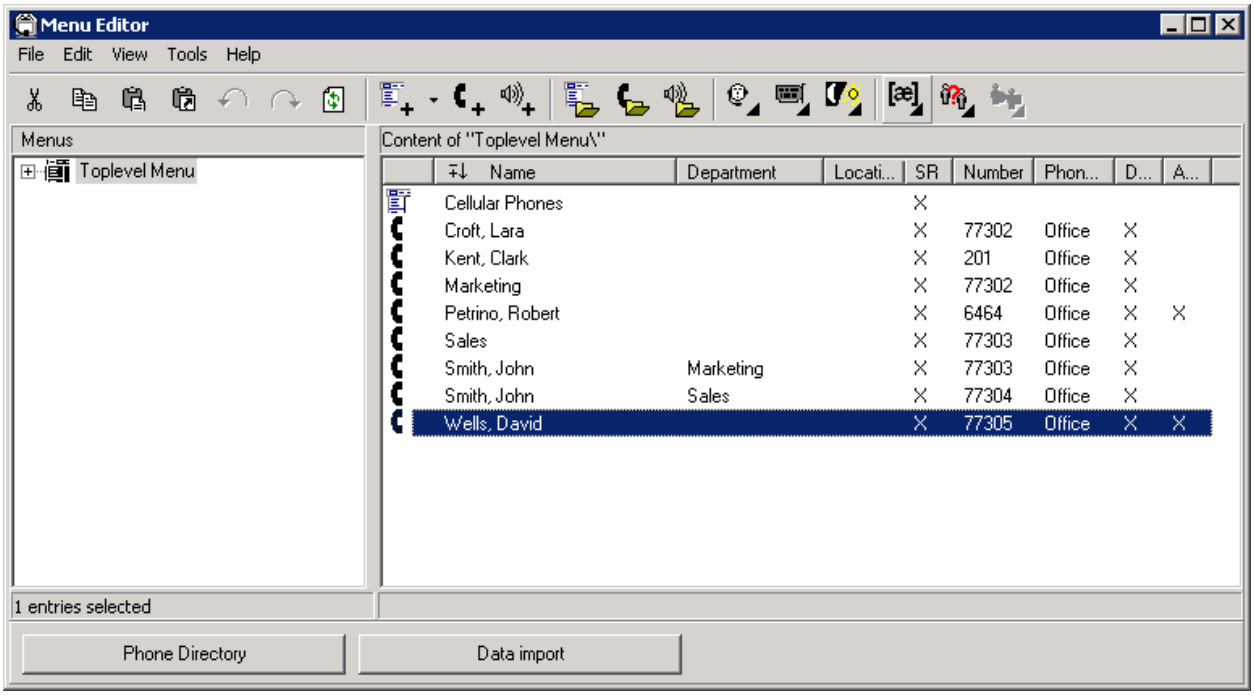

Figure 19: Menu Editor with New Transfer Entry

The following prompt is displayed to activate the new transfer entry so that it would be recognized by Nuance OSA.

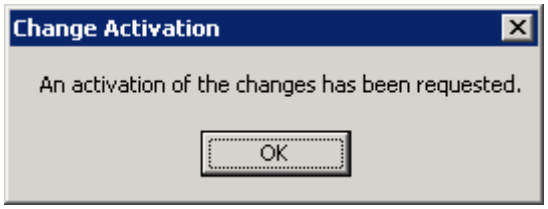

Figure 20: Change Activation

4.3. Administer Top-Level Menu in Phone Directory and Menu Editor

Nuance OSA allows the configuration of multiple entry points. The use of multiple entry points enable individual services or departments to be assigned a different entry point, which can be configured using a DNIS or CLID number. When a call is received, Nuance OSA can route the call to the appropriate entry point based on the dialed number (DNIS) or the caller's phone number (CLID). In this example, an entry point was configured using the DNIS option.

Create a new entry point by selecting File→New→Top-Level Menu from the menu options. The window in **Figure 21** is displayed. Enter a descriptive name in the **Aliases** field, enable the **Access to name recorder** option, and set the **PIN** field for use with PAM. Click **OK** and activate the changes.

