Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Computer Instruments e-IVR, as a SIP endpoint, with Avaya IP Office 500 V2 – Issue 1.0

Abstract

These Application Notes describe the procedure for configuring Computer Instruments e-IVR to interoperate with Avaya IP Office 500 V2

Computer Instruments e-IVR combines the power of IVR functions with Computer Telephony Integration (CTI), Web and Data integration, complex rules-based decision making, Unified Messaging, as well as custom integration with other customer applications.

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 procedure for configuring Computer Instruments e-IVR (herein referred to as e-IVR) to interoperate with Avaya IP Office.

Computer Instruments e-IVR combines the power of IVR functions with Computer Telephony Integration (CTI), Web and Data integration, complex rules-based decision making, Unified Messaging, as well as custom integration with other customer applications. e-IVR's integration with Avaya IP Office, as a SIP endpoint solution, allows the software to scale easily to meet the needs of customer, and allows e-IVR to take full advantage of customer's phone system features.

These Application Notes assume that Avaya IP Office is already installed and basic configuration steps have been performed. Only steps relevant to this compliance test will be described in this document.

2. General Test Approach and Test Results

The general test approach was to place calls to and from e-IVR, using coverage paths / hunt group / e-IVR. The main objectives were to verify the following:

- Inbound calls
- Outbound calls
- Hold / unHold
- Call termination (origination/destination)
- Transfer (blind)
- Trunk-to-trunk blind transfer
- MWI
- Voicemail
- DTMF
- ANI/DNIS
- IP Phone Paging

2.1. Interoperability Compliance Testing

The interoperability compliance testing included features and serviceability tests. The focus of the compliance testing was primarily on verifying the interoperability between e-IVR and Avaya IP Office.

2.2. Test Results

The test objectives were verified. For serviceability testing, e-IVR operated properly after recovering from failures such as cable disconnects, and resets of e-IVR and Avaya IP Office.

2.3. Support

Technical support for the e-IVR solution can be obtained by contacting Computer Instruments:

- URL – support@instruments.com

- Phone – (888) 451-0851 and option 2

3. Reference Configuration

Figure 1 illustrates the configuration used in these Application Notes. The sample configuration shows an enterprise with Avaya IP Office. Endpoints include Avaya 5610SW IP Telephone, Avaya 1616I IP Telephones, and an Avaya 1416 Digital Telephone.

Note: An Avaya S8300D Server and an Avaya G450 Media Gateway were included to simulate PSTN calls.

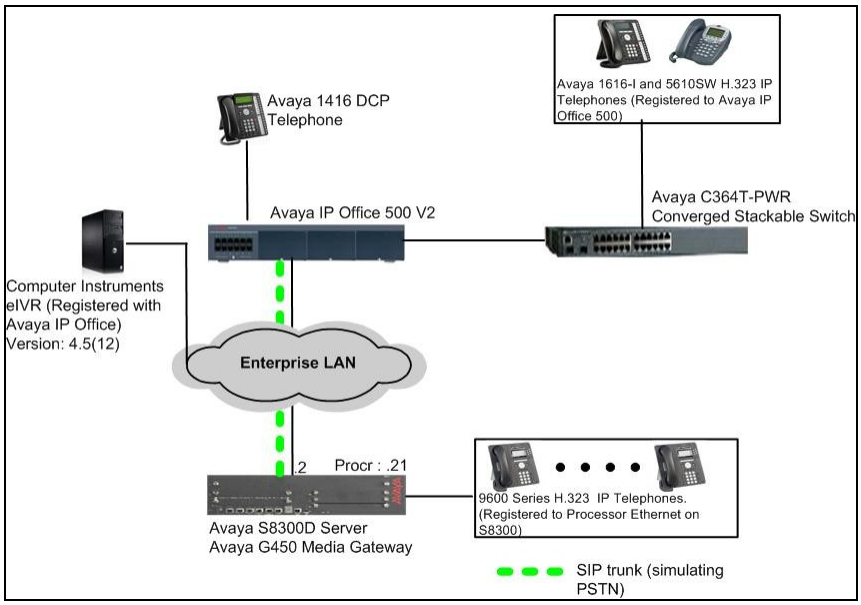


Figure 1: Test Configuration of e-IVR

4. Equipment and Software Validated

The following equipment and software were used for the test configuration.

Equipment		Software/Firmware
Avaya IP Office 500 V2		7.0(3)
Avaya IP Office Manager on Windows XP Professional 2002 with SP3		9.0(3)
Avaya H.323 IP Telephones		
	5610 (H.323) 1616-I (H.323)	2.9.1 1.22
Avaya 1416 Digital Telephone		-
Computer Instruments on Windows 7 with SP 1		4.5(12)

5. Configure Avaya IP Office

This section describes the steps required for configuring Avaya IP Office. During the compliance test, a SIP trunk or H.323 trunk was utilized between Avaya IP Office and Communication Manager. However, configuration of the Communication side is not included in these Application Notes, since the solution was a SIP endpoint in Avaya IP Office.

The procedures include the following areas:
SIP trunk configuration – The SIP trunk, from the previous compliance test, was utilized. This simulates a PSTN calls to e-IVR either by directly or through a hunt group.

- Configure LAN interface
- Enable SIP Trunk
- Create the static SIP line
- Configure SIP URI parameters for the SIP Line
- Configure VoIP Parameters for the SIP Line
- Configure a short code to route calls through the SIP trunk
- Create an Incoming Call Route for the Inbound SIP calls
- Configure Users' SIP names
-

SIP endpoint (e-IVR) Configuration – In these Application Notes, only e-IVR configuration is included.

- Verify 3rd party IP endpoints License
- Verify IP Office license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extensions
- Administer SIP users

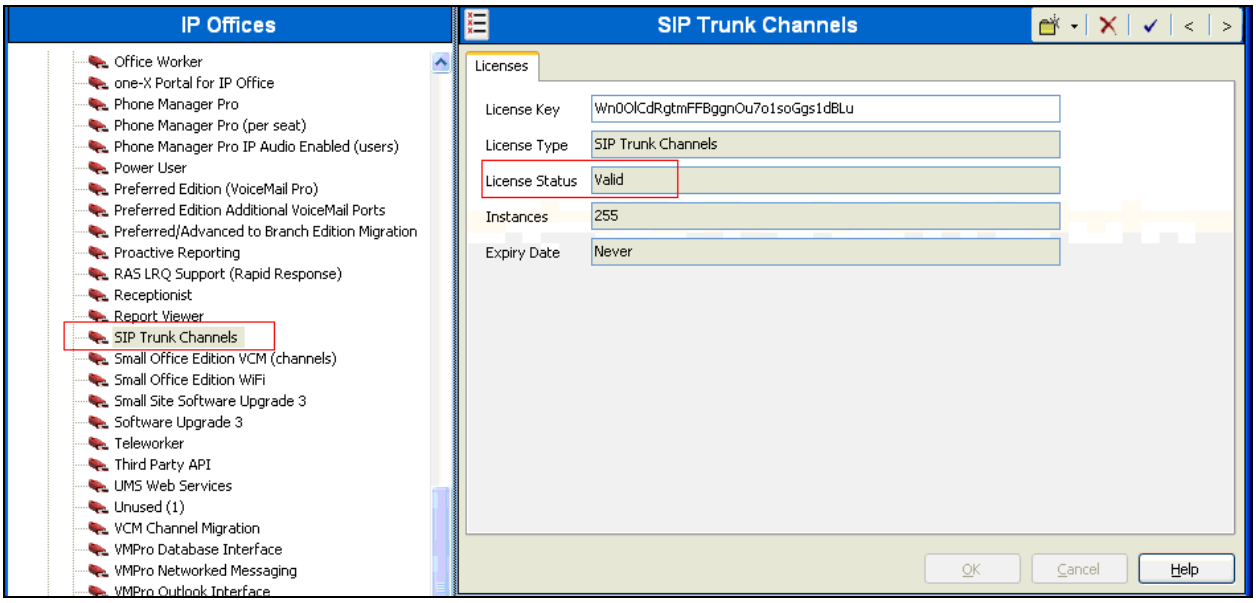
These steps are performed from the Avaya IP Office Manager.

5.1. Verify SIP Trunk Channels License

IP Office is configured via the IP Office Manager application. Log into the PC running the Avaya IP Office Manager application, and select **Start → All Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system if there are more than one IP Office system, and log in with the appropriate credentials.

