Avaya Solution & Interoperability Test Lab

Application Notes for T-Metrics Contact Center with Avaya IP Office Server Edition – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for T-Metrics Contact Center to interoperate with Avaya IP Office Server Edition.

T-Metrics Contact Center is a multi-channel contact center solution that can handle voice, email, web chat, video, social media, and SMS contacts. The compliance testing focused on the voice integration with Avaya IP Office Server Edition using the SIP user interface.

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.

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1. Introduction

These Application Notes describe the configuration steps required for T-Metrics Contact Center to interoperate with Avaya IP Office Server Edition. Contact Center is a multi-channel contact center solution that can handle voice, email, web chat, video, social media, and SMS contacts. The compliance testing focused on the voice integration with IP Office Server Edition using the SIP user interface.

The IP Office Server Edition configuration consisted of two IP Office systems, a primary Linux server and an expansion IP500V2 that were connected via Small Community Network (SCN) trunks.

The Contact Center solution consisted of the Contact Center server, ACD Agent Module and SIP Softphone client applications running on the agent and supervisor desktops.

The Contact Center server integrated with the primary IP Office system with virtual SIP users, and the SIP Softphone on each agent and supervisor desktop integrated with the local IP Office system as a SIP user. The agent used the ACD Agent Module application to log into Contact Center and to set agent status, with ACD functionality provided by Contact Center.

Incoming calls from PSTN to a group on IP Office were routed over an available virtual SIP user group member to the Contact Center server. Contact Center played a greeting announcement, collected DTMF for menu navigation, and used SIP REFER to transfer calls to available agents. Agents used the SIP Softphone application to answer and control calls at the desktops.

The conference feature was accomplished via the SIP Softphone application by local bridge of talk paths for active calls at the agent desktop. The supervisor monitor feature was accomplished by the ACD Agent Module application with proprietary implementation that does not involve IP Office.

2. General Test Approach and Test Results

The feature test cases were performed manually. Upon start of the Contact Center application, the server automatically registered virtual SIP users with the primary IP Office system. For the Contact Center agents and supervisor, the SIP Softphone client application automatically registered as a SIP user with the local IP Office system as part of application launch.

For the manual part of testing, incoming calls were made to the groups configured on the primary IP Office system that terminated to Contact Center and transferred by Contact Center to available agents. Manual call controls from the SIP Softphone client application were exercised to verify remaining features such as answering and transferring of calls.

The serviceability test cases were performed manually such as disconnecting/reconnecting the Ethernet connection to the Contact Center server and/or client.

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

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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 Contact Center did not include use of any specific encryption features as requested by T-Metrics.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on Contact Center:

- Proper handling of SIP exchanges including registration, DTMF, OPTIONS, G.711MU, codec negotiation, and media shuffling.

- Proper handling of call scenarios including incoming calls to different groups, screen pop, answer, decline, hold/resume, mute/unmute, drop, abort, blind/supervised transfer, supervised conference, non-ACD call, queuing, outgoing call, multiple skills, multiple calls, multiple agents, long duration, park/unpark, do not disturb setting at the softphone, and recording of basic calls.

The feature testing call flows included calls within a single IP Office system, as well as calls between the two IP Office systems.

The serviceability testing focused on verifying the ability of Contact Center to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to the Contact Center server and client.

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2.2. Test Results

All test cases were executed, and the following were observations on Contact Center:

- By design, the ACD Agent Module is only populated for ACD calls. An ACD call that has been transferred or conferenced is no longer considered ACD by Contact Center, and therefore the data from the original agent's ACD Agent Module is not populated on the transferred-to and conference-to agent desktop.

- Voicemail and MWI features are not supported for the Contact Center agents and supervisors.

- The special character "#" is not supported by SIP Softphone as part of short code dial string.

- Should the registration fail for the first virtual SIP user, no attempt is made to register subsequent virtual SIP users. Contact Center can be configured to auto generate and upload history files upon specific SIP error types for T-Metrics Support to review and become aware of such issues.

- Should the agent desktop experience a 60 seconds Ethernet disruption with an active call that was dropped post recovery, the SIP Softphone may continue to reflect an active call. The agent can restart the ACD Agent Module and SIP Softphone applications to resolve the problem and reboot the desktop and reach out to T-Metrics Support should problem continue to linger.

2.3. Support

Technical support on Contact Center can be obtained through the following:

- **Phone:** +1 (704) 525-5551 opt 2
- **Email:** support@tmetrics.com
- **Web :** http://service.tmetrics.com/servicedesk/customer/user/login

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3. Reference Configuration

The configuration used for the compliance testing is shown in **Figure 1**. Each IP Office system has connectivity to the PSTN, for testing of cross system PSTN scenarios.

As shown in **Figure 1**, SIP users were used between the Contact Center server with the primary IP Office system, and between each SIP Softphone client application with the local IP Office system. There is also connectivity between each ACD Agent Module client application with the Contact Center server.

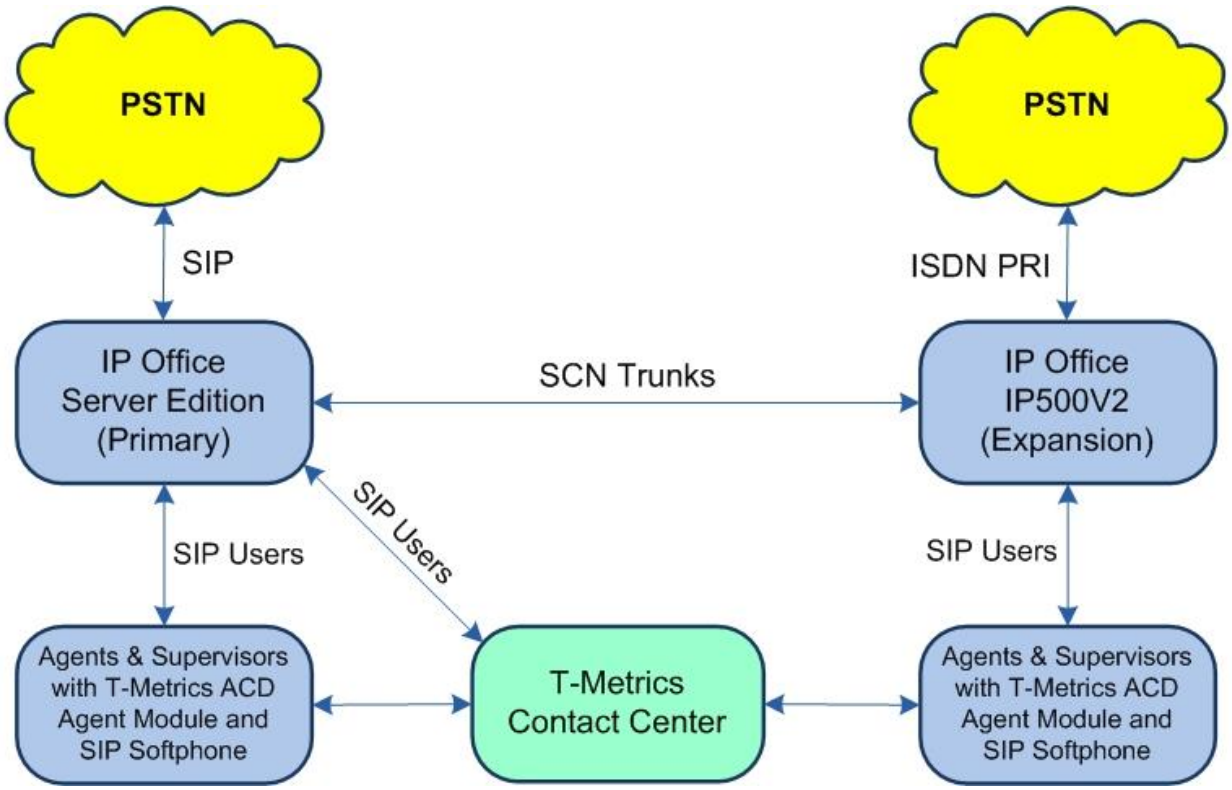

Figure 1: Compliance Testing Configuration

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4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition (Primary) in Virtual Environment	11.0.4.1.0
Avaya IP Office on IP500V2 (Expansion)	11.0.4.1.0
T-Metrics Contact Center on Windows Server 2016 • ACD Controller Module • DigiSIP Module	Standard 5.0 4.0
T-Metrics ACD Agent Module and T-Metrics SIP Softphone on Windows 10 Pro	19 Aug 19 n04 Sep 19

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

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5. Configure Avaya IP Office

This section provides the procedures for configuring the IP Office systems. The procedures include the following area:

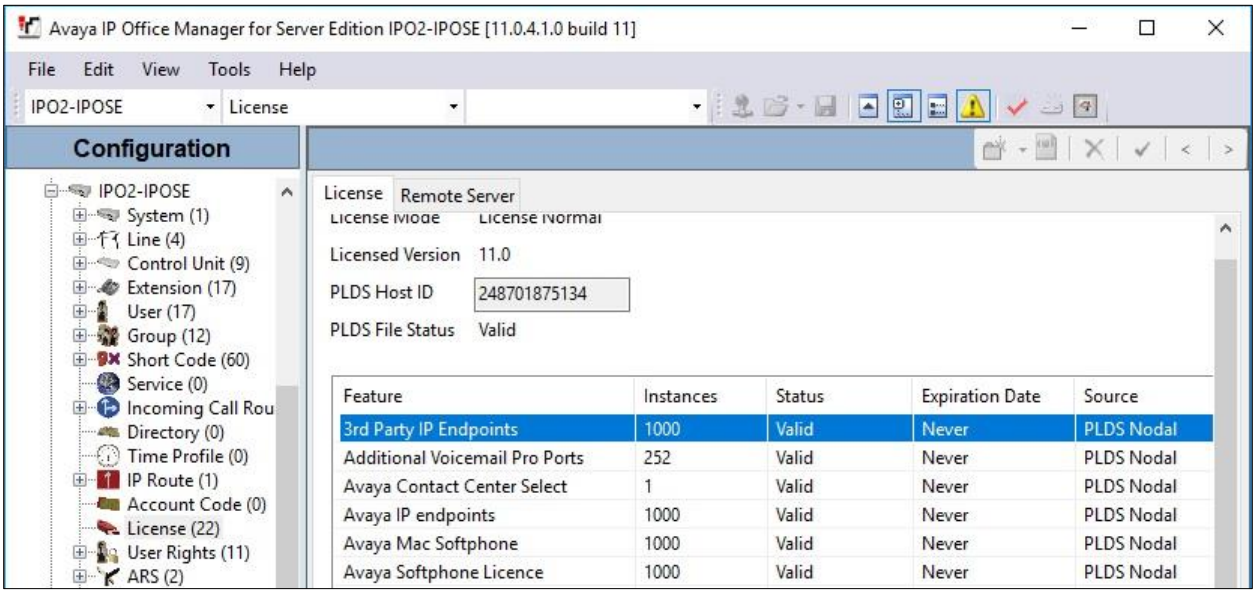
- Verify license
- Administer system
- Administer extension
- Administer user
- Administer group

5.1. Verify License

From a PC running the IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the application. Select the proper primary IP Office system, and log in using the appropriate credentials.

The **Avaya IP Office Manager for Server Edition IPO2-IPOSE** screen is displayed, where **IPO2-IPOSE** is the name of the primary IP Office system.

From the configuration tree in the left pane, select **License** under the IP Office system, in this case "IPO2-IPOSE", followed by **License** to display licenses in the right pane. Verify that there is sufficient license for **3rd Party IP Endpoints** as shown below.