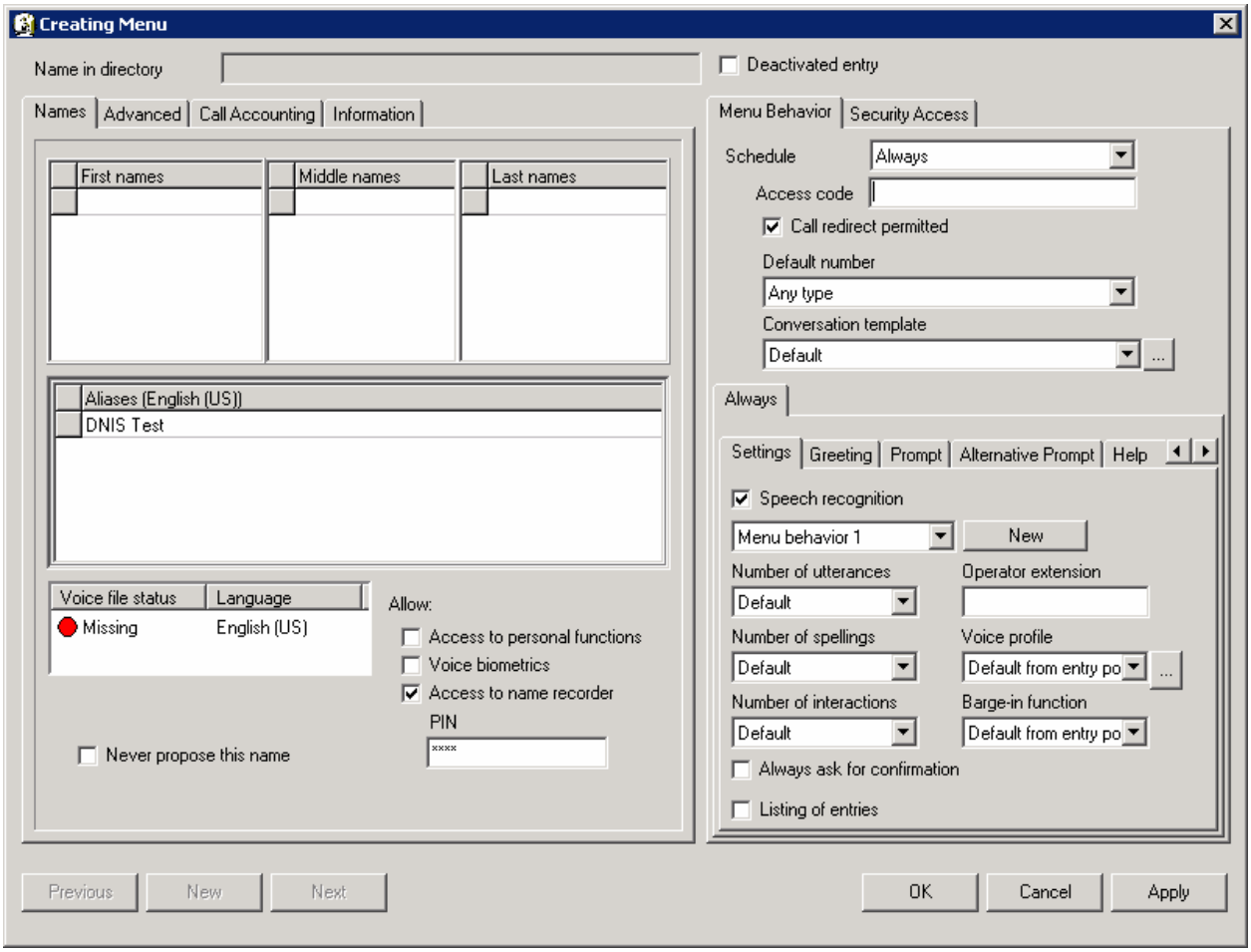

Figure 21: Creating Menu

From the **Menu Editor**, navigate to Edit→Ports and Entry Points to display the window in **Figure 22**. Select the first item under **Port assignment** in the left pane and then select Add→Entry Point from the menu options. **Figure 23** is displayed.