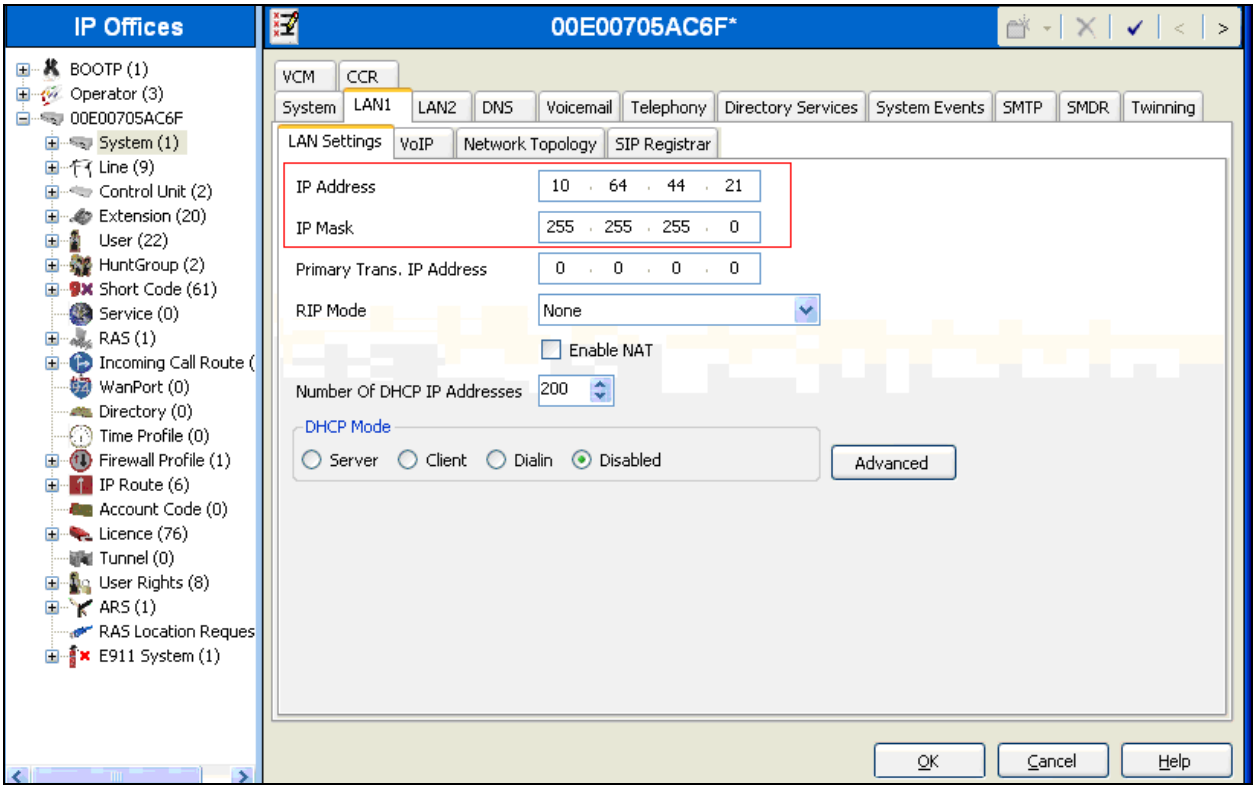
From the configuration tree in the left pane, select **License → SIP Trunk Channels** to display the SIP Trunk Channels screen in the right pane. Verify that the **License Status** field is set to **Valid**.

If a required feature is not enabled or there is insufficient capacity, contact an authorized Avaya sales representative to make the appropriate changes.



5.2. Configure LAN interface

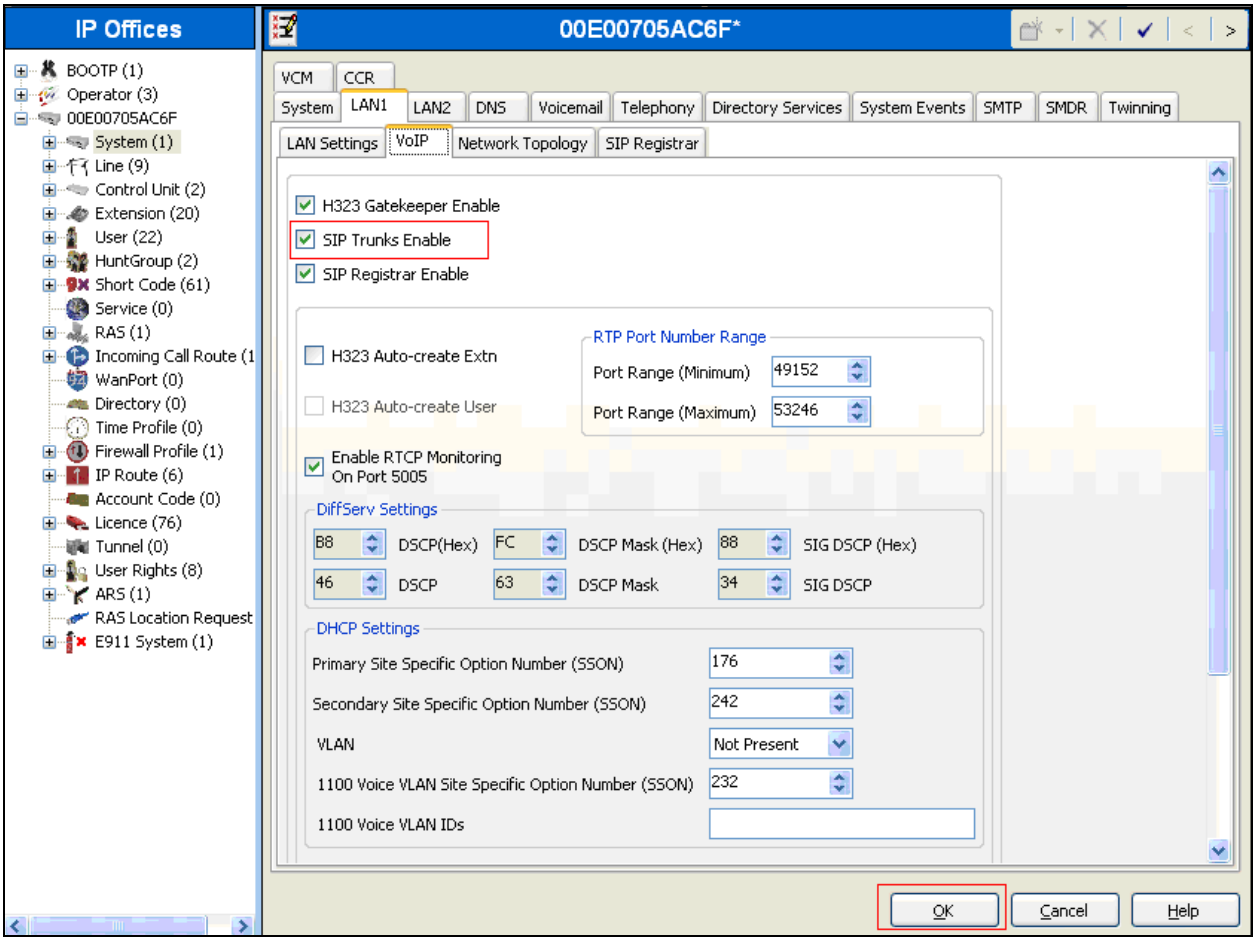
From the configuration tree in the left pane, select **System** to display the System screen in the right pane. Click the **LAN1** tab. Under the **LAN1** tab, select the **LAN Settings** sub-tab, and provide **IP Address** and **IP Mask**.



5.3. Enable SIP Trunk

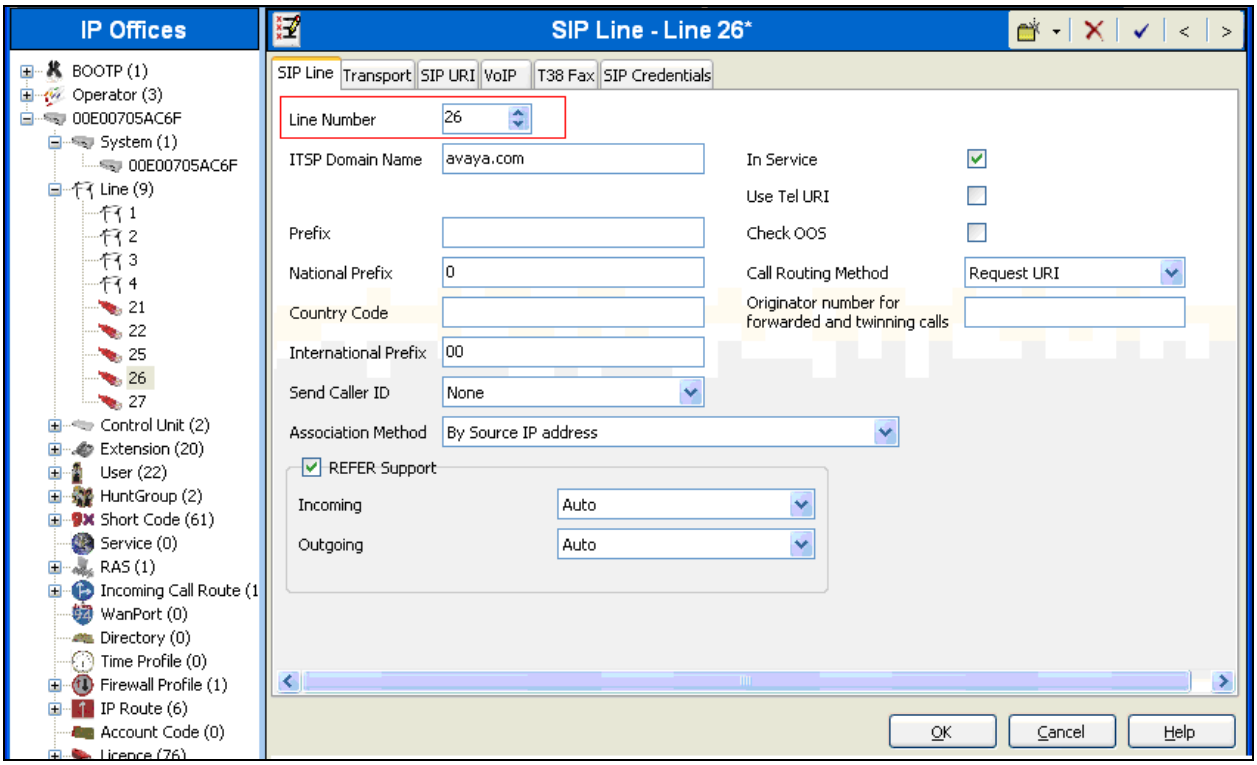
From the configuration tree in the left pane, select **System** to display the System screen in the right pane. Click the **LAN1** tab. Under the **LAN1** tab, select the **VoIP** sub-tab, and check the **SIP Trunks Enable** box. Click the **OK** button.

Note: During the initial configuration of Avaya IP Office, the LAN1 was configured as a private network (LAN) and the LAN2 was configured as a public network (WAN). Avaya IP Office can support SIP extensions on the LAN1 and/or LAN2 interfaces. However, the compliance test used the LAN1 interface for a SIP trunk termination.