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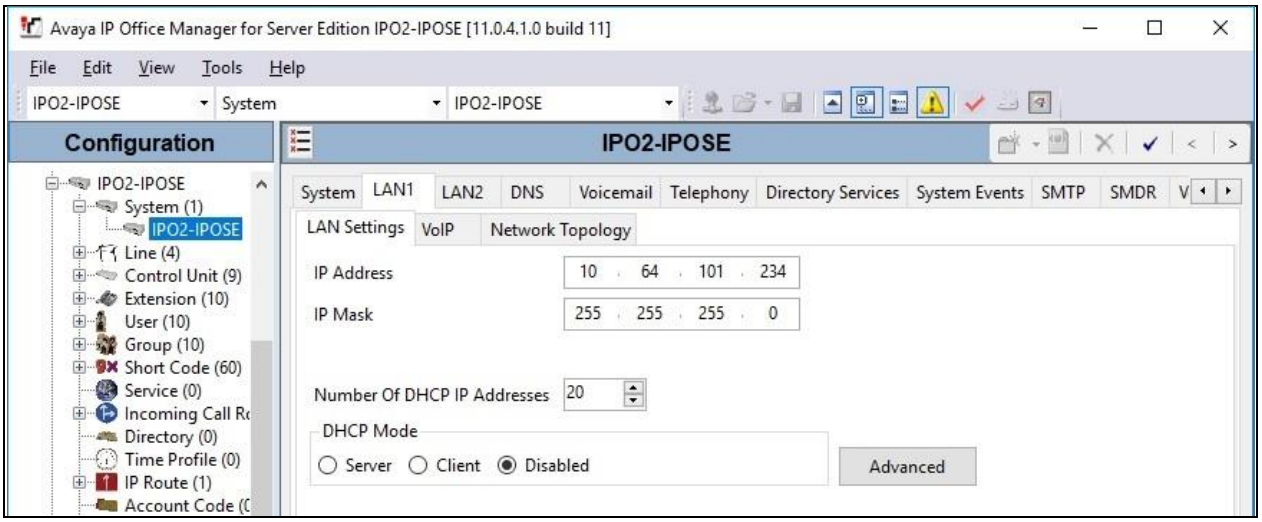
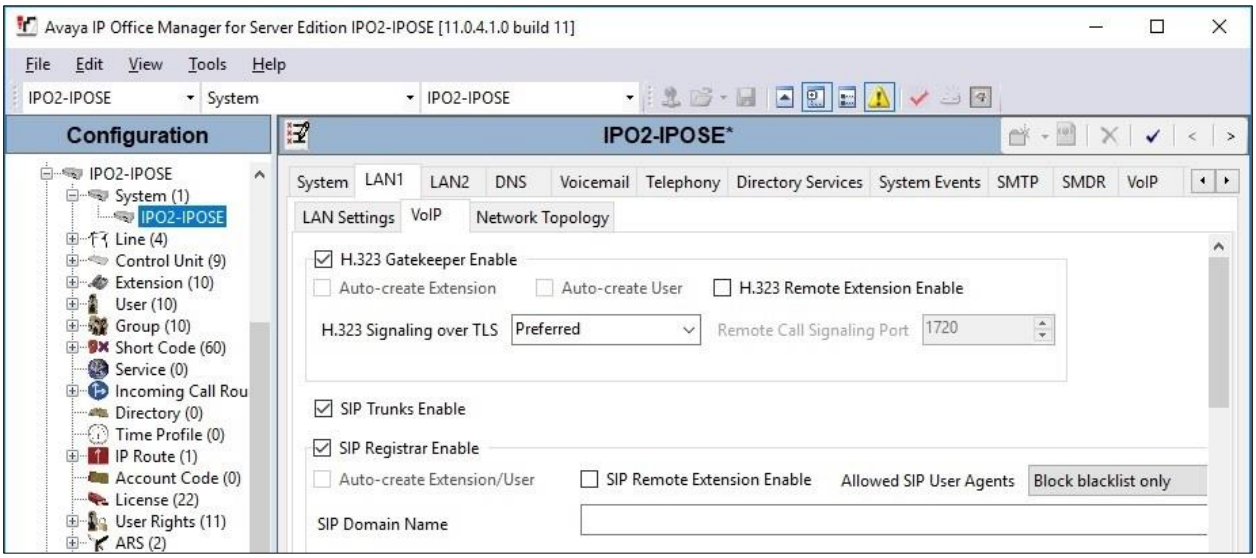
5.2. Administer System

From the configuration tree in the left pane, select **System** under the primary IP Office system to display the system screen in the right pane.

Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure Contact Center. Note that IP Office can support SIP on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.



Select the **VoIP** sub-tab. Make certain that **SIP Registrar Enable** is checked as shown below. Retain the default values in the remaining fields.



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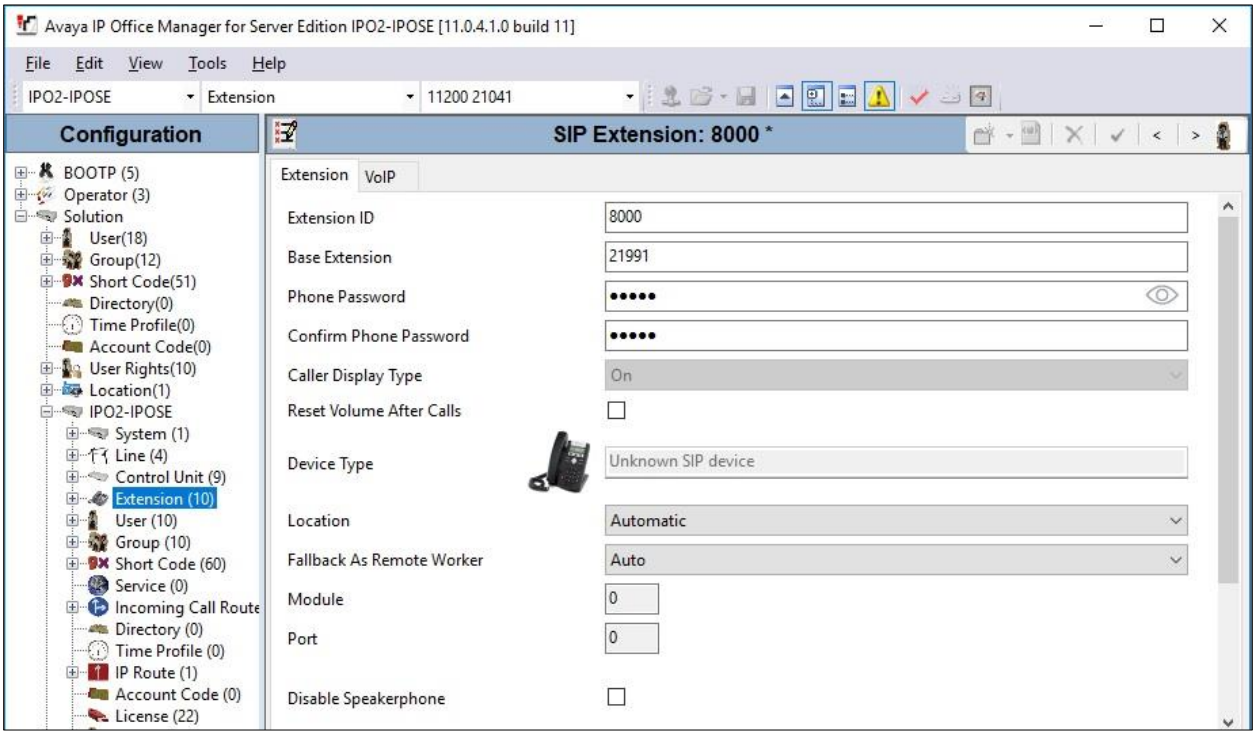
5.3. Administer Extension

From the configuration tree in the left pane, right-click on **Extension** under the primary IP Office system, and select **New → SIP Extension** from the pop-up list to add a new SIP extension.

For **Base Extension**, enter an available extension number for the first virtual SIP, in this case "21991".

Enter desired password for **Phone Password** and **Confirm Phone Password**.



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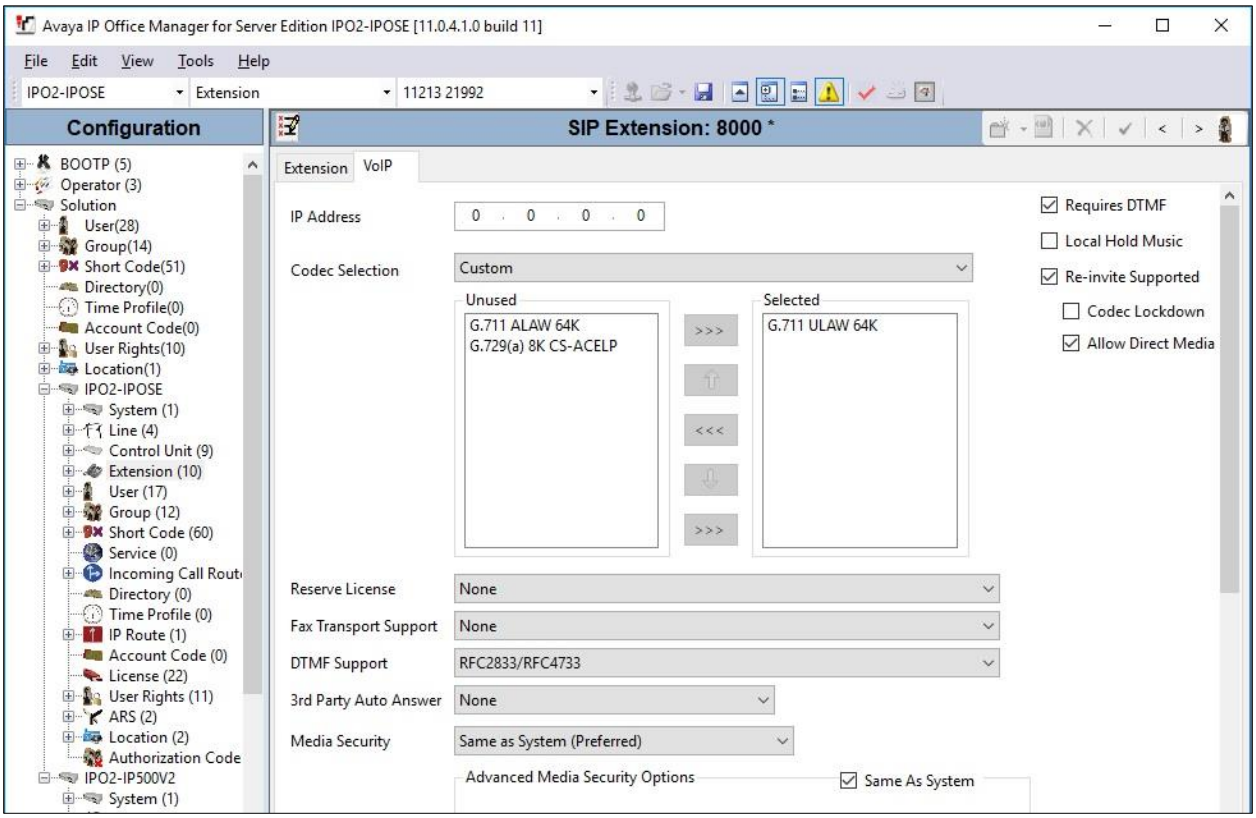
Select the **VoIP** tab. If **Requires DTMF** is shown, then check the parameter. Note that this parameter appears only when the associated parameter **Ignore DTMF Mismatch for Phones** is enabled for the system.

For **Codec Selection**, select "Custom". Retain only the **G.711 ULAW 64K** codec in the **Selected** column, which is the only codec supported by Contact Center.

Retain the default values in the remaining fields.



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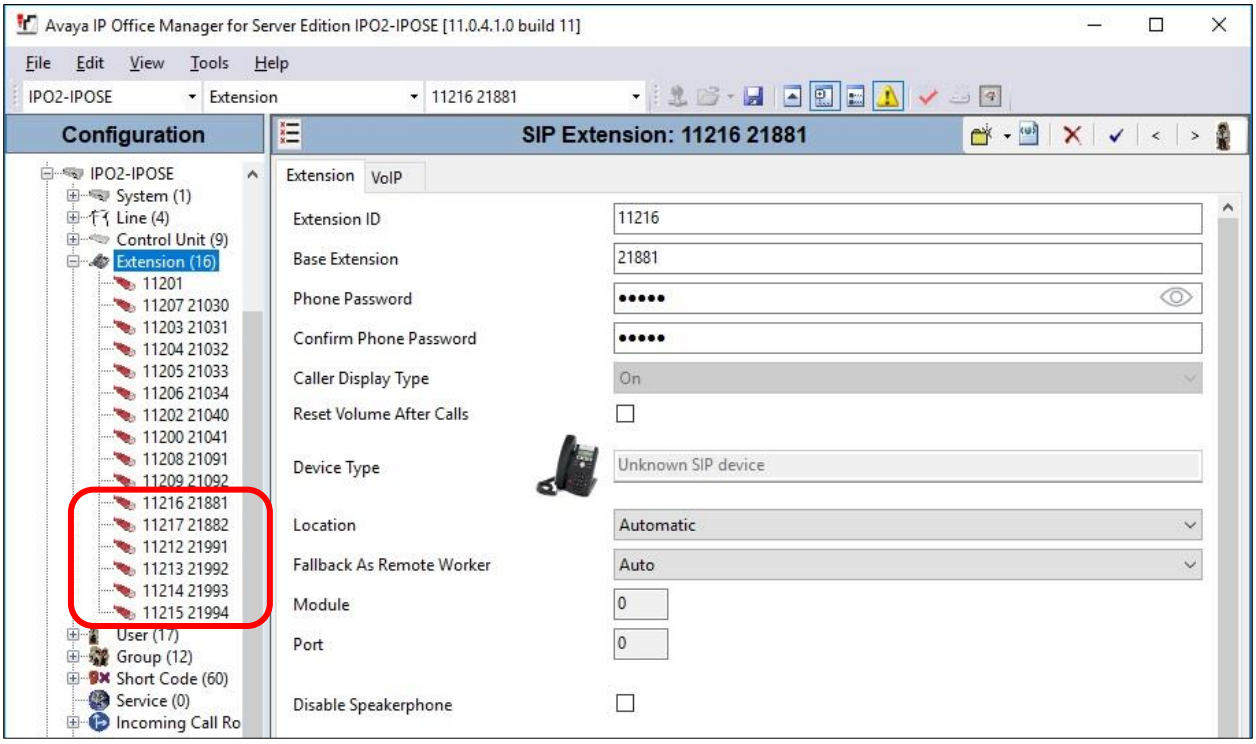
Repeat this section to add all virtual SIP extensions on the primary IP Office system. In the compliance testing, four extensions "21991-4" were configured as shown below.