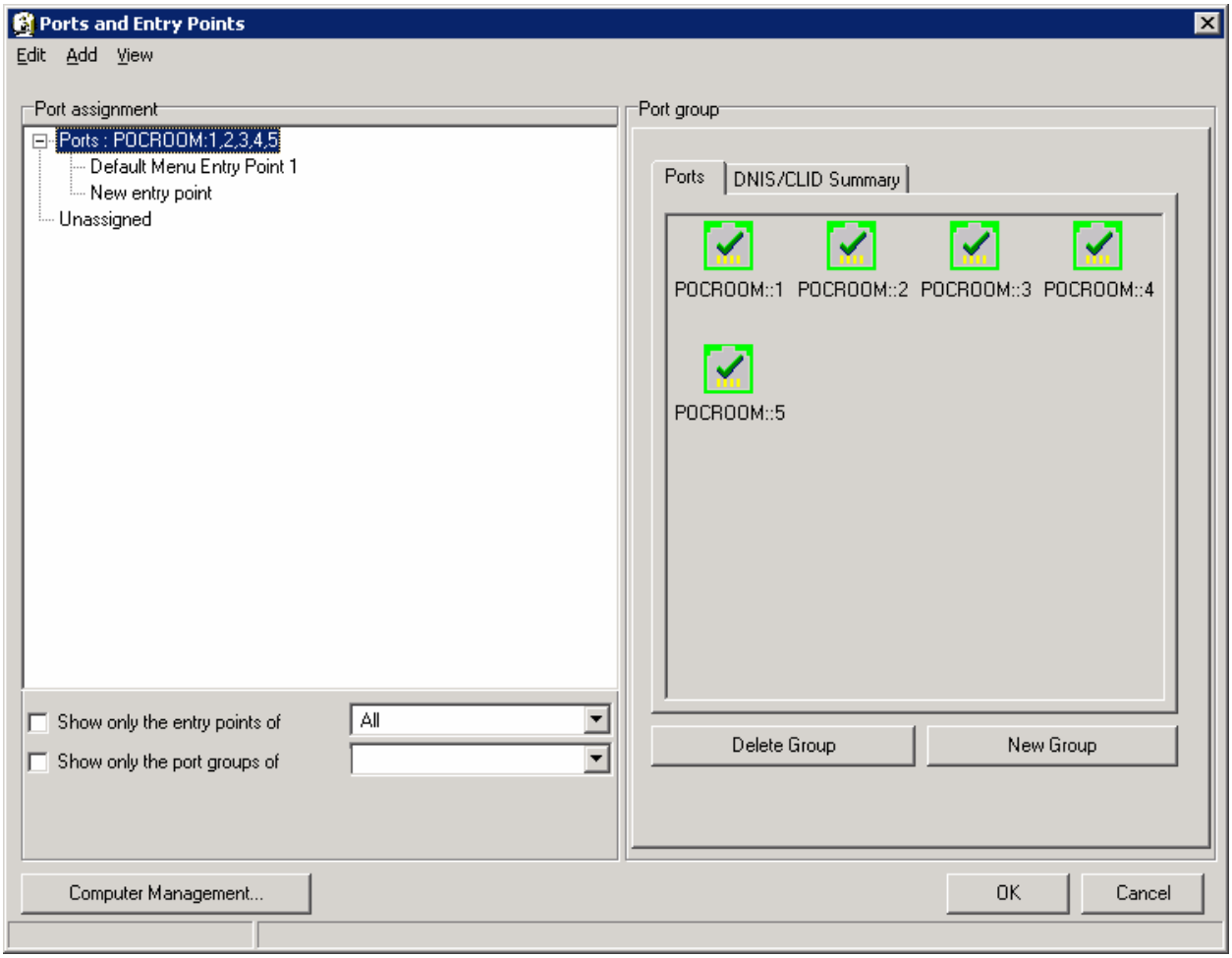

Figure 22: Ports and Entry Points

In the Ports and Entry Points window in **Figure 23**, set the **Home menu** and **Main menu** to the new entry point configured in **Figure 21**. Select the **DNIS/CLID** tab and enter an extension associated with an Avaya Voice Portal station configured on Avaya Communication Manager as shown in **Figure 2**. Click **OK**. In this example, this entry point will be used when Nuance OSA receives a DNIS of 23803.