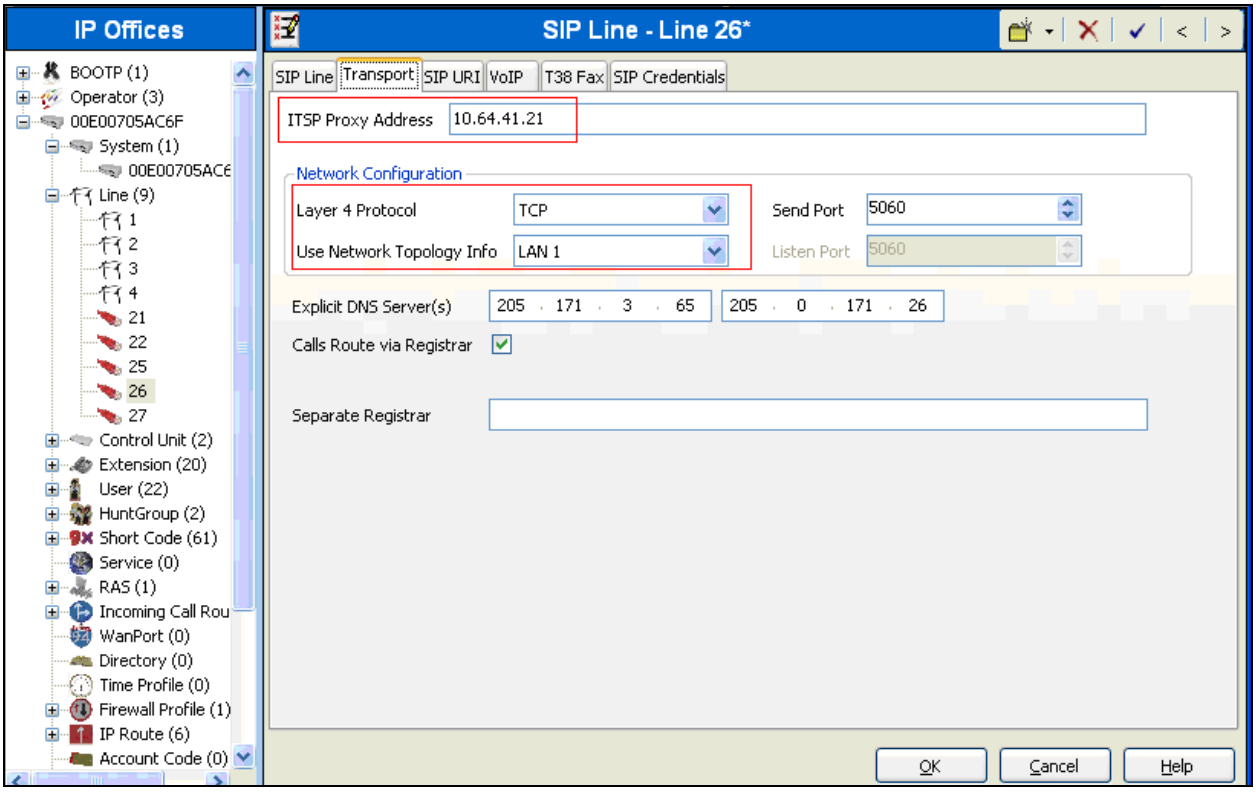
5.4. Create SIP Lines for a SIP Trunk

Select **Line** in the left pane. Using the right mouse click, select **New** ➔ **SIP Line** [not shown], and create a new **Line Number**. During the compliance test, a SIP line (26) was configured.



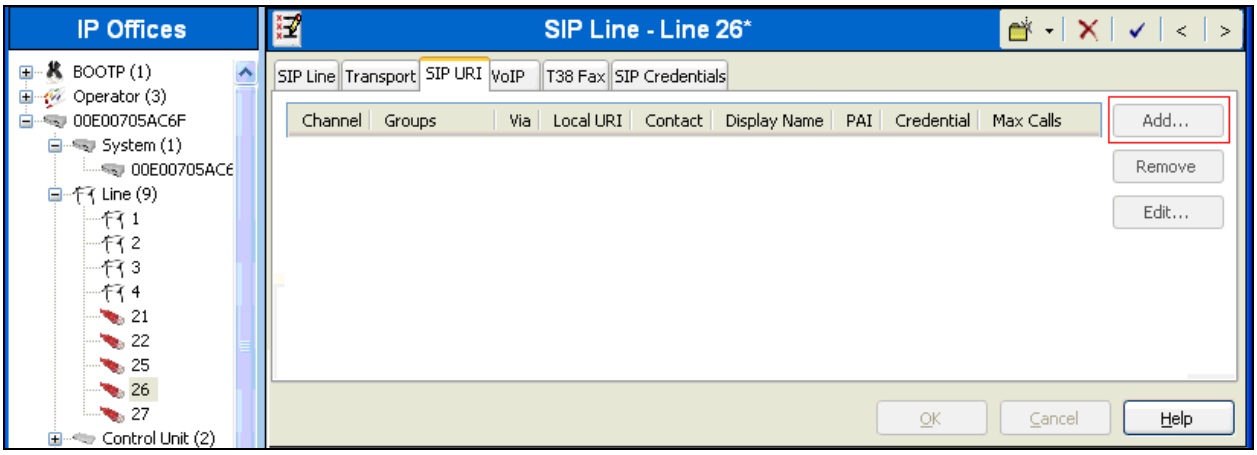
Select the **Transport** sub-tab, and provide the following information:

- **ITSP Proxy Address** – Enter the IP address of the far-end SIP termination point.
- **Layer 4 Protocol** – Select **TCP**.
- **Use Network Topology Info** – Select **LAN1** (LAN interface).

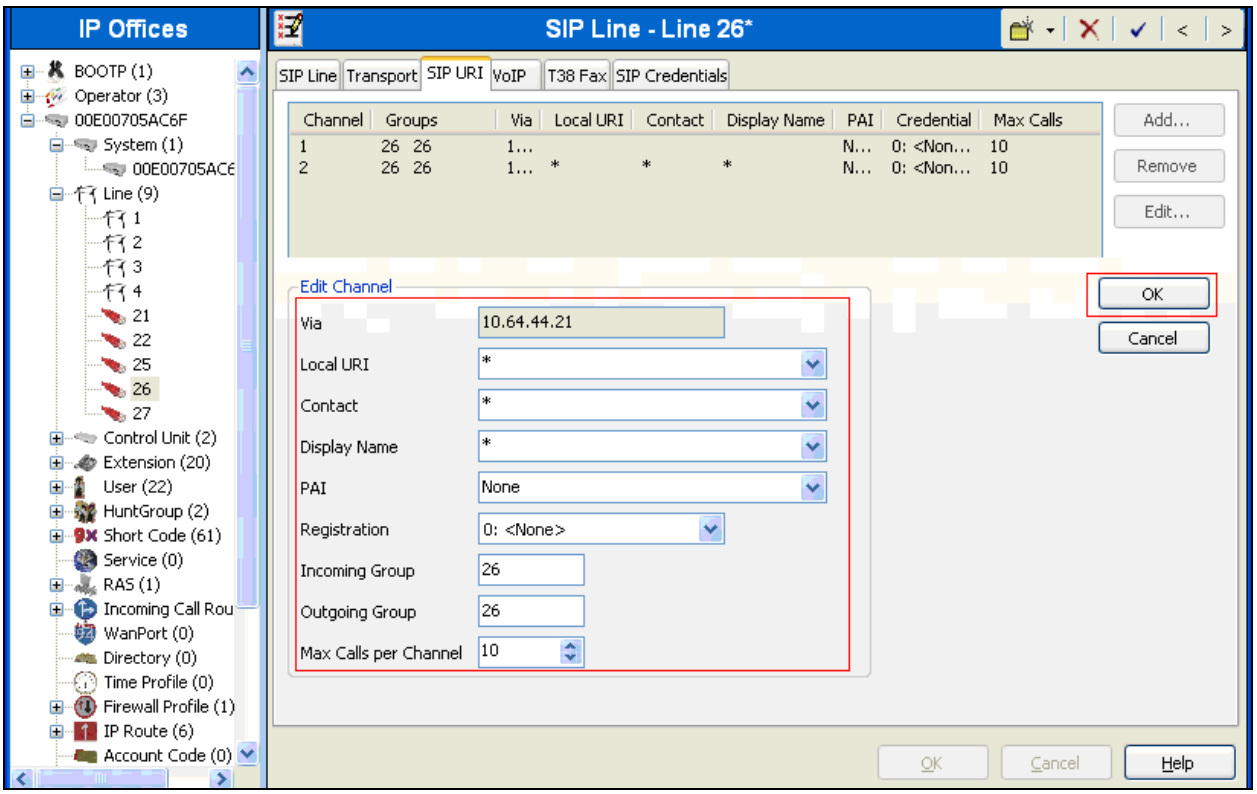


5.5. Configure SIP URI Parameters for the SIP Line

Select the **SIP URI** tab to configure SIP URI parameters for the SIP Line. Click on the **Add** button.