Repeat this section to add all agent and supervisor extensions on the primary IP Office and leave the **Requires DTMF** parameter at the default value if appears. In the compliance testing, two extensions "21881" and "21882" were configured as shown below. The same two agent extensions also doubled up as supervisors in the testing with supervisor permissions assigned on Contact Center.

Repeat this section to add all agent and supervisor extensions on the expansion IP Office and leave the **Requires DTMF** parameter at the default value if appears. In the compliance testing, two extensions "22881" and "22882" were configured (not shown). The same two agent extensions also doubled up as supervisors in the testing with supervisor permissions assigned on Contact Center.



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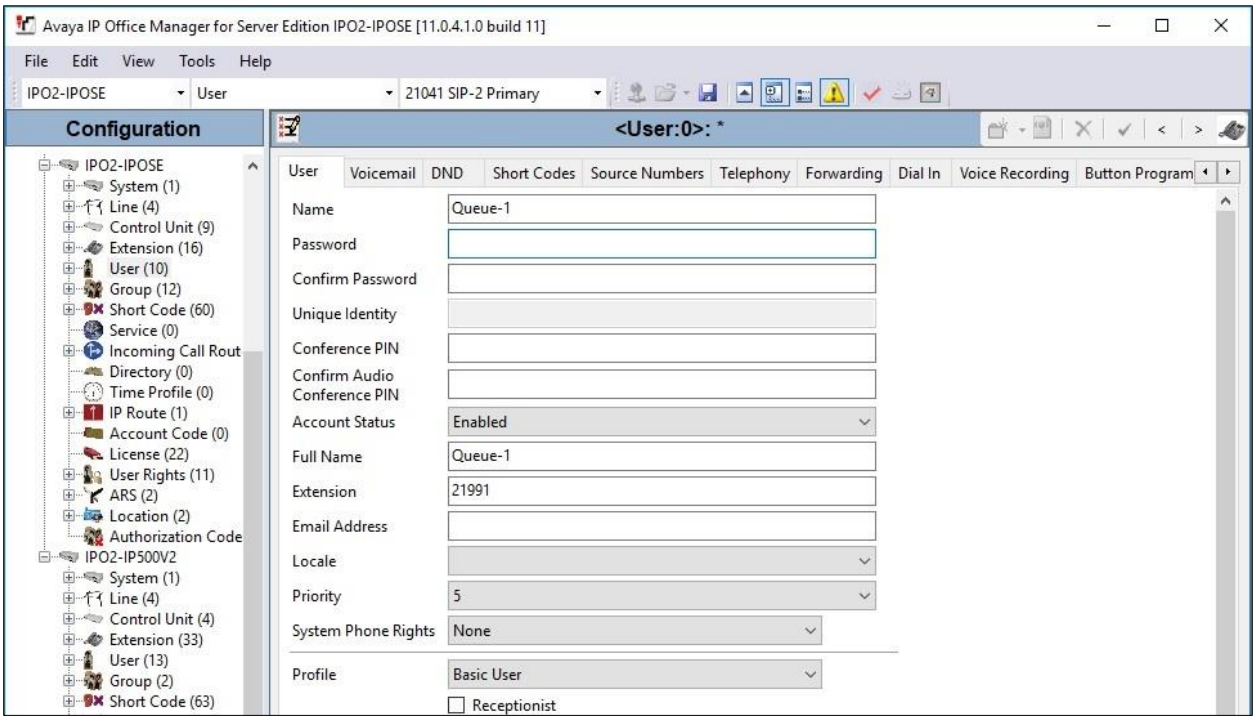
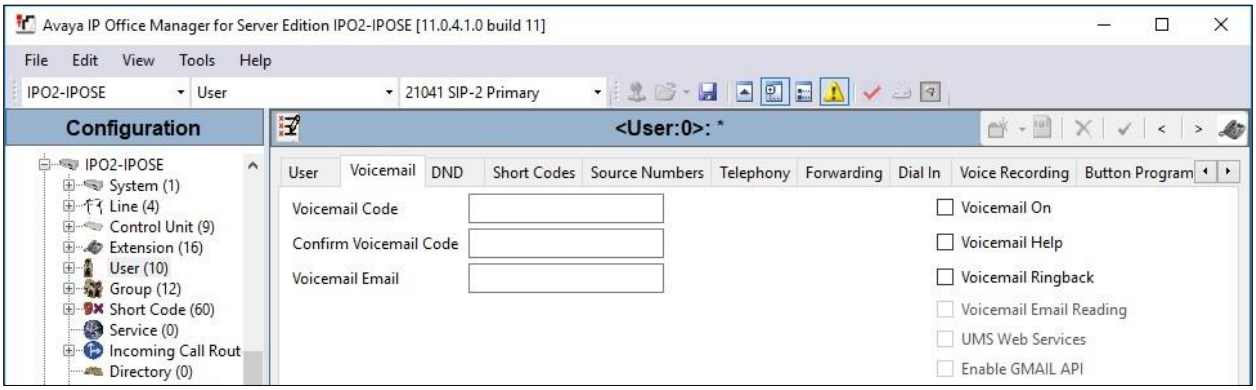
5.4. Administer User

From the configuration tree in the left pane, right-click on **User** under the primary IP Office system, and select **New** from the pop-up list. For **Name** and **Full Name**, enter desired values for the first virtual SIP. For **Extension**, enter the first virtual SIP base extension from **Section 5.3**.



Select the **Voicemail** tab and uncheck **Voicemail On** as shown below.



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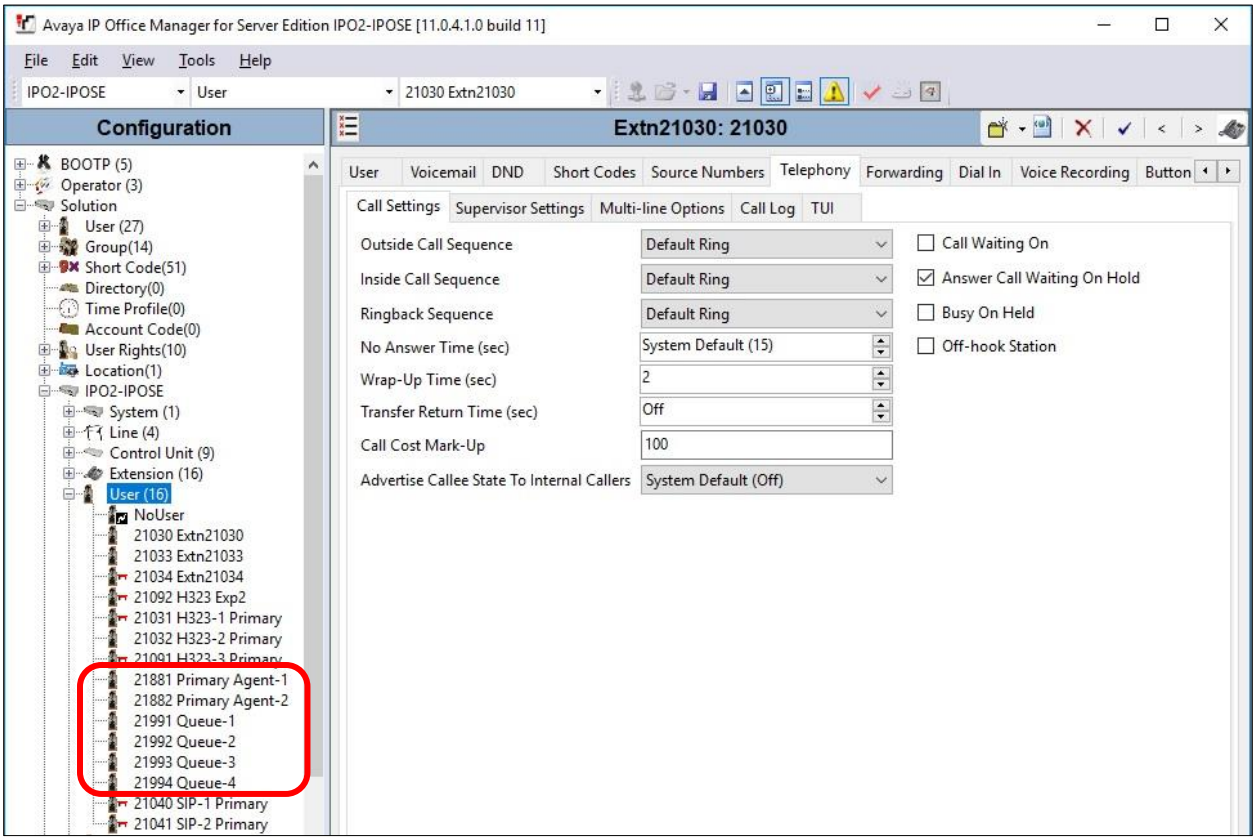
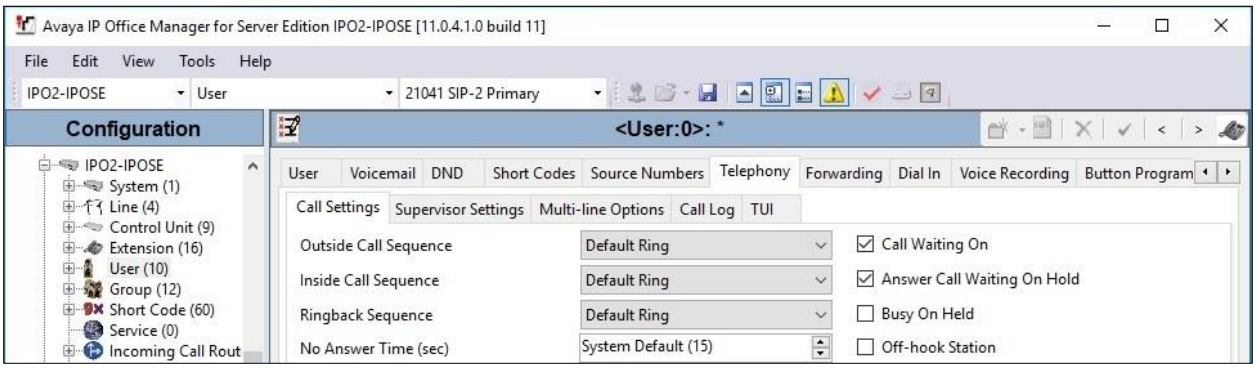
Repeat this section to add all virtual SIP users on the primary IP Office system. In the compliance testing, four users with base extensions "21991-4" were configured as shown below.



Repeat this section to add all agent and supervisor users on the primary IP Office system, and check **Call Waiting On** under **Telephony → Call Settings**. In the compliance testing, two users with base extensions "21881-2" were configured as shown above.

Repeat this section to add all agent and supervisor users on the expansion IP Office system, and check **Call Waiting On** under **Telephony → Call Settings**. In the compliance testing, two users with base extensions "22881-2" were configured (not shown).