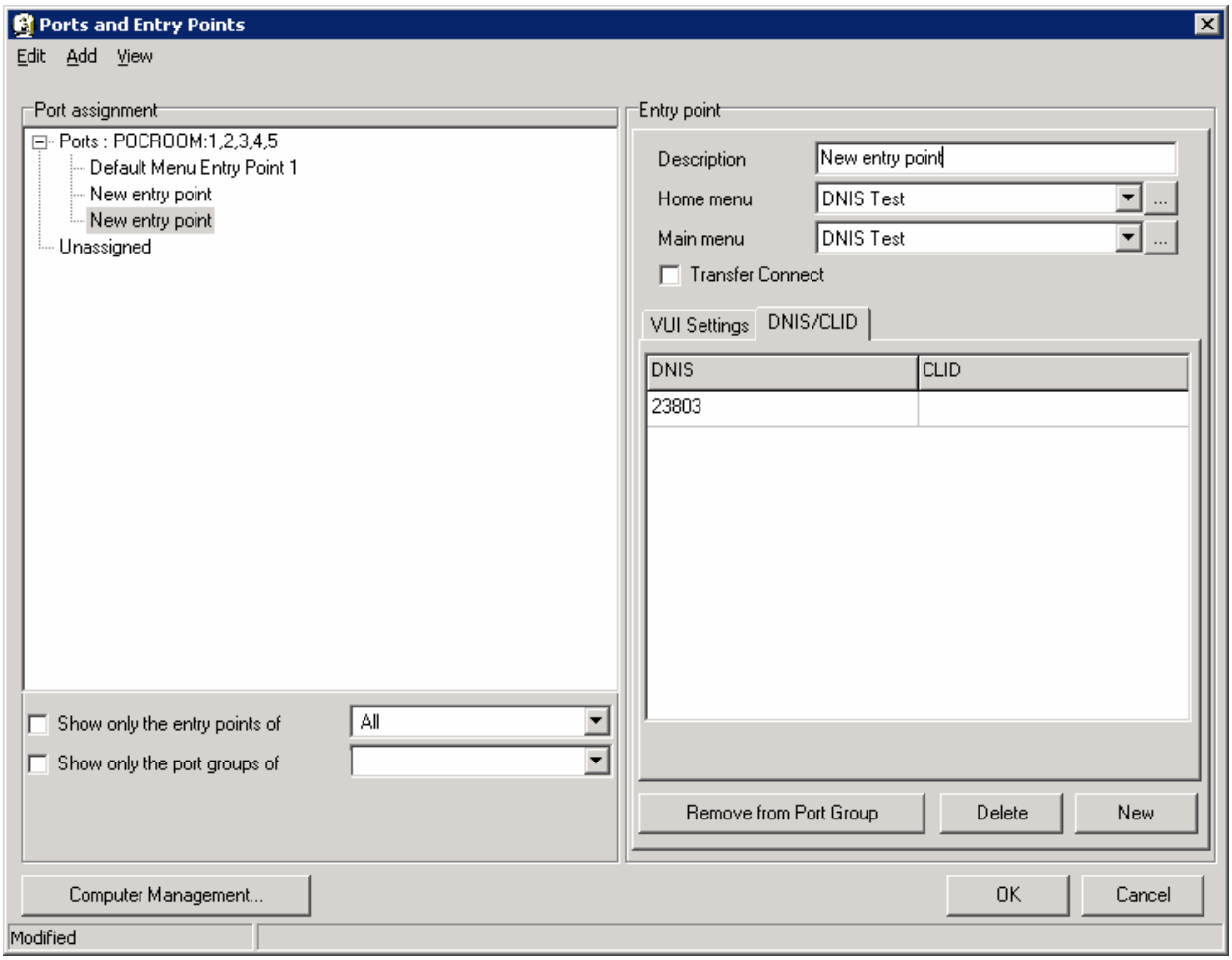

Figure 23: New Entry Point (DNIS/CLID Tab)

In the **VUI Settings** tab, set the Voice Profile as shown below. Click **OK**.