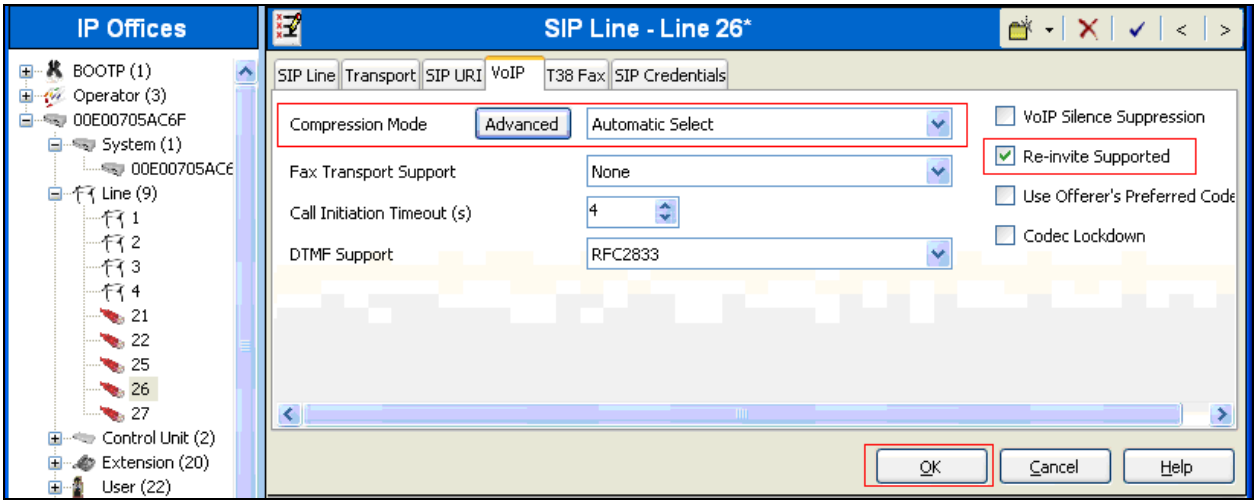
Select * for the **Local URI**, **Contact**, and **Display Name** fields. Enter a unique number for the **Incoming Group** and **Outgoing Group** fields. The **Incoming Group** field will be used for mapping inbound calls from the SIP trunk to local stations. The **Outgoing Group** will be used for routing calls externally via the Short Code configured in **Section 5.7**. Use default values for all other fields. Click the **OK** button.



5.6. Configure VoIP Parameters for the SIP Line

Select the **VoIP** tab to Configure VoIP parameters for the SIP Line. For **Compression Mode**, select **Automatic Select** or the desired codec from the drop-down list. Check **Re-invite Supported** check boxes.

Click the **OK** button.

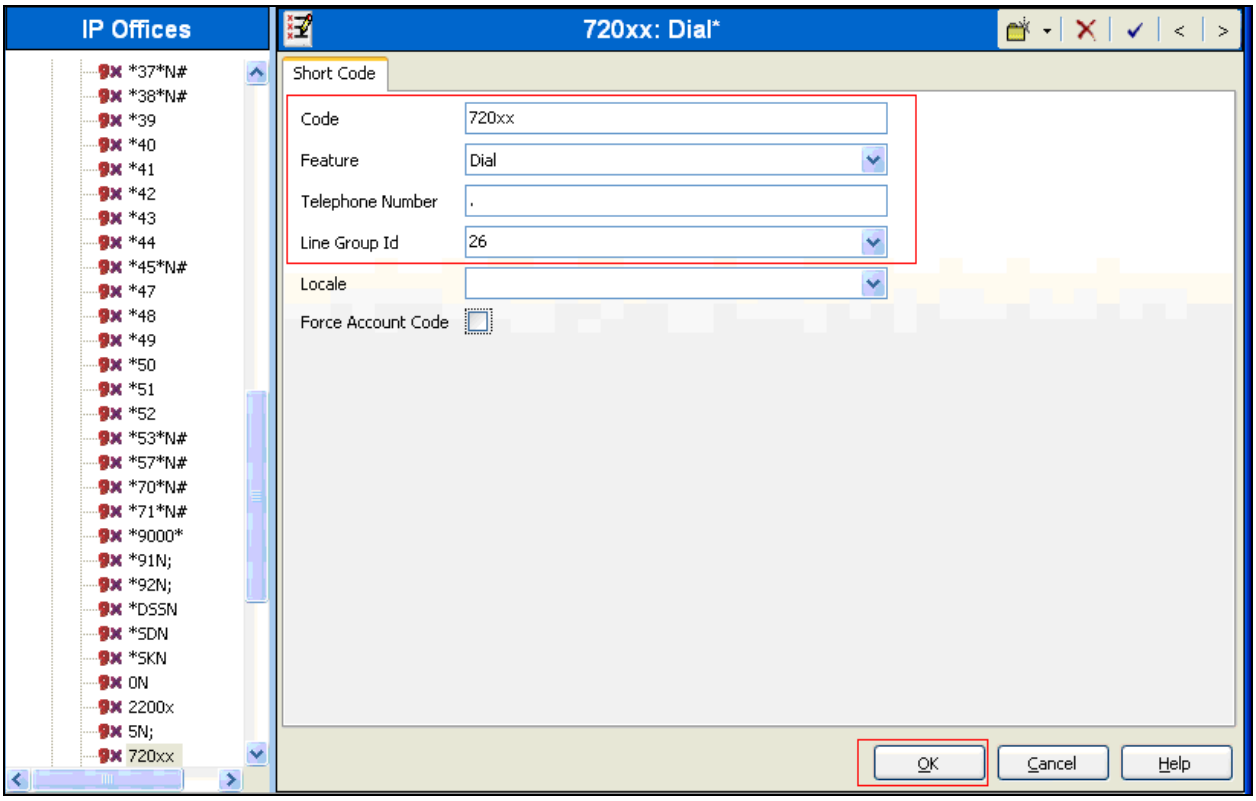


5.7. Configure a Short Code to Route Calls through the SIP trunk

Select **Short Code** in the left panel. Right click and select **Add**. Enter **720xx;** where **[x]** is any number, in the **Code** text box.

Select **Dial** for the **Feature** field. Enter the **Outgoing Group** number created in **Section 5.5** for the **Line Group Id** field. Enter ***** for the **Telephone Number** field. Use default values for all other fields. Click the **OK** button.

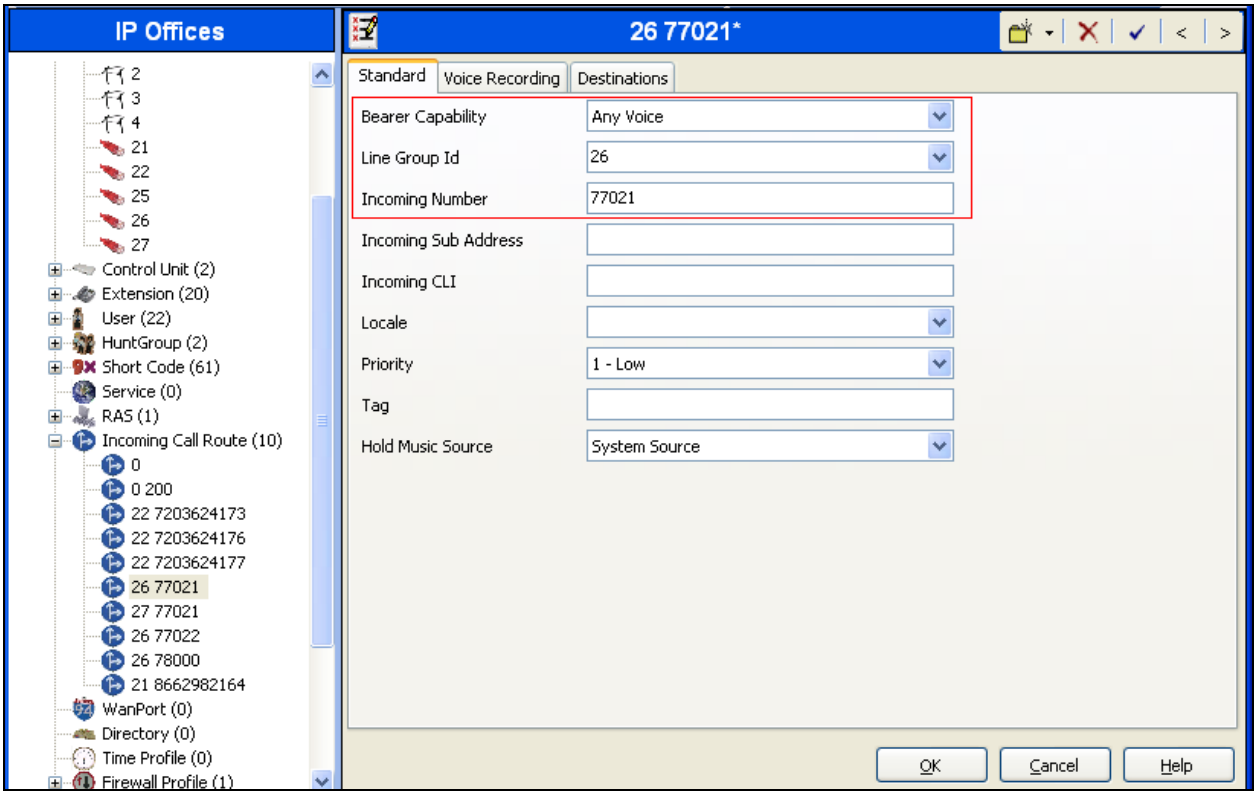
Note: When an extension in 720xx was dialed, the call will be routed thru the SIP trunk 26.