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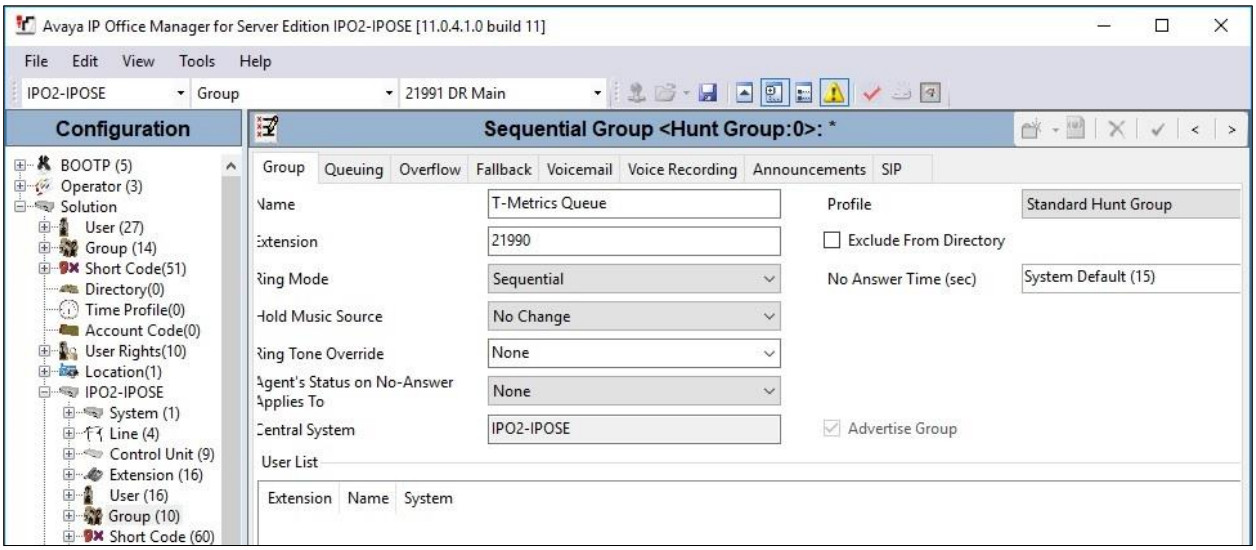
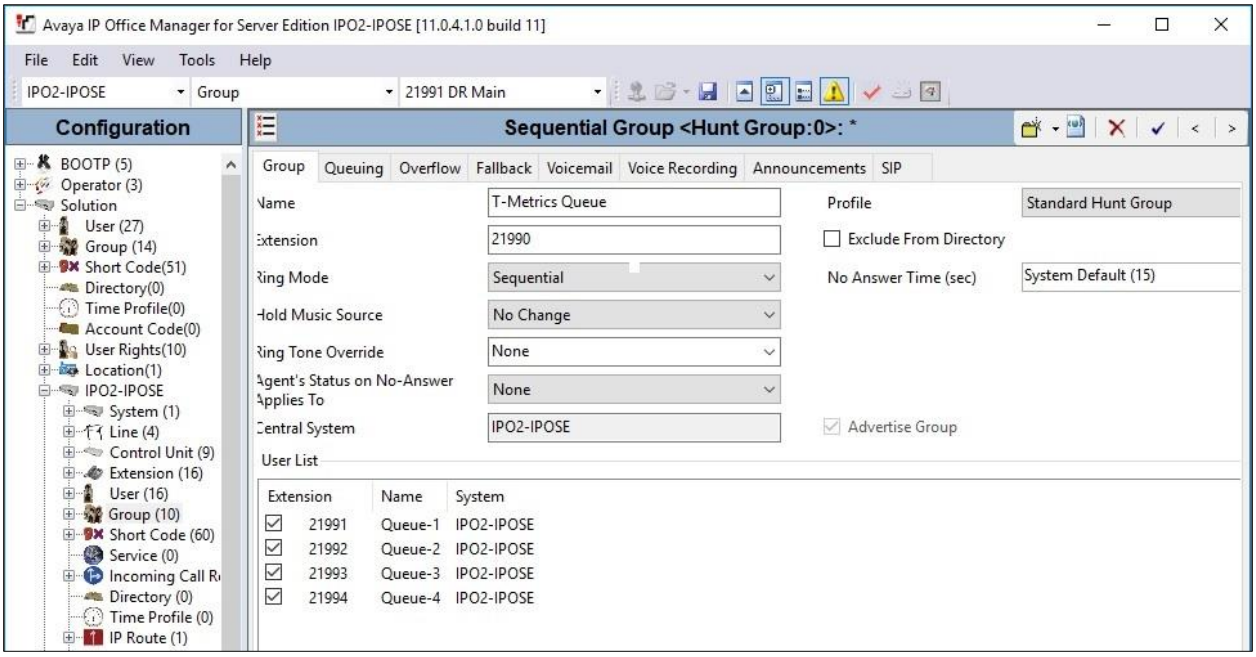
5.5. Administer Group

From the configuration tree in the left pane, right-click on **Group** under the primary IP Office system and select **New** from the pop-up list to add a new group. For **Name** and **Extension**, enter desired values.



In the **User List** sub-section, click on **Edit** (not shown) to add members. In the next screen (not shown), select all virtual SIP users from **Section 5.4**. The resultant screen after the selection is shown below.



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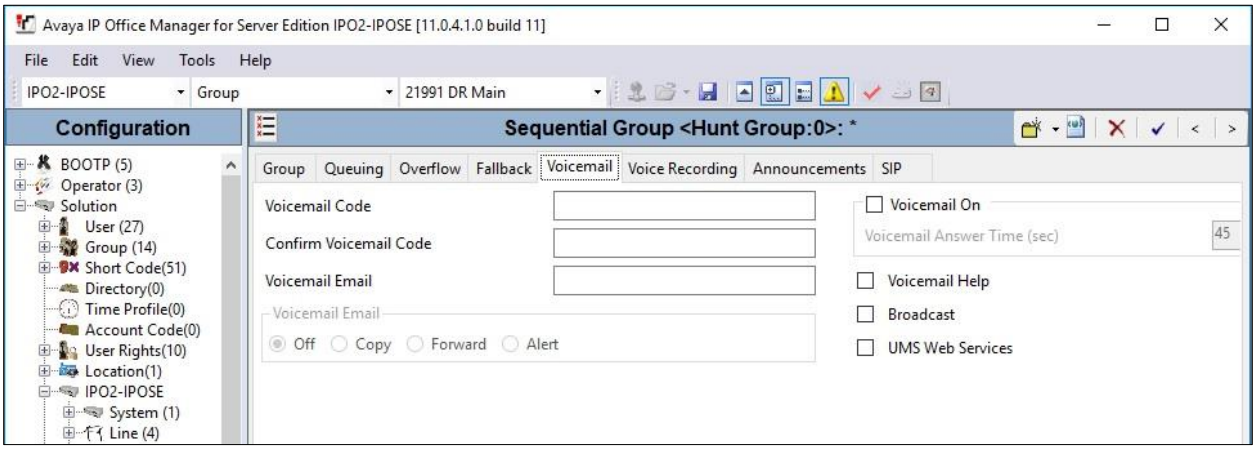
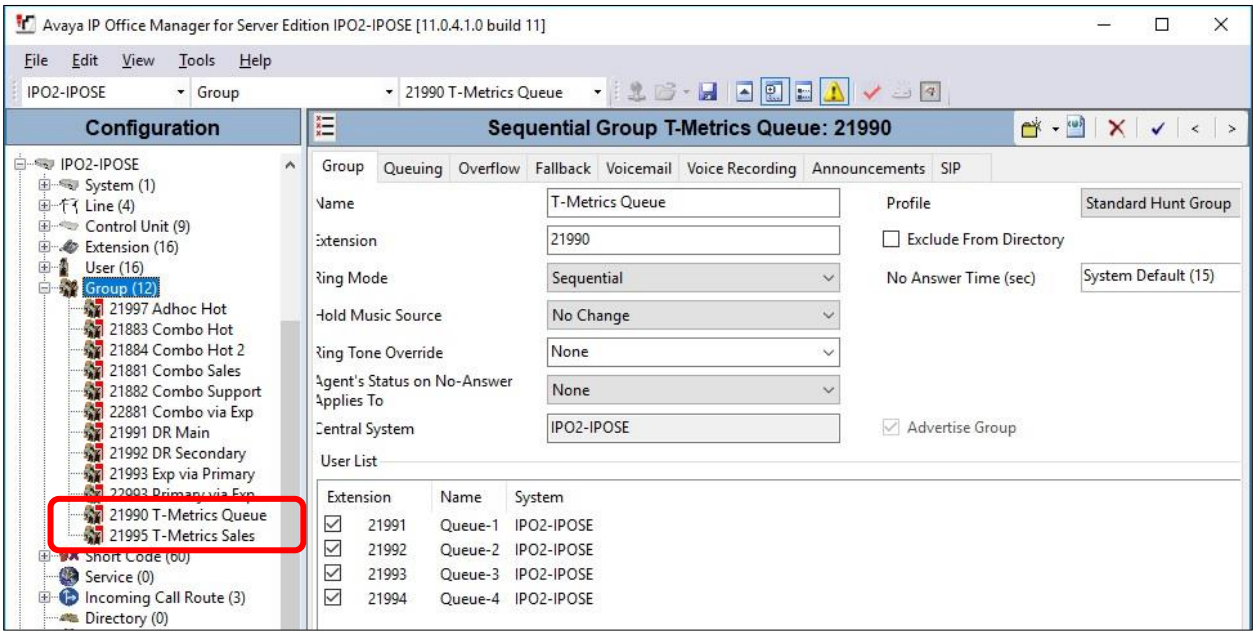
Select the **Voicemail** tab and uncheck **Voicemail On** as shown below.



Repeat this section to add all desired groups on the primary IP Office system. In the compliance testing, two groups with extensions "21990" and "21995" were configured as shown below.



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6. Configure T-Metrics Contact Center

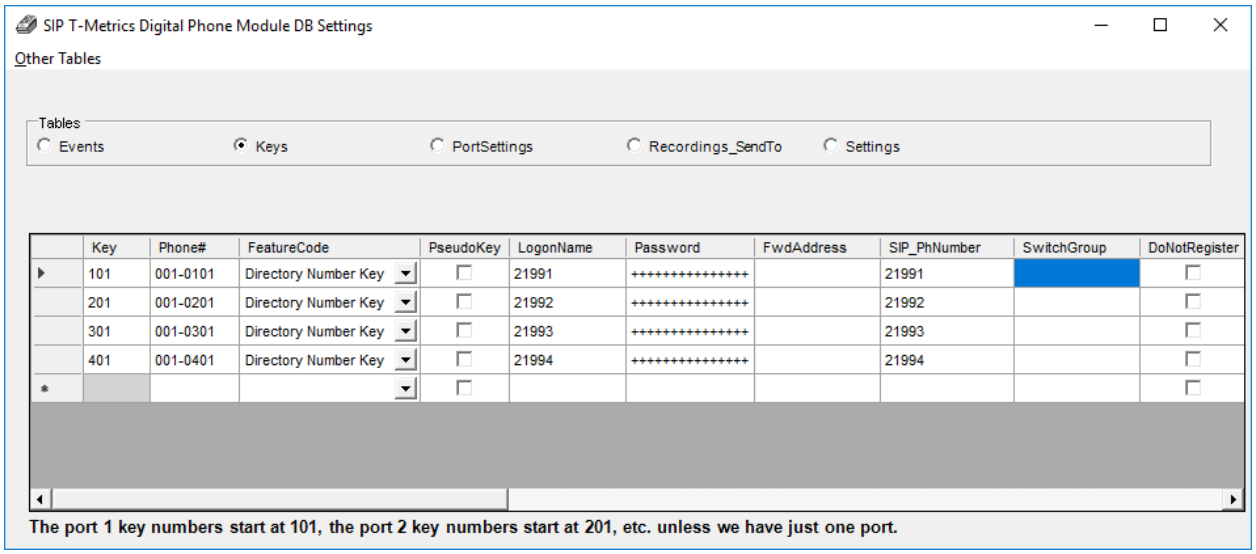
This section provides the procedures for configuring Contact Center. The procedures include the following areas:

- Administer Digital Phone Module
- Administer ACD Controller
- Administer ACD Agent Module
- Administer SIP Softphone

The configuration of Contact Center is performed by T-Metrics installers. Screenshots of integration related configuration are shown in these Application Notes for information purposes only.

6.1. Administer Digital Phone Module

From the Contact Center server, launch the Digital Phone Module application. In the **Keys** table, create an entry for each virtual SIP extension from **Section 5.3** as shown below.



Key	Phone#	FeatureCode	PseudoKey	LogonName	Password	FwdAddress	SIP_PhNumber	SwitchGroup	DoNotRegister
101	001-0101	Directory Number Key	☐	21991	++++++++++++++		21991		☐
201	001-0201	Directory Number Key	☐	21992	++++++++++++++		21992		☐
301	001-0301	Directory Number Key	☐	21993	++++++++++++++		21993		☐
401	001-0401	Directory Number Key	☐	21994	++++++++++++++		21994		☐
			☐						☐