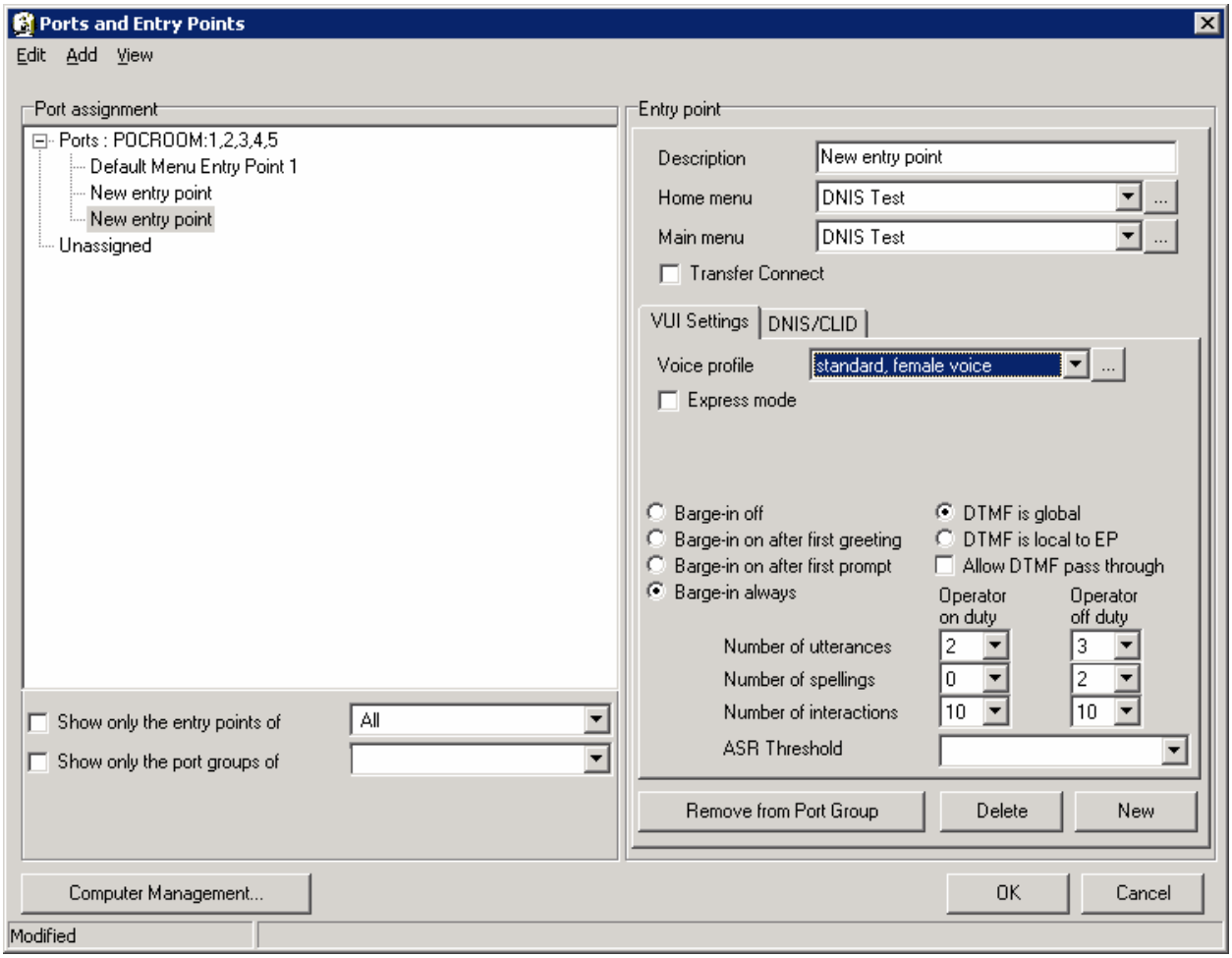

Figure 24: Ports and Entry Points (VUI Settings Tab)

5. Interoperability Compliance Testing

This section describes the interoperability compliance testing used to verify the Nuance OpenSpeech Attendant with Avaya Voice Portal. 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. Feature testing focused on that Nuance OSA can successfully recognize spoken names and extensions entered via DTMF and transfer the call to the correct destination. Blind, supervised, and bridged transfers were verified.