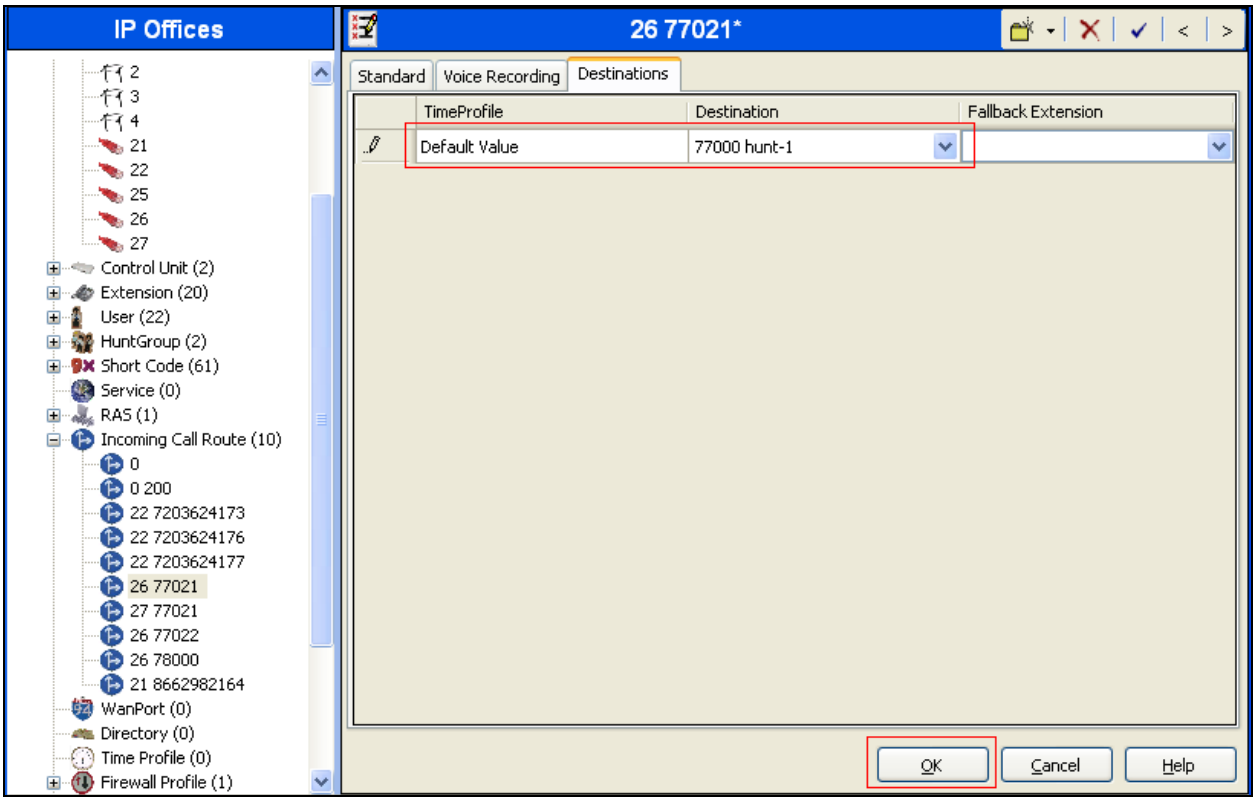
5.8. Create an Incoming Call Route for the Inbound SIP Calls

Select **Incoming Call Route** in the left pane. Right-click and select **New**.
Enter the following:

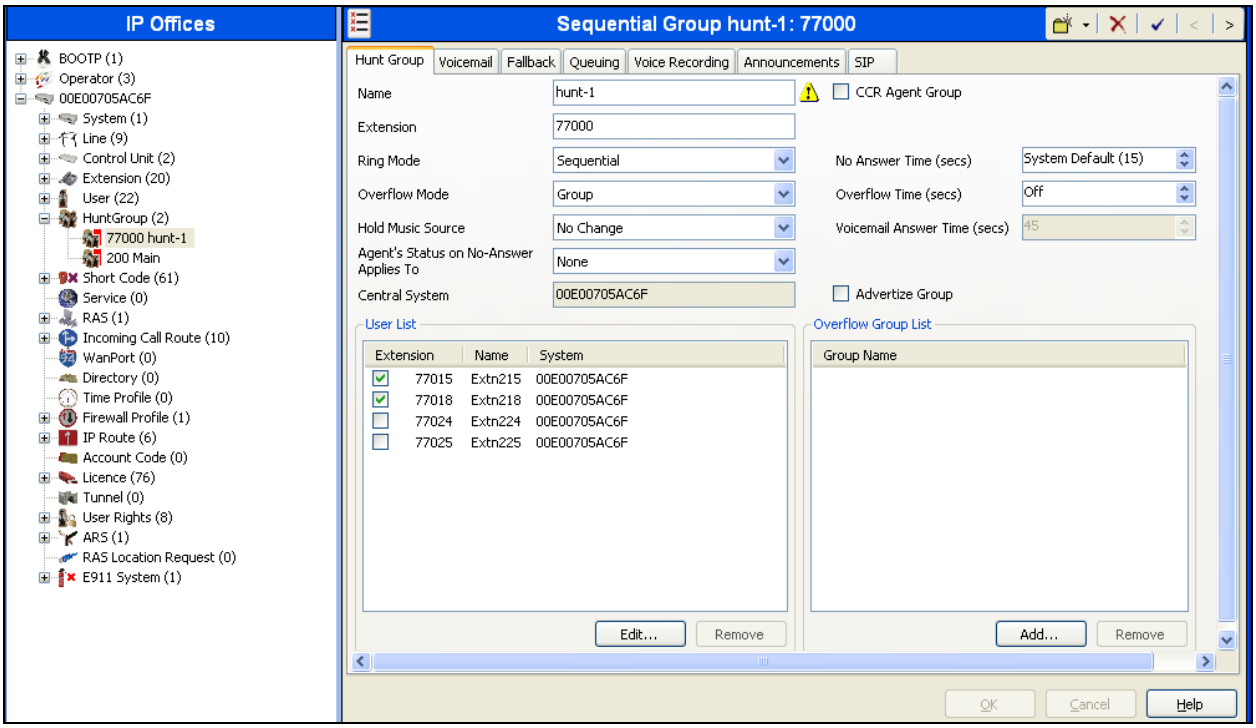
- **Any Voice** for the **Bearer Capability** field.
- Enter the **Incoming Group** number created for the URI in **Section 5.5** in the **Line Group Id** field.
- Enter the extension (ex, 77021), in the **Incoming Number** field.
- Use default values for all other fields.



- Next, navigate to the **Destinations** tab and select the desired local extension number from the drop down list. During the compliance test, the hunt group extension is selected.
- Click the **OK** button.



The following screen shows the corresponding hunt group.



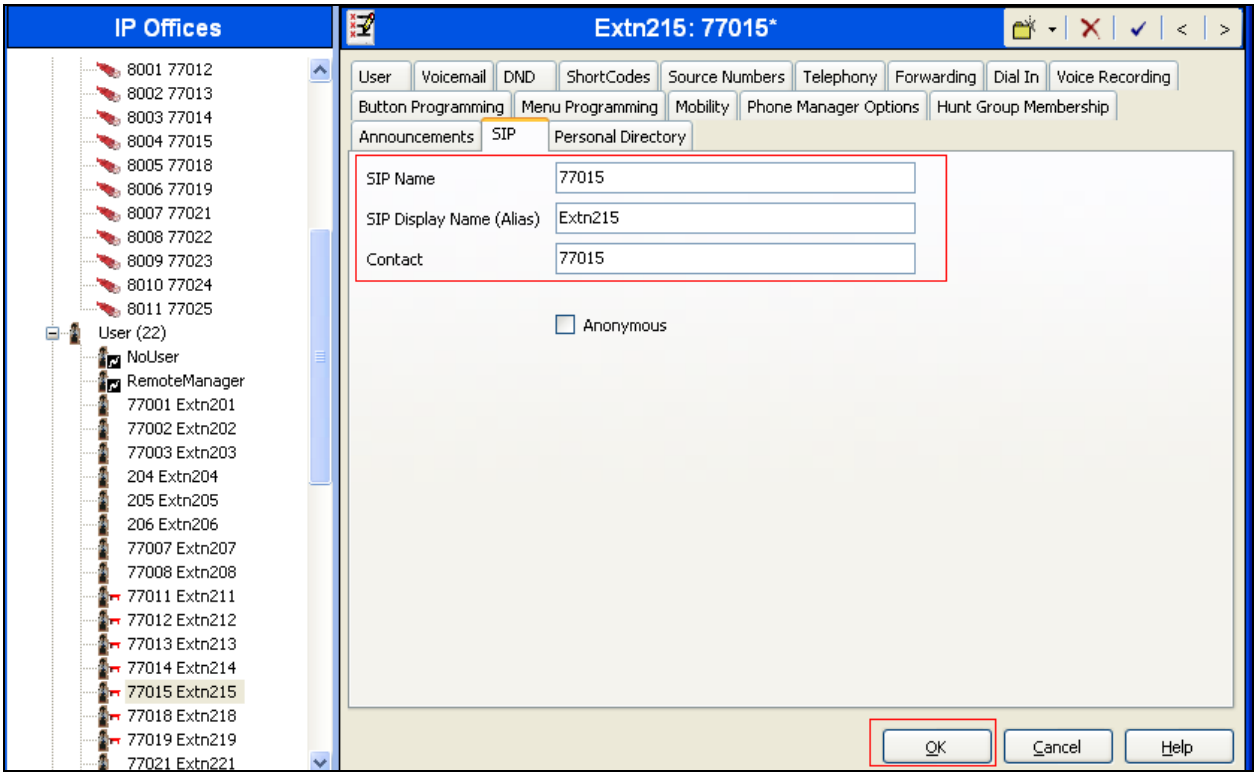
5.9. Configure Users' SIP Names

Select **User** in the left panel. Select the desired user by double-clicking on an entry in the left panel. Select the **SIP** tab.