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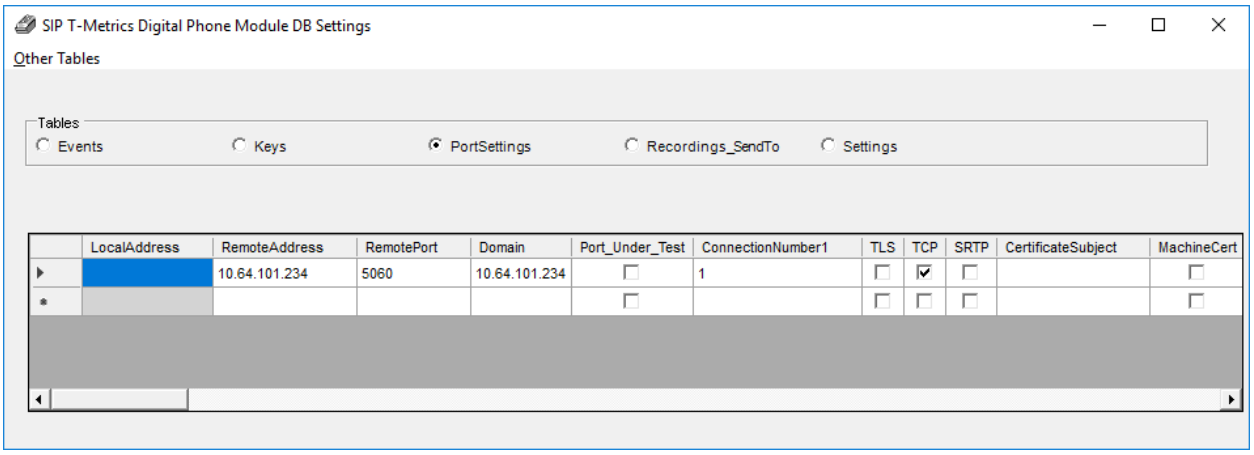
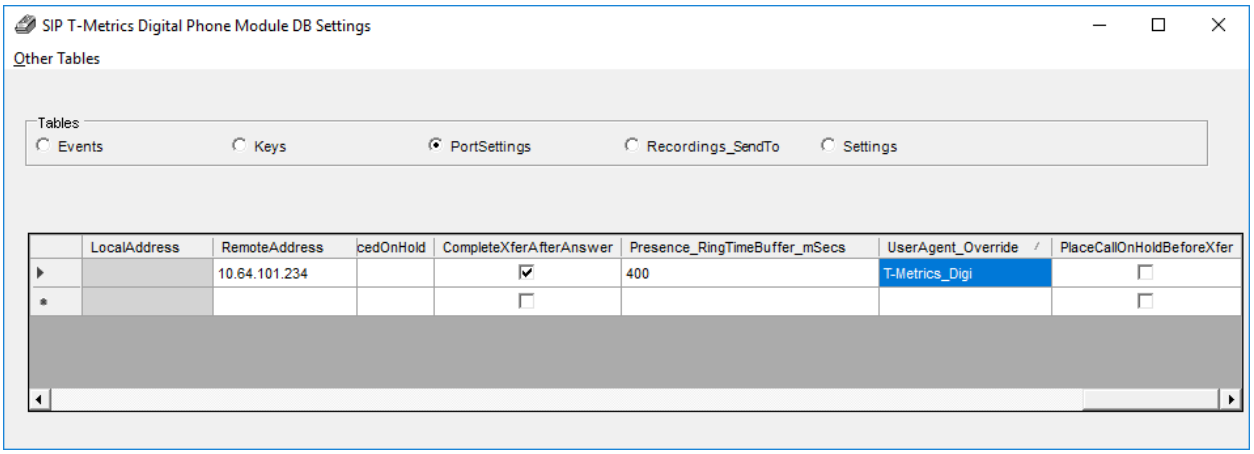
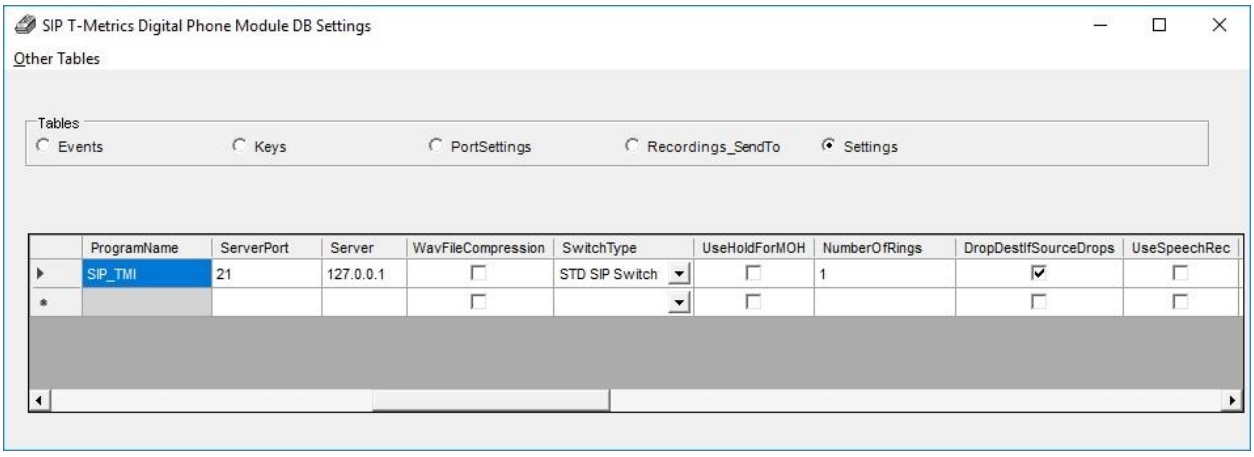
In the **PortSettings** table, configure the IP address of the primary IP Office system along with the pertinent transport protocol and port as shown below.



Scroll to the right and set **UserAgent_Override** to "T-Metrics_Digi" as shown below.



In the **Settings** table, scroll as necessary and set **SwitchType** to "STD SIP Switch".



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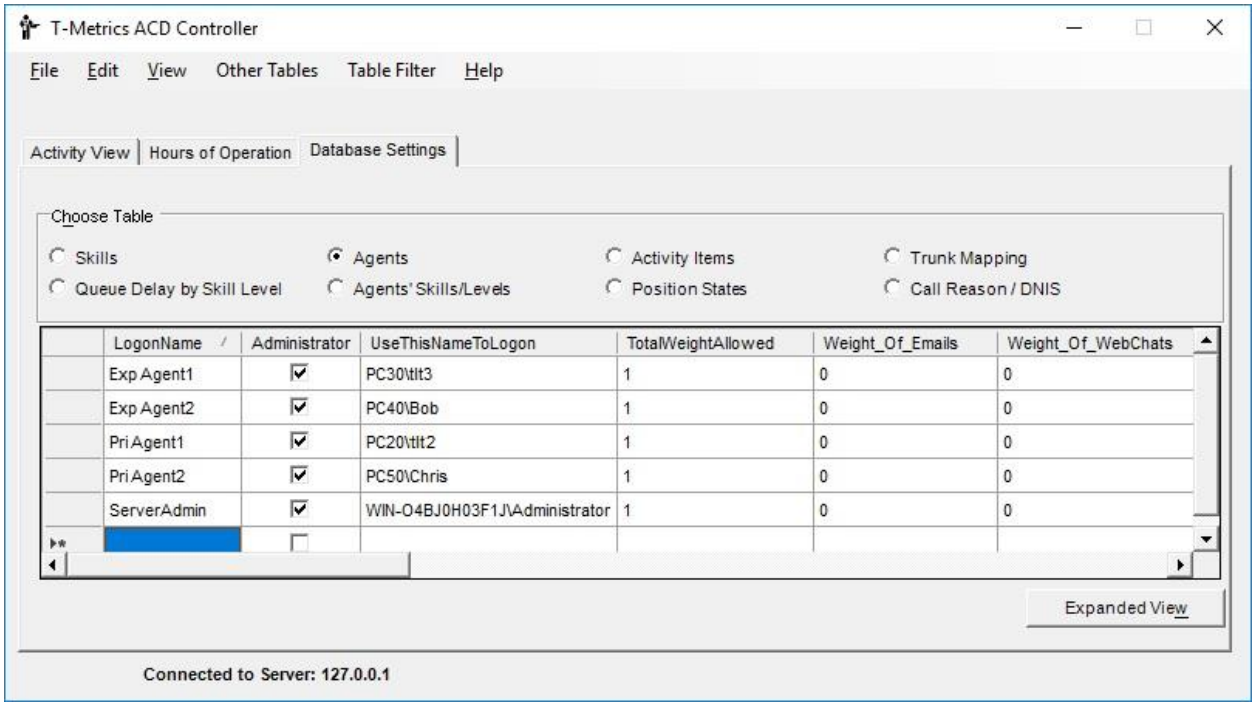
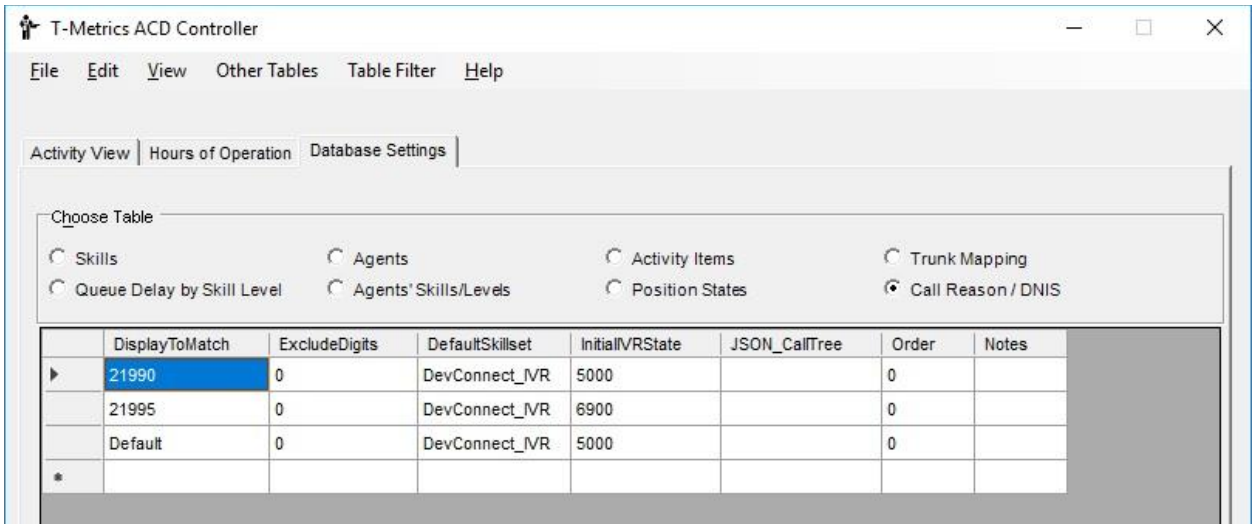
6.2. Administer ACD Controller

From the Contact Center server, launch the ACD Controller application. In the **Agents** table, create an entry for each agent and supervisor user from **Section 5.4**. For ease of compliance testing, all users were given administrative rights.



In the **Call Reason / DNIS** table, create an entry for each group number from **Section 5.5**.



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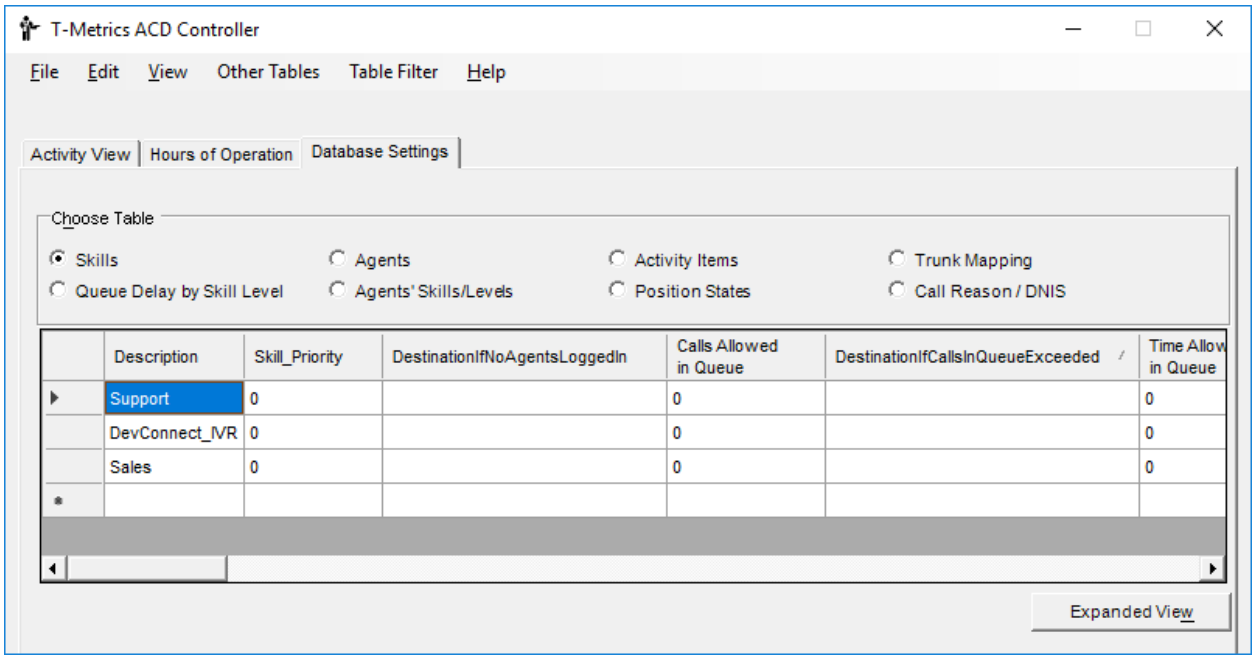
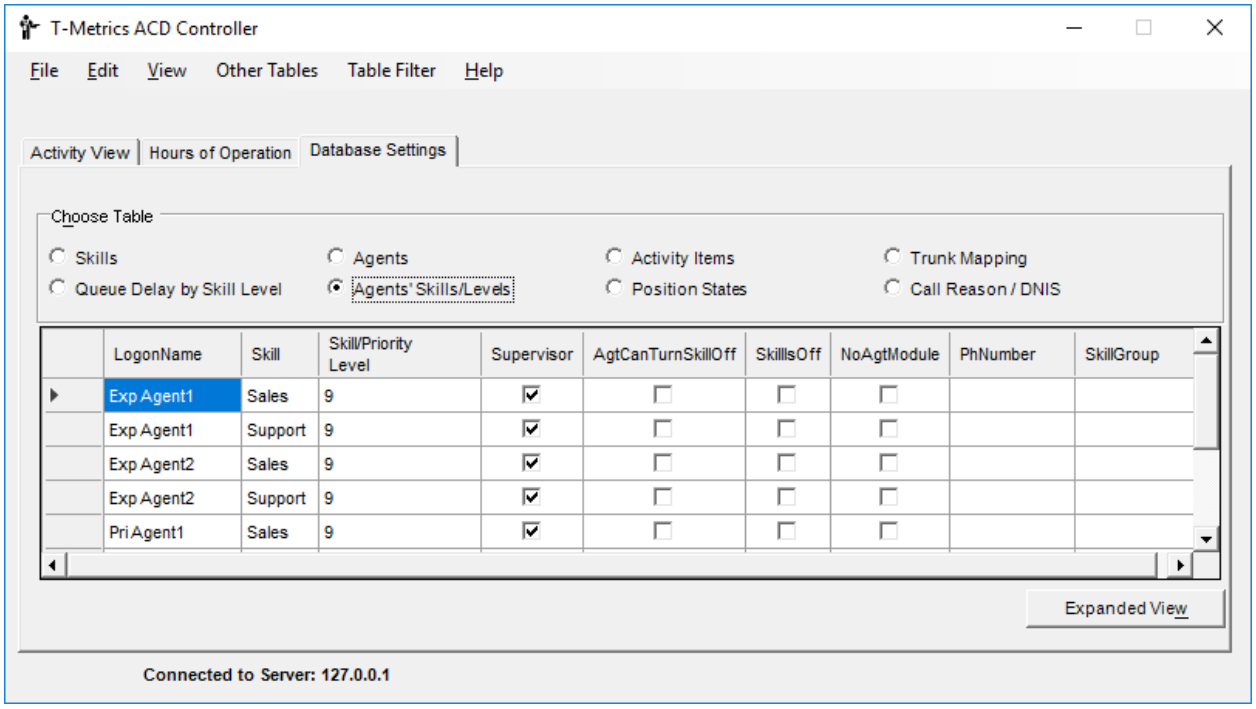
In the **Skills** table, create an entry for each pertinent skill. In the compliance testing, "Sales" and "Support" were used.