Serviceability testing focused on verifying the ability of the Nuance OSA to recover from adverse conditions, such as server restarts, power failures, and disconnecting cables to the IP network.

5.2. Test Results

All test cases passed.

6. Verification Steps

This section provides the verification steps that may be performed to verify that Avaya Voice Portal can run the Nuance OSA.

1. From the VPMS web interface, verify that the MPP servers are online and running in the **MPP Manager** page shown in **Figure 25**.

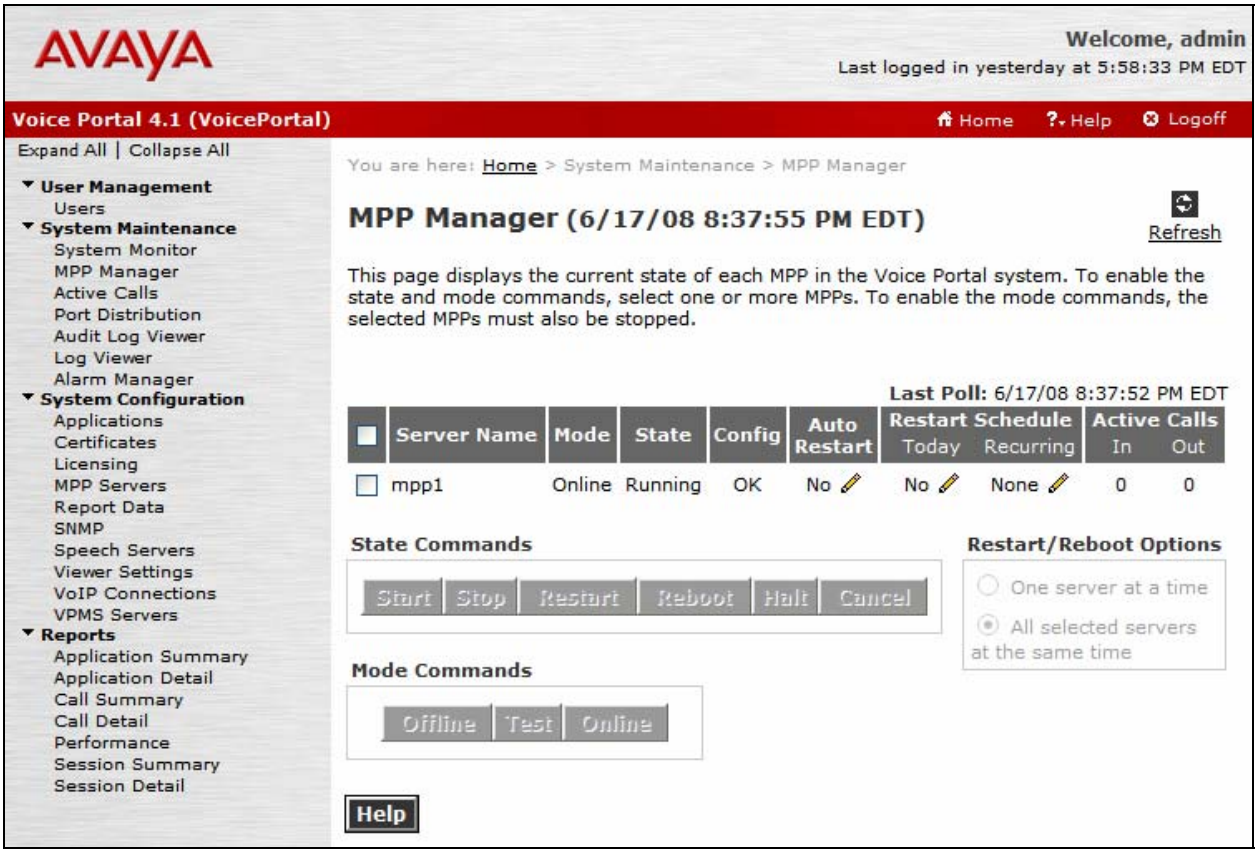

Figure 25: MPP Manager

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 26**.