Modify the **SIP Name** and **Contact** fields to the number that is used for this particular extension. These settings instruct the system to use this number to construct the:

- user part of the SIP URI in the From header of an outgoing SIP INVITE message
- user part of the SIP URI in the Contact header of a SIP INVITE message

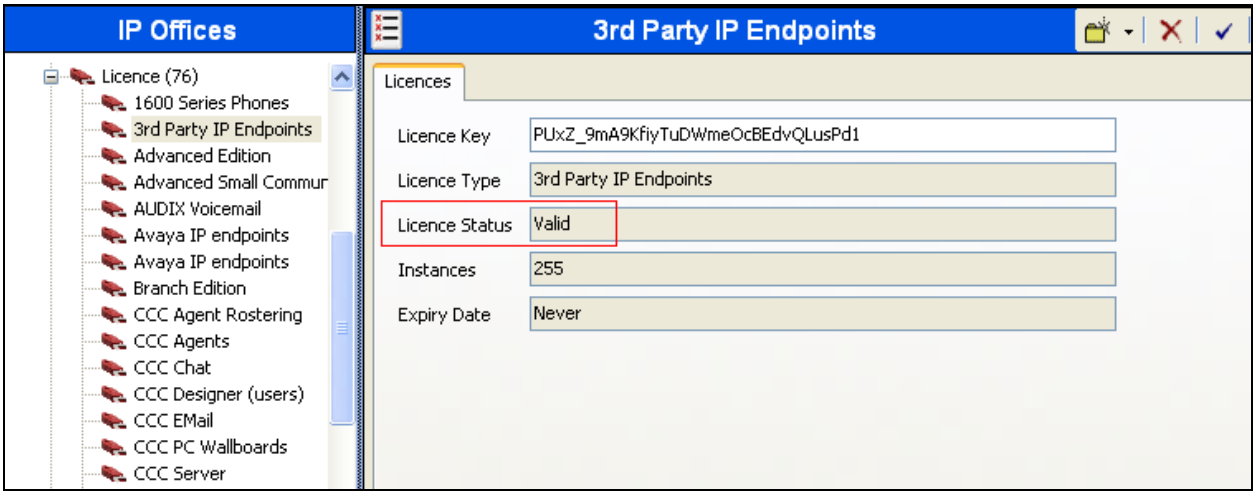
Modify the **SIP Display Name (Alias)** that will be used for the SIP Display info. The other fields can be left as defaults. Click the **OK** button.



5.10. Verify 3rd party IP Endpoint License

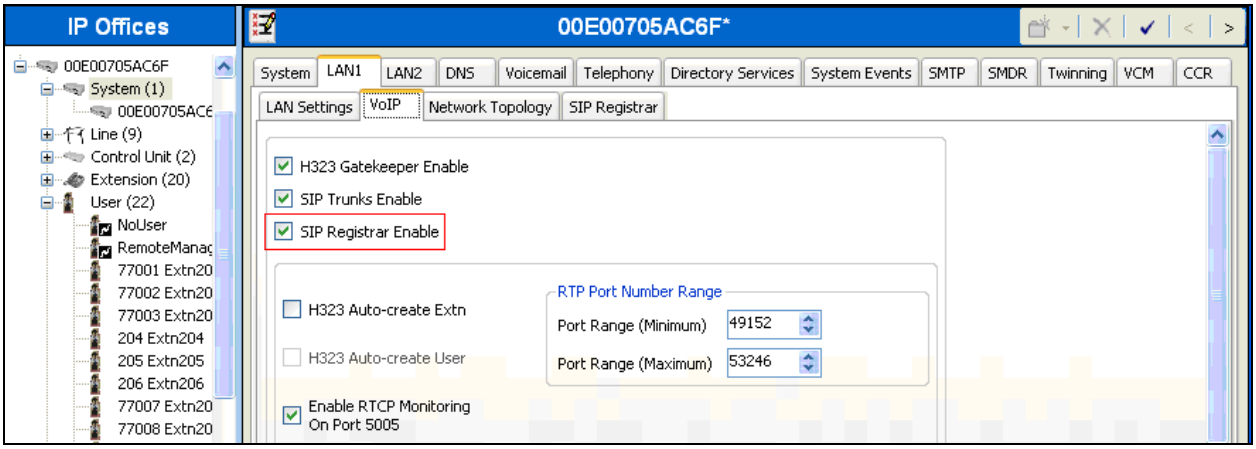
From a PC running the Avaya IP Office Manager application, select **Start → All Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system if there are more than one IP Office system, and log in with the appropriate credentials.

The Avaya IP Office Manager screen is displayed. From the configuration tree in the left pane, select **License → 3rd Party IP endpoints** to display the Avaya IP endpoints screen in the right pane. Verify that the License Status field is set to **Valid**. e-IVR utilizes a 3rd party IP endpoint license.



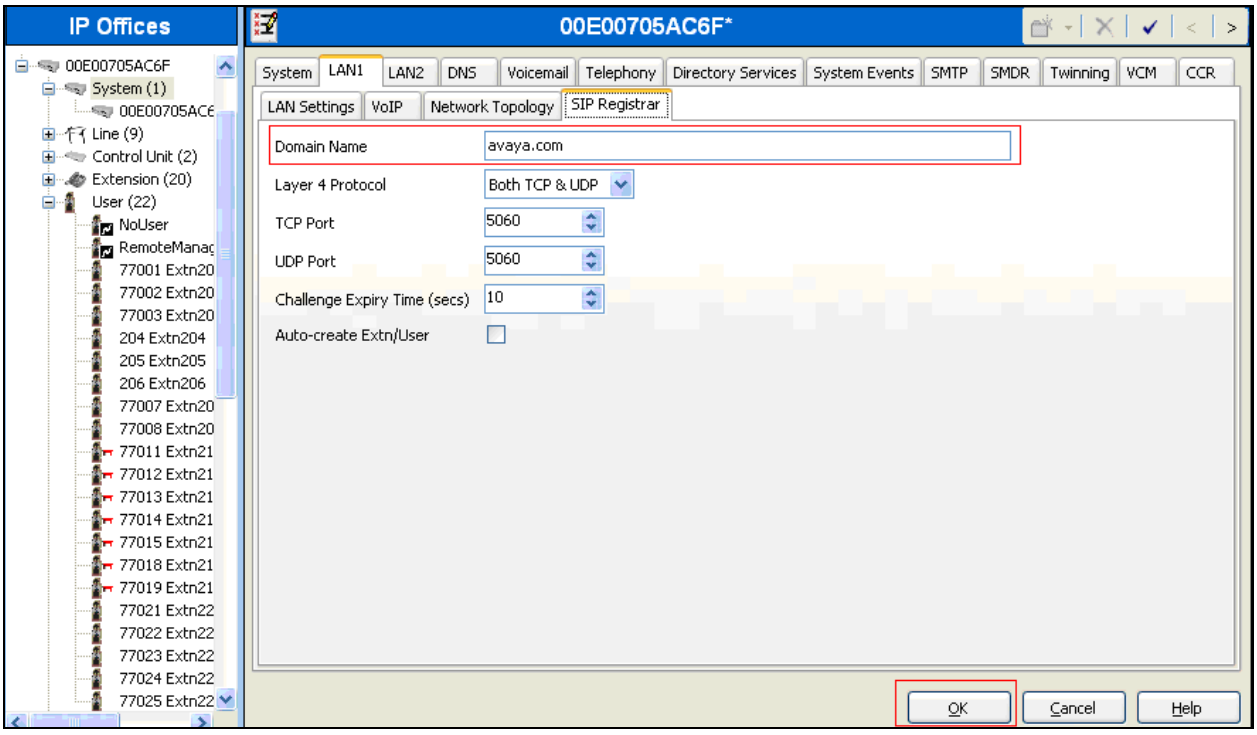
5.11. Administer SIP Registrar

Select the **VoIP** sub-tab. Make certain that **SIP Registrar Enable** is checked, as shown below.



Select the **SIP Registrar** sub-tab, and enter a valid Domain Name for SIP endpoints to use for registration with IP Office. In the compliance testing, the **Domain Name** field was set to **avaya.com**. If the Domain Name field is left blank, then the SIP endpoints uses the LAN IP address for registration.

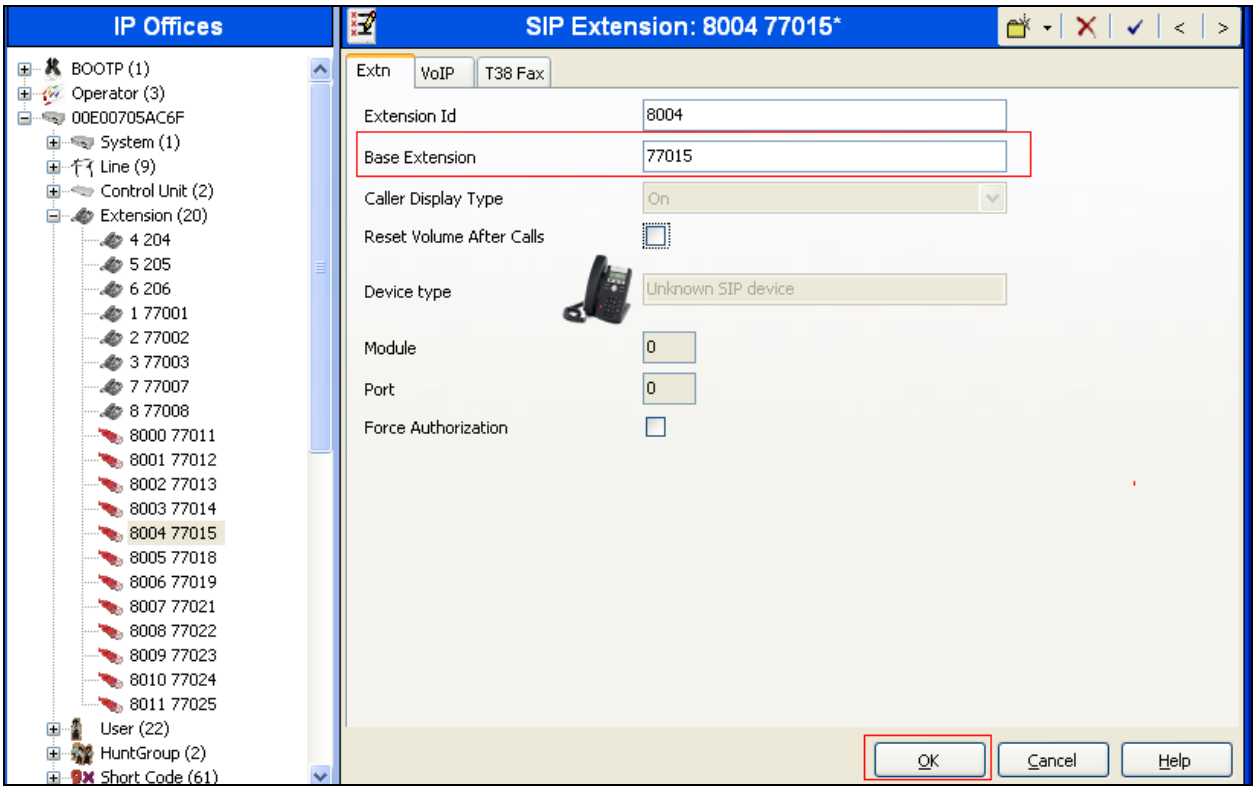
Click the OK button.