In the **Agents' Skills/Levels** table, create an entry for each skill supported by an agent as shown below. For ease of compliance testing, all agents were given supervisor permissions.



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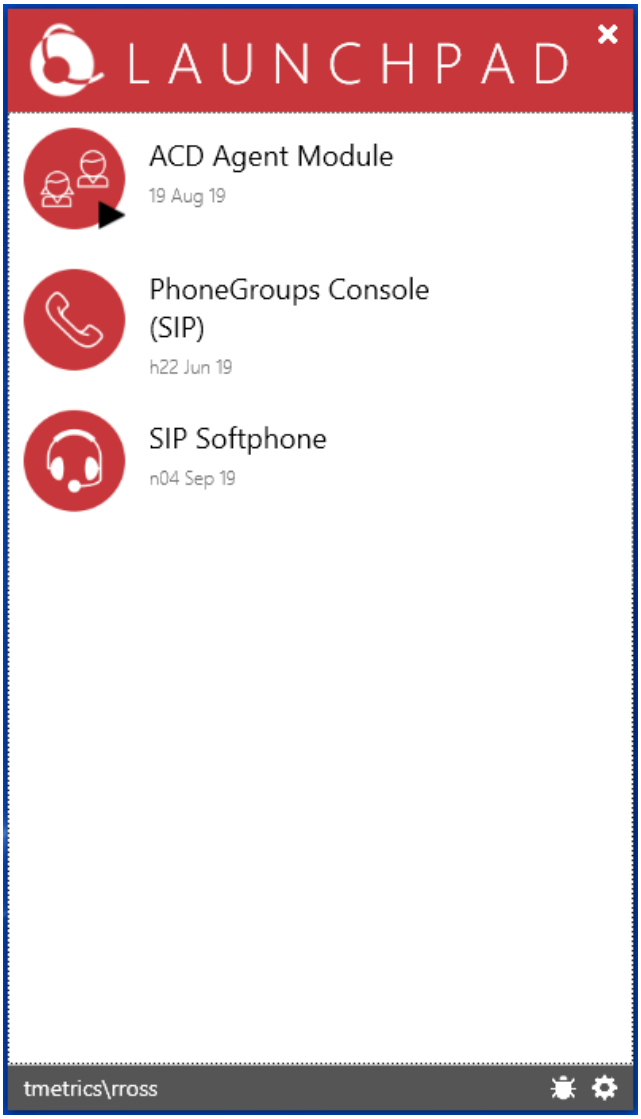
6.3. Administer ACD Agent Module

From the agent desktop, double-click on the Launchpad shortcut icon shown below, which was created as part of T-Metrics installation.

The **LAUNCHPAD** screen is displayed. Select **ACD Agent Module**.



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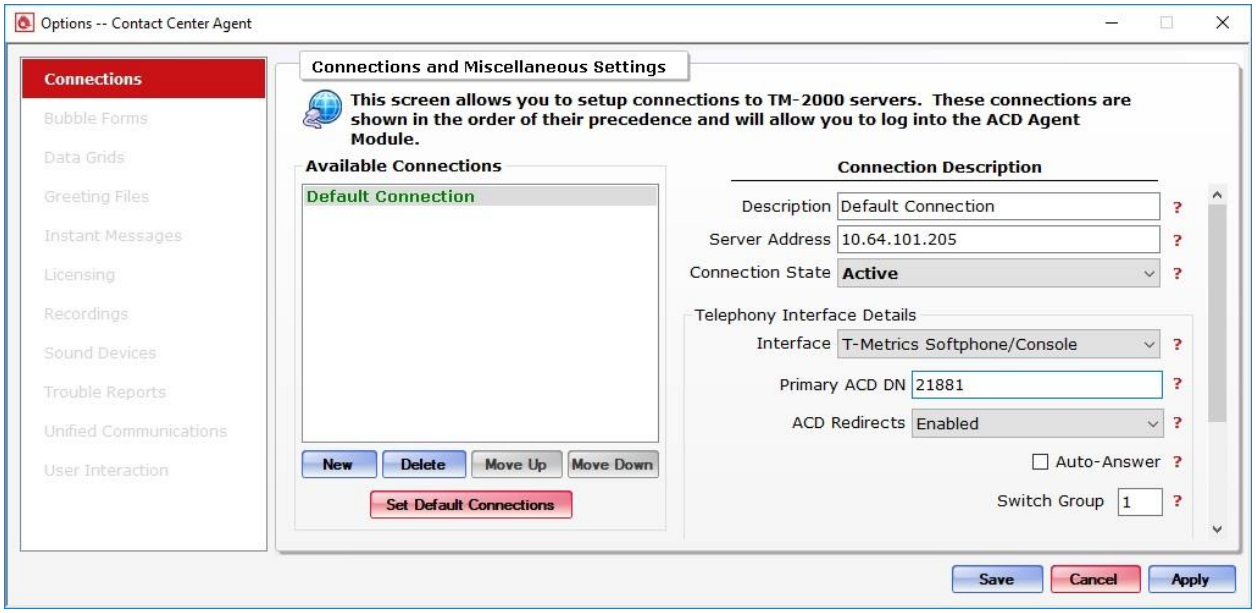
For initial access, configure settings as shown below, where “10.64.101.205” is the IP address of the Contact Center server, and “21881” is the pertinent agent extension from **Section 5.3**, in this case the first agent extension on the primary IP Office system.



6.4. Administer SIP Softphone

From the agent desktop, select **SIP Softphone** from the **LAUNCHPAD** screen.

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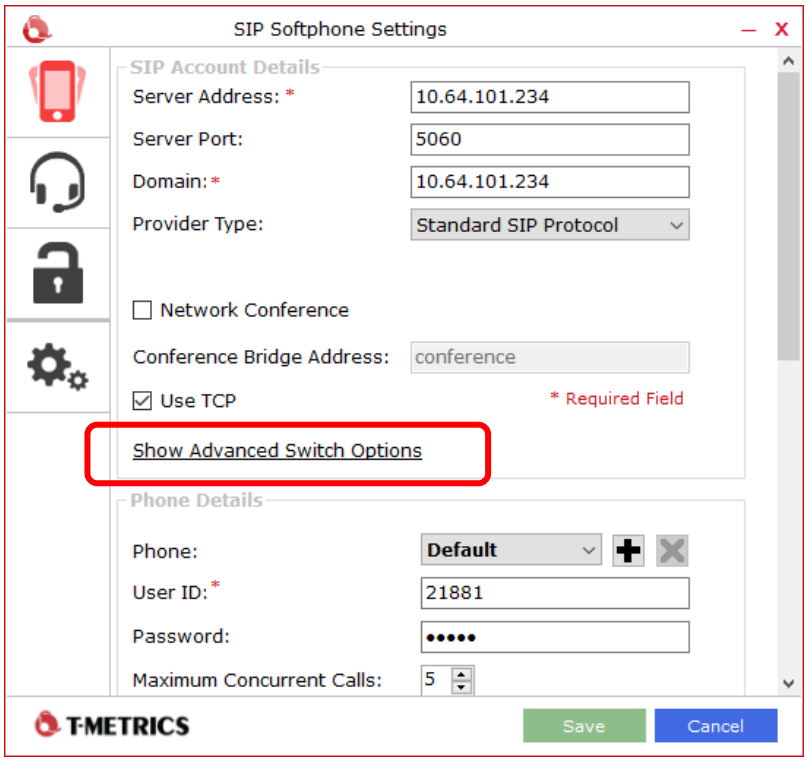
For initial access, configure settings as shown below, where "10.64.101.234" is the IP address of the pertinent IP Office system. For **User ID** and **Password**, use the pertinent agent extension credentials from **Section 5.3**.

In the compliance testing, "10.64.101.234" corresponded to the primary IP Office system, and "21881" is the first agent extension on the primary IP Office system. Click on **Show Advanced Switch Options**.



Scroll down to the end of the **Advanced Switch Options** and set **User Agent** to "T-Metrics_Softphone" as shown below.

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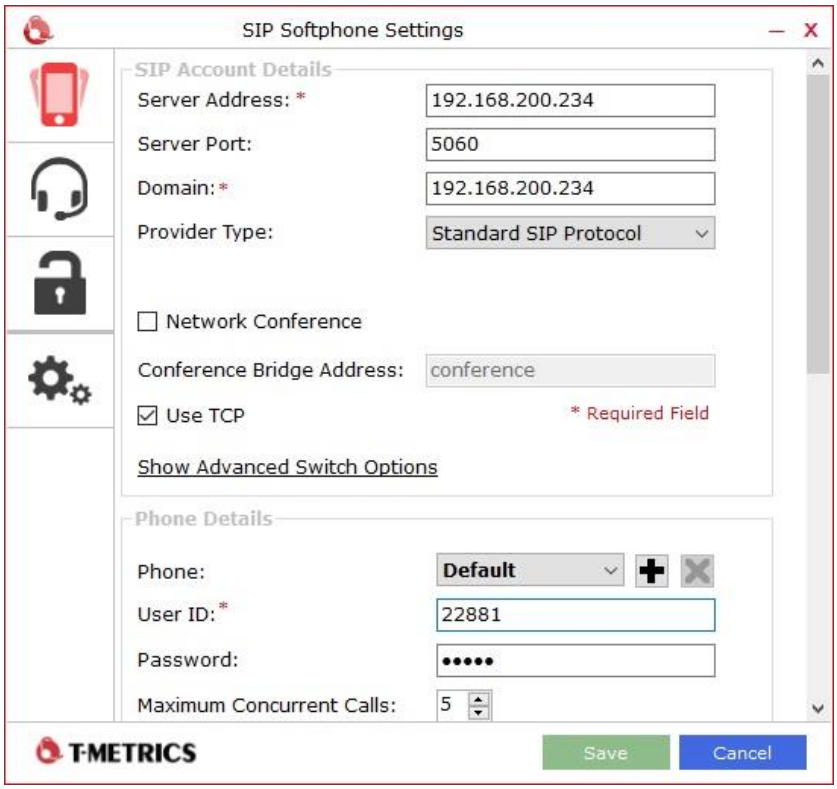
For agents on the expansion IP Office system, use the IP address and agent extension credentials associated with the expansion IP Office system as shown below.