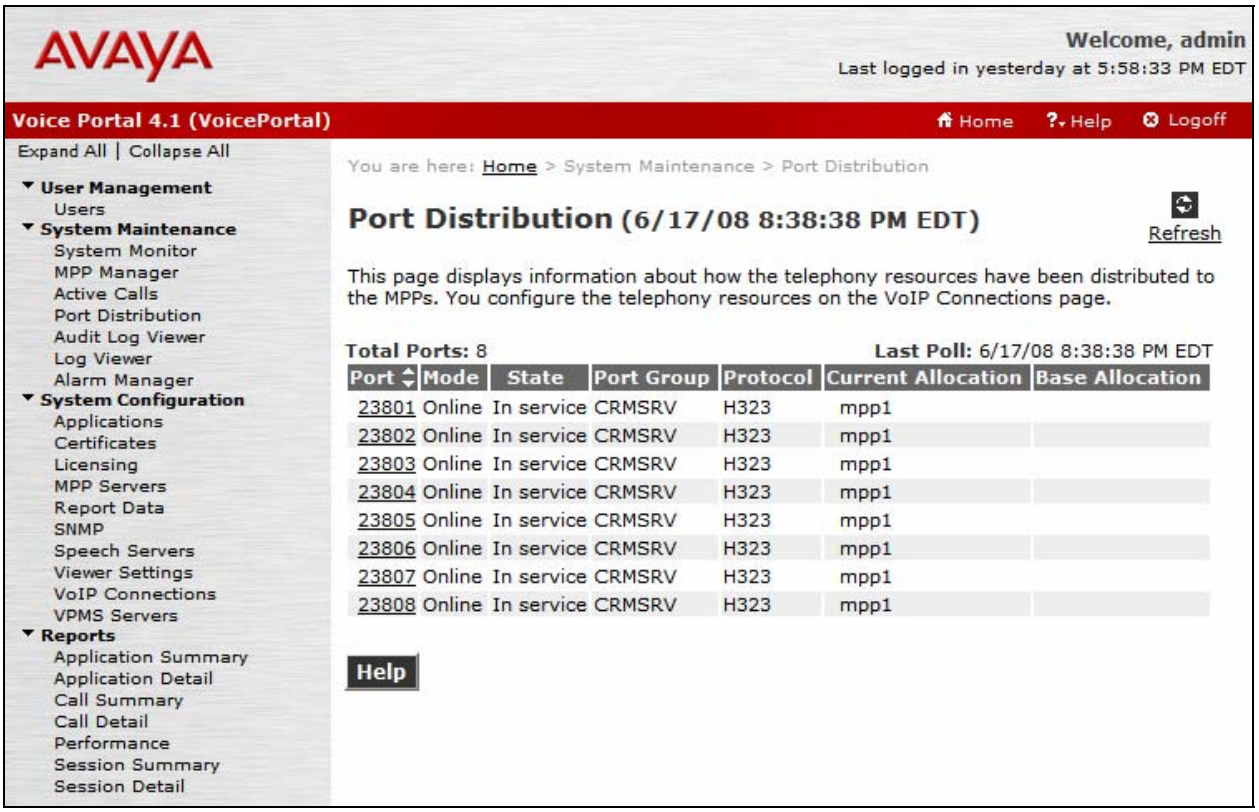

Figure 26: Port Distribution

3. Place a call to Avaya Voice Portal that invokes the Nuance OSA application. From the Nuance OSA server, open the OSA Monitor from **Admin Tools**. Verify that it detects an active call as shown in **Figure 27**.

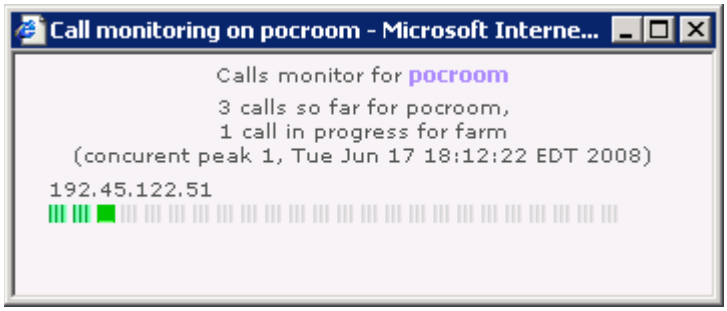

Figure 27: OSA Monitor

4. Verify that the Nuance OSA greeting is heard and OSA transfers the call to the proper destination specified in a spoken name or extension entered via DTMF.