5.12. Administer SIP Extension for e-IVR

From the configuration tree in the left pane, right-click on **Extension**, and select **New → SIP Extension** [not shown] from the pop-up list to add a new SIP extension. Enter the desired digits for the **Base Extension** field.

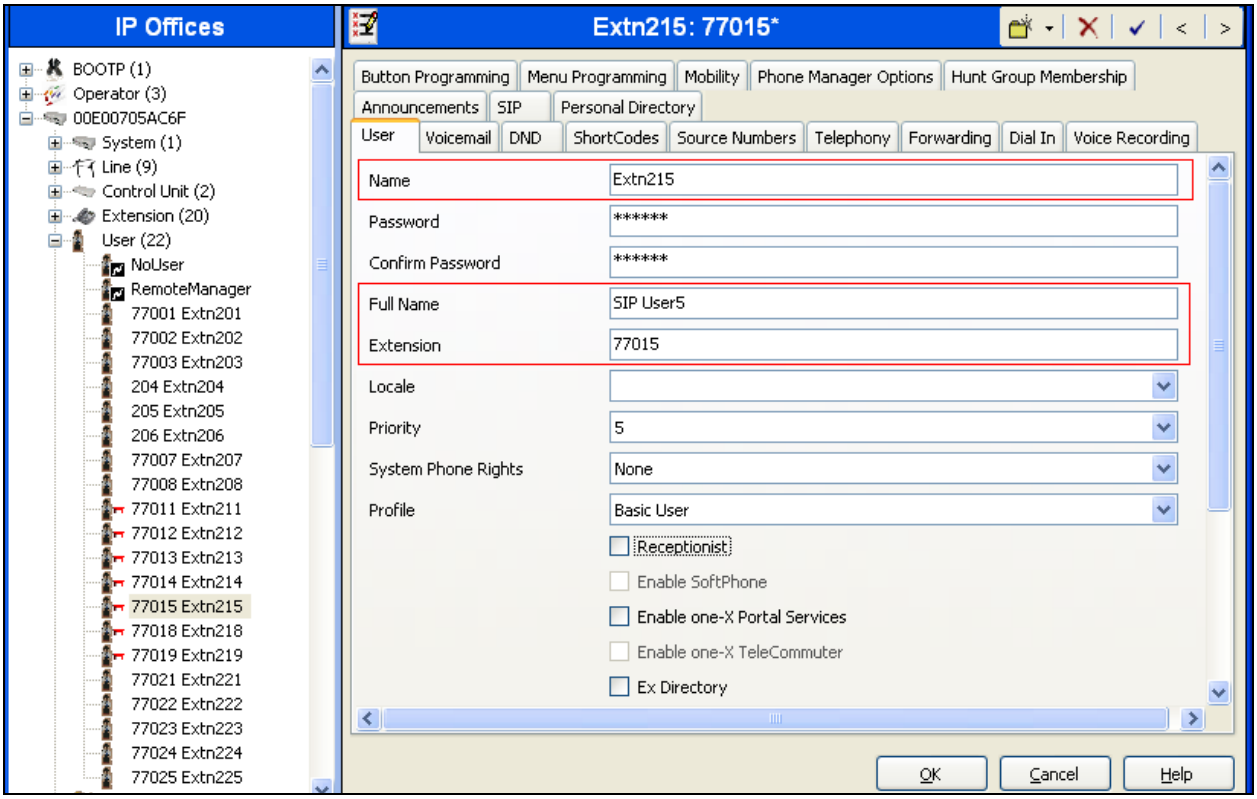
Click the **OK** button.



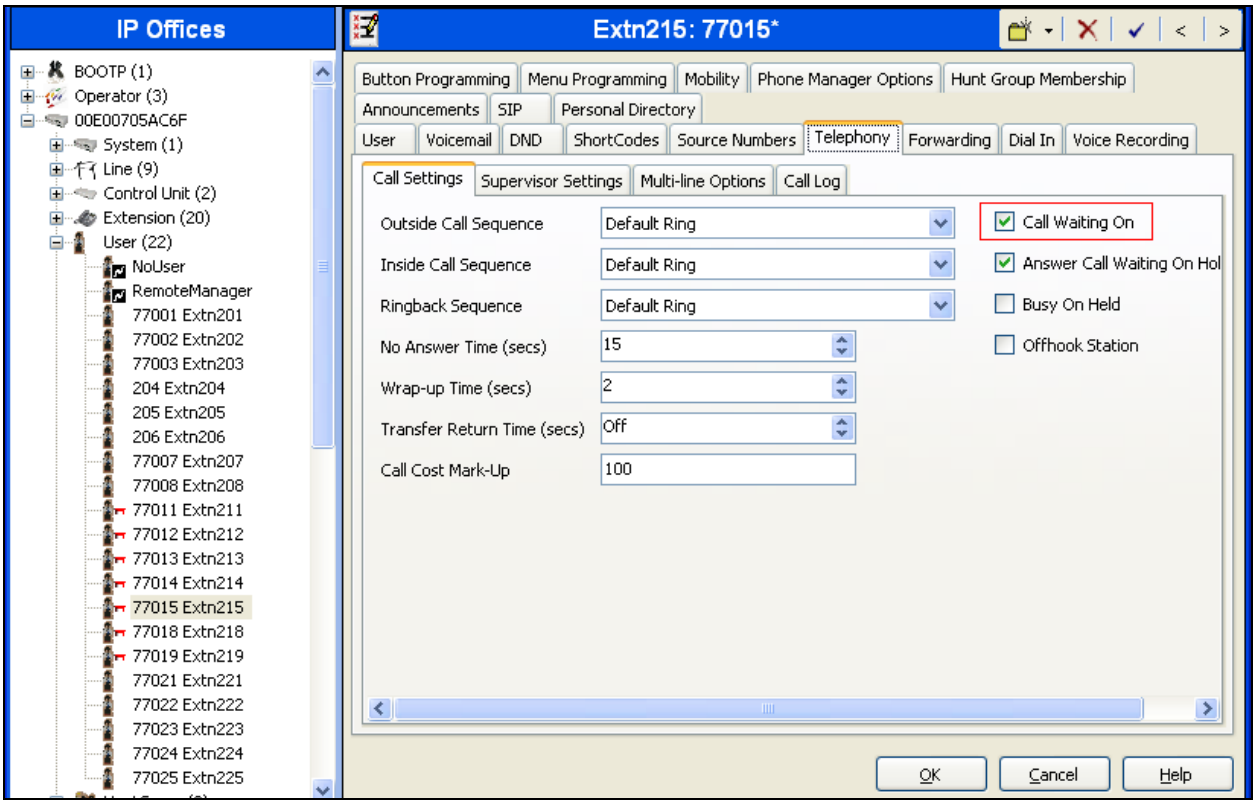
Repeat steps if multiple extensions are needed. During the compliance test, extensions 77015 and 77018 were used.

5.13. Administer SIP Users

From the left pane, right-click on **User**, and select **New** [not shown] from the pop-up list. Enter desired values for the **Name** and **Full Name** fields. For the **Extension** field, enter the SIP extension created previous section.



Select the **Telephony** tab, followed by the **Call Settings** sub-tab. Check the **Call Waiting On** field, as shown below.



Repeat steps if multiple users are needed. During the compliance test, users 77015 and 77018 are used.

After making the changes, click on the floppy disk icon (not shown) to push the changes to the IP Office system and have them take effect

Note: *Changes will not take effect until this step is completed. This may cause a reboot of Avaya IP Office causing service disruption.*

6. Configure the Computer Instruments e-IVR

Computer Instruments installs, configures, and customizes the e-IVR application for their end customers. Thus, this section only describes the interface configuration, so that e-IVR can talk to Avaya IP Office.