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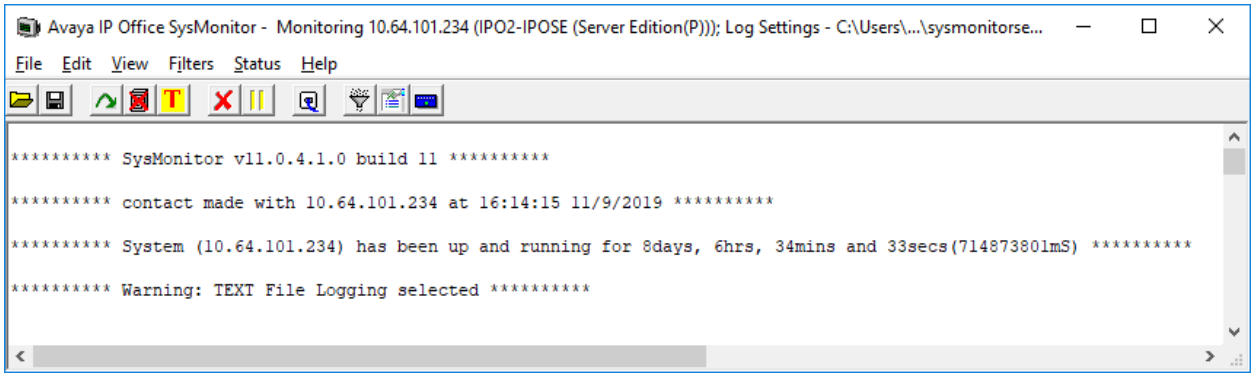
7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of IP Office and Contact Center.

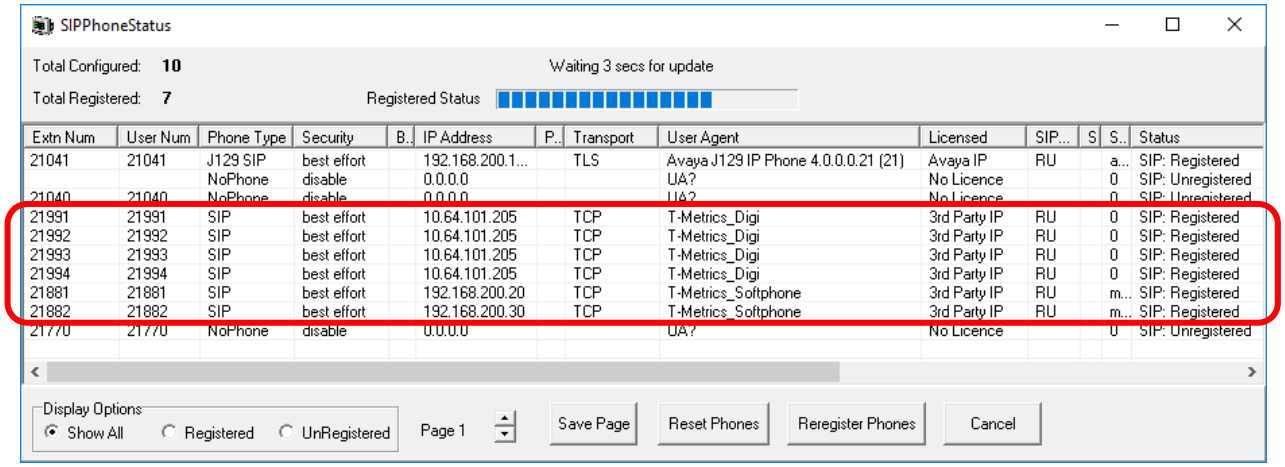
7.1. Verify Avaya IP Office

From a PC running the IP Office Monitor application, select **Start → All Programs → IP Office → Monitor** to launch the application, and connect to the primary IP Office system. The **Avaya IP Office SysMonitor** screen is displayed. Select **Status → SIP Phone Status** from the top menu.



The **SIPPhoneStatus** screen is displayed. Verify that there is an entry for each virtual SIP extension from **Section 5.3** and that the **Status** is "SIP: Registered" as shown below.

Also verify that there is an entry for each agent and supervisor extension from **Section 5.3** that have both ACD Agent Module and SIP Softphone launched on the desktop. Note that the SIP Softphone auto registers with IP Office upon launch.



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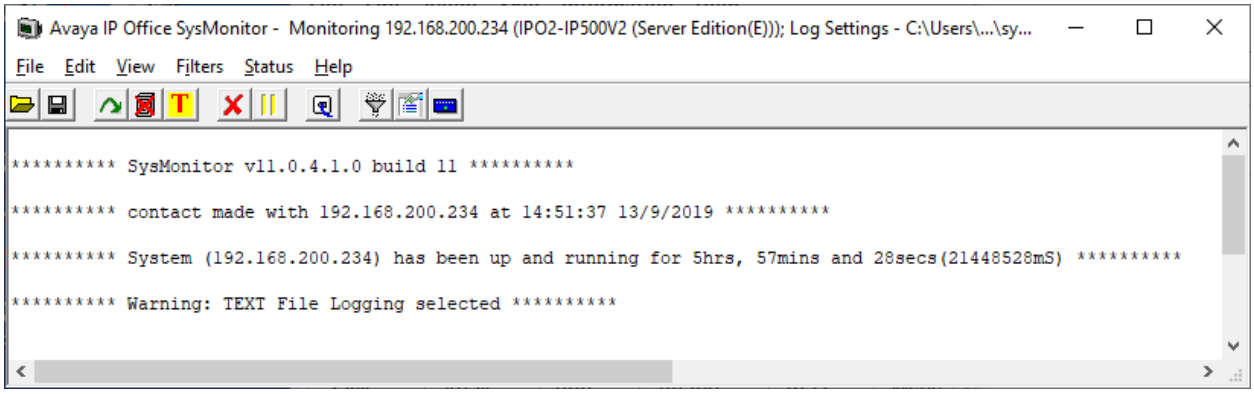
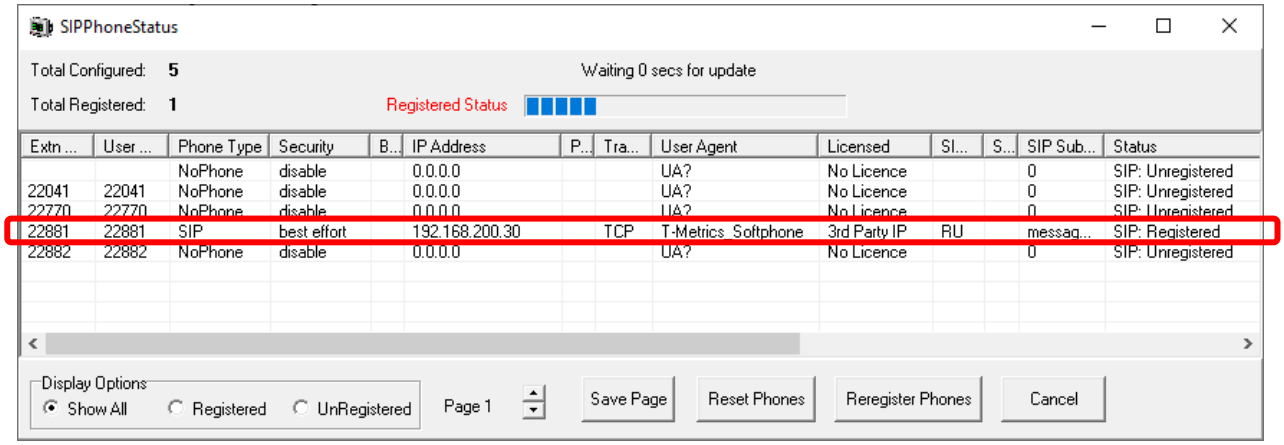
Repeat the procedures in this section to verify the expansion IP Office system shown below.



Also verify that there is an entry for each agent and supervisor extension from **Section 5.3** that have both ACD Agent Module and SIP Softphone launched on the desktop. In this case, only one agent had launched the applications.



Extn ...	User ...	Phone Type	Security	B...	IP Address	P...	Tra...	User Agent	Licensed	SI...	S...	SIP Sub...	Status
		NoPhone	disable		0.0.0.0			UA?	No Licence			0	SIP: Unregistered
22041	22041	NoPhone	disable		0.0.0.0			UA?	No Licence			0	SIP: Unregistered
22770	22770	NoPhone	disable		0.0.0.0			UA?	No Licence			0	SIP: Unregistered
22881	22881	SIP	best effort		192.168.200.30		TCP	T-Metrics_Softphone	3rd Party IP	RU		messag...	SIP: Registered
22882	22882	NoPhone	disable		0.0.0.0			UA?	No Licence			0	SIP: Unregistered

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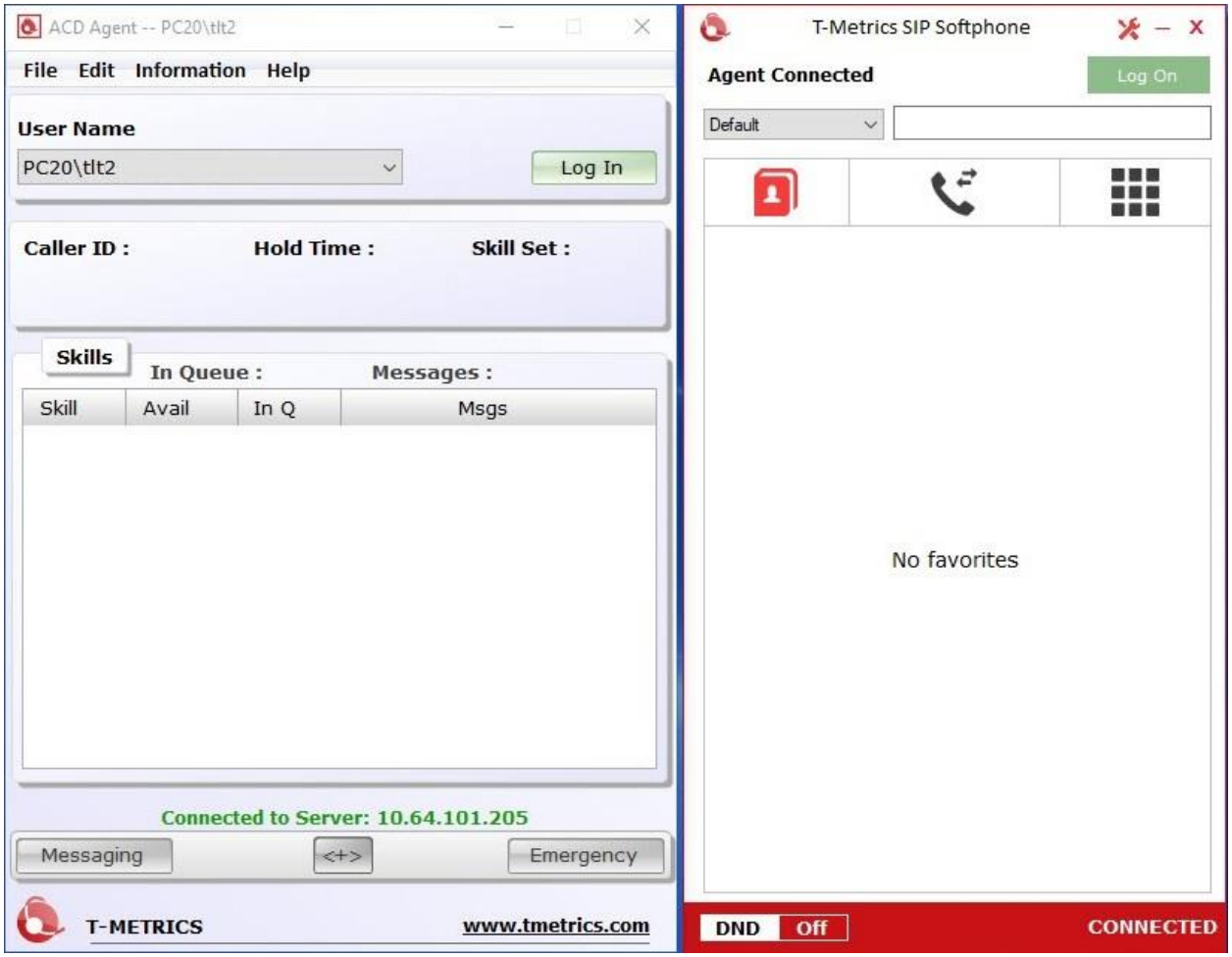
7.2. Verify T-Metrics Contact Center

From an agent on the primary IP Office system, follow the procedure in **Section 6.3** to launch the ACD Agent Module on the desktop, and the SIP Softphone application will be launched automatically as shown below.

Verify that the bottom of the **T-Metrics SIP Softphone** screen shows **CONNECTED**, which is an indication that the softphone has registered with IP Office.

From the **ACD Agent** screen, click **Log In**.