5. From the OSA Monitor, click on the system name (e.g., pocroom) to display an internet browser window that can display the call log. Under **Call logs** in the left pane, click on **Today** under **From archive**. Verify that the call log shown in **Figure 28** is displayed with the correct call information and status.

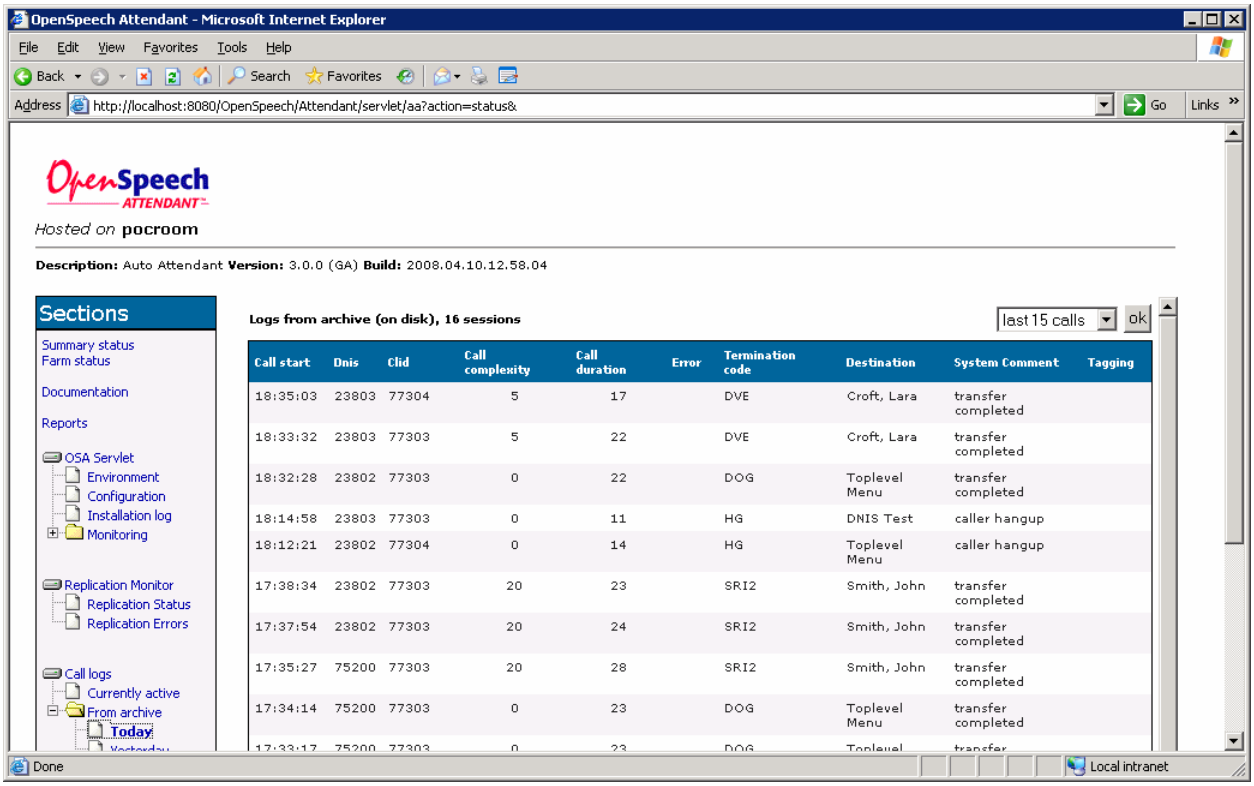

Figure 28: Call Log

7. Support

To obtain technical support for Nuance OpenSpeech Attendant, contact Nuance via email or through their website.

- **Web:** www.network.nuance.com
- **Email:** SpeechAttendant.Support@nuance.com
- **Phone:** (866) 434-2564 or (514) 390-3922

8. Conclusion

These Application Notes describe the configuration steps required to integrate Nuance OpenSpeech Attendant 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.

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.