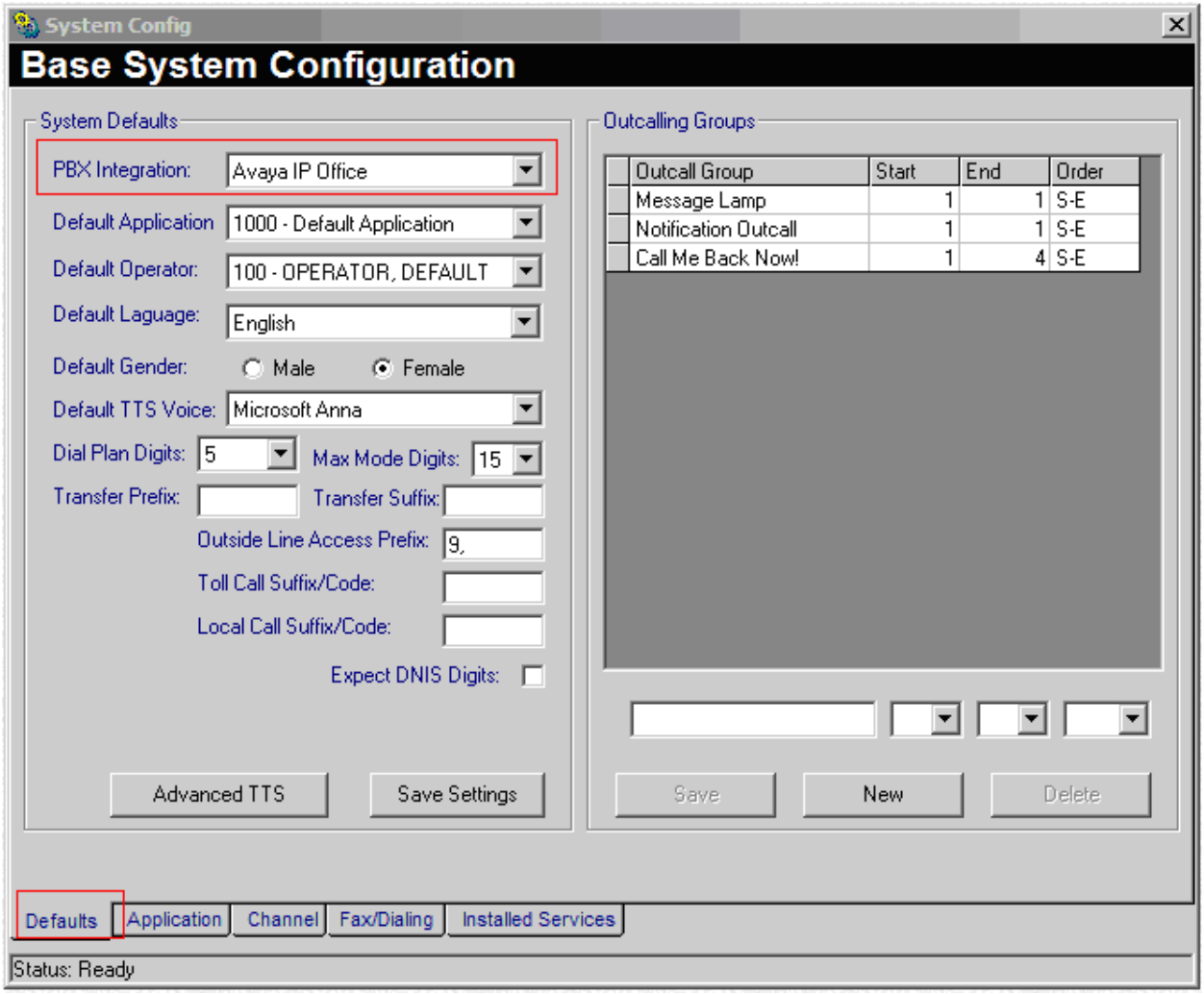
The procedures for setting up e-IVR include the following areas:

- Switch Configuration
- Configure EIVR.INI file

6.1. Modify Base System Configuration

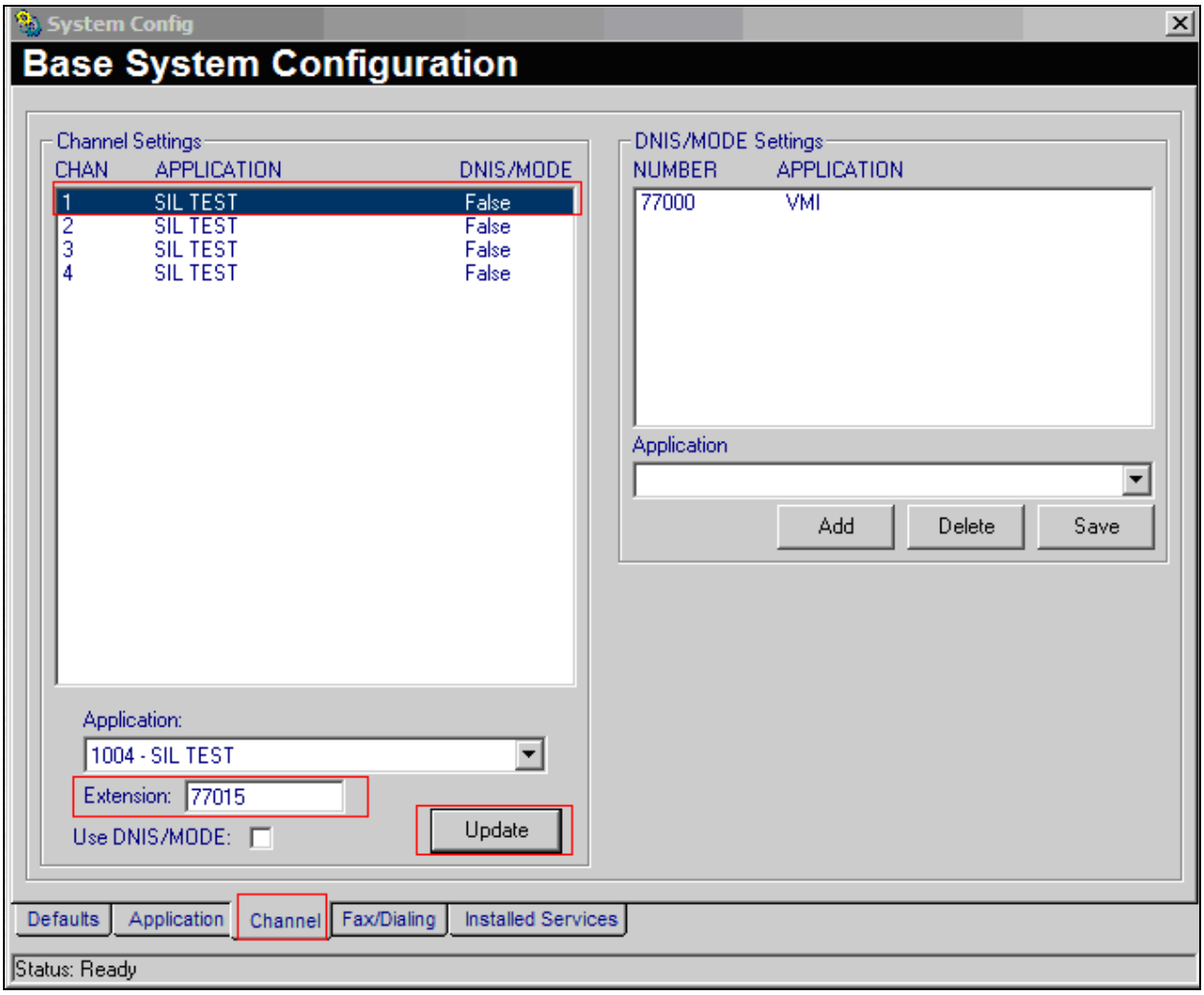
To modify the system configuration, navigate to **Start → Program → CII →Voice Administration.**

The following screen shows the Base System Configuration. Under the **Defaults** tab at the bottom of the screen, select **Avaya IP Office**, using the drop-down list, for the **PBX Integration** field.



Click the **Channel** tab, and map each channel for e-IVR user. During the compliance test, four channel dialogic board was used. Also, channel 1 was mapped to 77015, and channel 2 was mapped to 77018. The following screen shows the mapping of channel 1 to the extension 77015.

Click the **Update** button.



6.2. Configure EIVR.ini file

To configure e-IVR, modify the EIVR.INI file in C:\windows directory. The following screen shows the EIVR.INI file, and modified as highlighted.

```
;   // e-IVR/e-CRM Fusion Control File //

[Server]
DBServerName=127.0.0.1
SysDir=C:\Program Files (x86)\CII\Voice Server\
VoxDir=C:\Program Files (x86)\CII\Voice Server\Speech
WebSite=http://127.0.0.1
WebRoot=C:\InetPub\WWWRoot
SMTPServerName=127.0.0.1
Release=1
SBIC=0
TTSVoice=Microsoft Anna
TTSVoiceUSEnglish.Female=Microsoft Anna

;USED TO COMMENT OUT LINES.

DialogicLevel=1

;;SIP End Points for IP Office
IsSIP=1
GateKeeper=10.64.44.21
SIPDomain=avaya.com
SIPDevPassword=123456
SIPProxy=avaya.com
SIPReferToDomain=10.64.44.21
MaxHeaderSize=512
SIPReInviteContactDomainRet=10.64.43.112
SIPAllowReRegister=1
;;exts 77018  77015
```

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya IP Office and e-IVR.

7.1. Verify Avaya IP Office

From a PC running the Avaya IP Office Monitor application, select **Start → Programs → IP Office → Monitor** to launch the application. From the **Avaya IP Office R7 SysMonitor** screen, select **Status → SIP Phone Status** from the top menu and verify that there is an entry for each SIP user configured in **Section 5.13.**

8. Conclusion

These Application Notes describe the procedures required to configure Computer Instruments e-IVR, as a SIP endpoint, to interoperate with Avaya IP Office as a SIP endpoint. Computer Instruments e-IVR successfully passed compliance testing.

9. Additional References

The following Avaya product documentation can be found at http://support.avaya.com

[1]*IP Office 7.0 Standard Version Installation,* Issue 23k, May 2011, Document Number 15-601042

[2]*IP Office Release 7.0 Manager 9.0*, Issue 26h, May 2011, Document Number 15-601011

Computer Instruments product documentation can be requested at http://www.instruments.com/docsearch/public/index.jsp

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.