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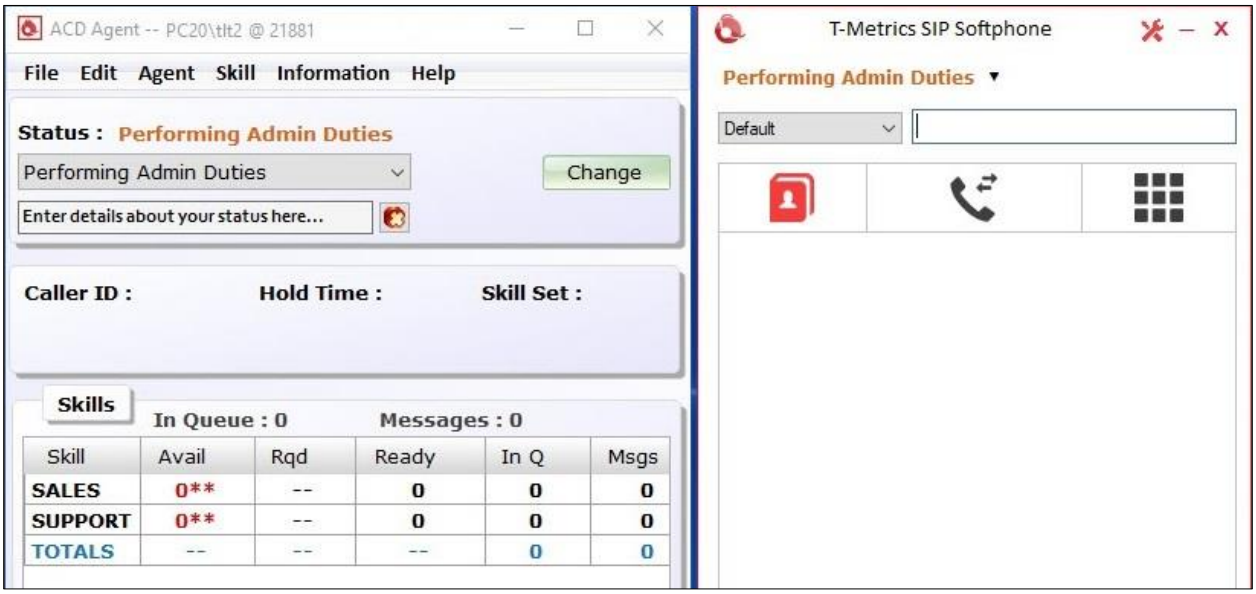
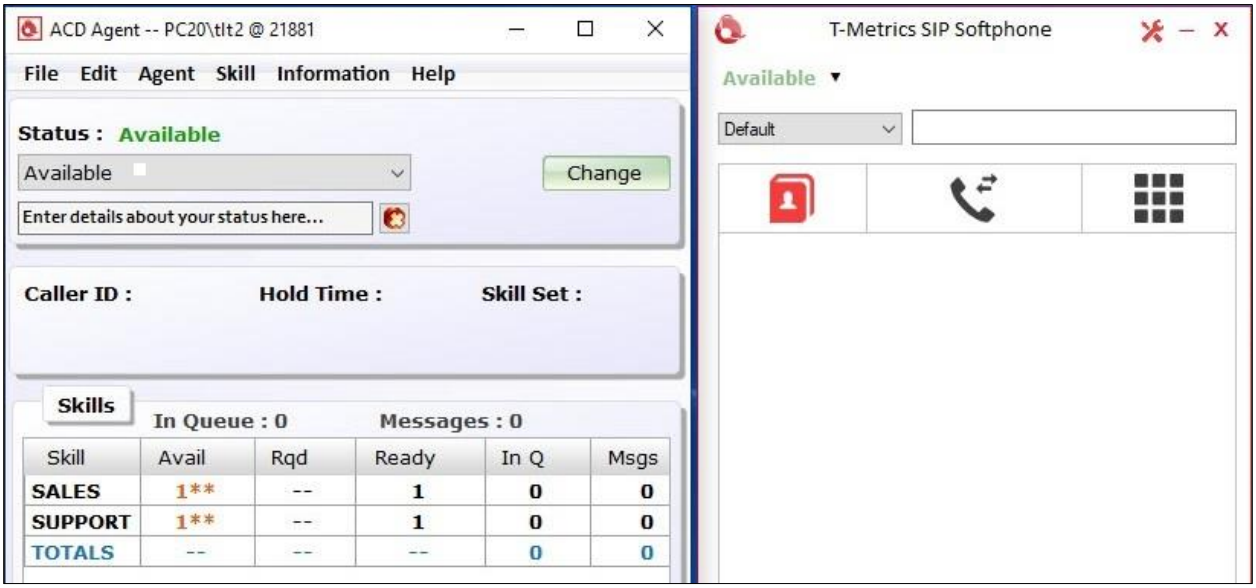
Verify that both the **ACD Agent** and **T-Metrics SIP Softphone** screens are updated to reflect the **Performing Admin Duties** status, as shown below.

From the **ACD Agent** screen, click the **Status** drop-down to select **Available** (not shown) followed by **Change**.



Verify that both the **ACD Agent** and **T-Metrics SIP Softphone** screens are updated to reflect the **Available** status, as shown below.



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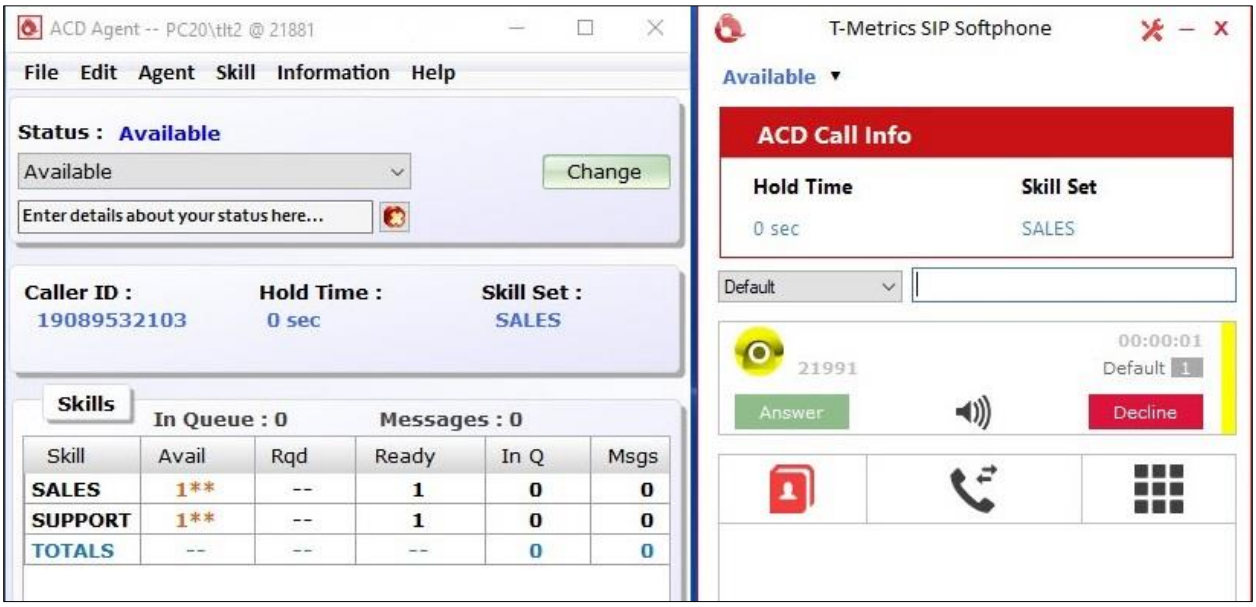
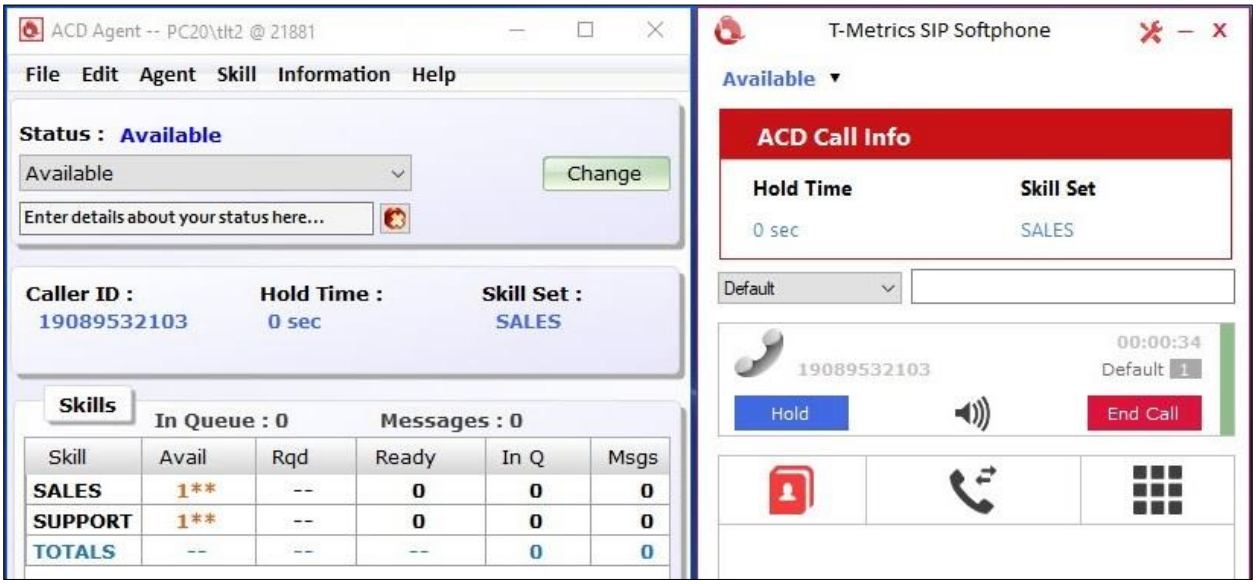
Make a call from the PSTN to a group in **Section 5.5**, and use DTMF to select the narrated option associated with Sales. Verify that both screens below are updated to reflect an incoming call with "SALES" as **Skill Set**. From the **T-Metrics SIP Softphone** screen, click **Answer**.



Verify that the **T-Metrics SIP Softphone** screen is updated to reflect a connected call, and that the agent headset is connected to the PSTN caller with two-way talk paths.



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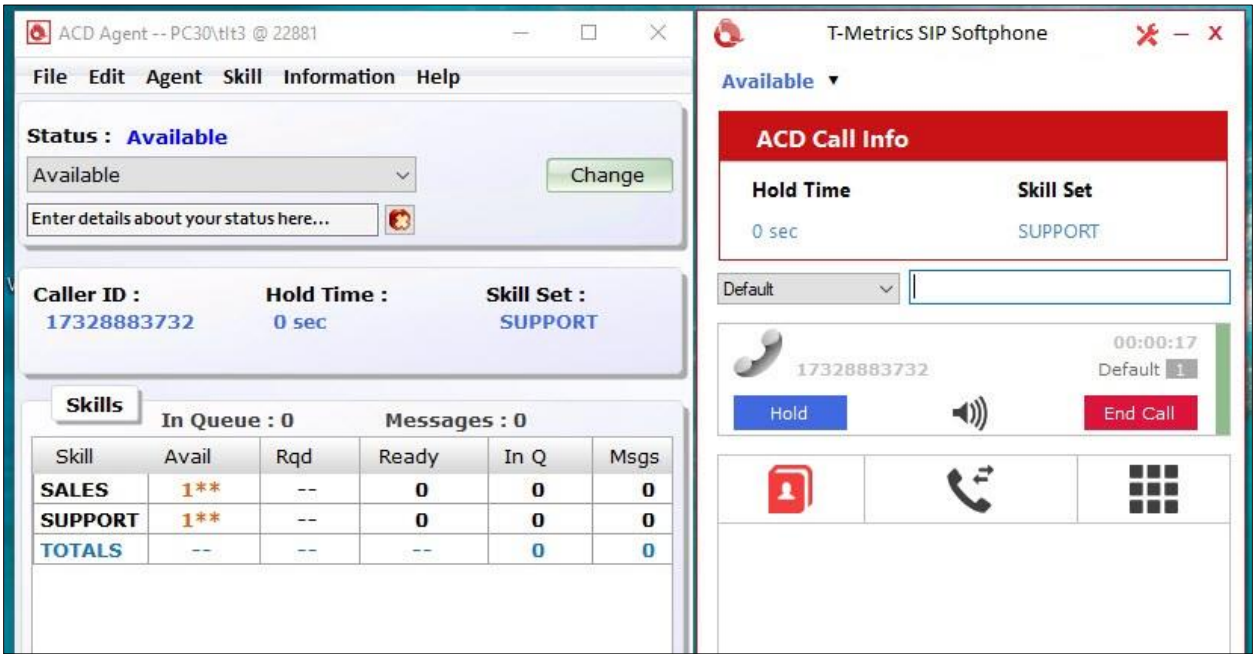
Repeat the procedures in this section to verify an agent on the expansion IP Office system as shown below.



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8. Conclusion

These Application Notes describe the configuration steps required for T-Metrics Contact Center to successfully interoperate with Avaya IP Office Server Edition. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

9. Additional References

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

1. *Administering Avaya IP Office™ Platform with Manager*, Release 11.0, February 2019, available at http://support.avaya.com.

2. *Controller Module Manual*, available at http://portal.tmetrics.com/OnlineSupport.aspx.

3. *DigiSIP Manual*, available at http://portal.tmetrics.com/OnlineSupport.aspx.

4. *Agent Installation & Configuration Instructions*, available at http://portal.tmetrics.com/OnlineSupport.aspx.

5. *SIP Softphone Installation*, available at http://portal.tmetrics.com/OnlineSupport.aspx.

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