Application Notes for Biscom FAXCOM Server with Avaya IP Office Server Edition R10 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Biscom FAXCOM to interoperate with Avaya IP Office Server Edition R10. Biscom FAXCOM is a fax server application that uses the SIP trunk interface of Avaya IP Office to send and receive fax.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required for Biscom FAXCOM (FAXCOM) to interoperate with Avaya IP Office 10 Server Edition. FAXCOM is a fax server application that uses the SIP trunk interface of Avaya IP Office to send and receive fax with Error Correction Mode enabled.

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

For testing, FAXCOM Server application was used to verify outgoing fax can be sent. Incoming fax is routed by Avaya IP Office to Biscom FAXCOM via an available SIP channel. The received incoming fax is stored in a folder on FAXCOM server.

2. General Test Approach and Test Results

The feature test cases were performed manually. Fax calls to and from FAXCOM were made. The faxes were sent using the FAXCOM test fax application and an analog fax machine at the PSTN.

The serviceability test cases were performed manually by disconnecting and reconnecting the Ethernet connection to FAXCOM and rebooting the FAXCOM server.

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.

2.1. Interoperability Compliance Testing

The compliance testing included feature and serviceability areas.

The feature testing focused on verifying the following on FAXCOM:

- Proper handling of faxes via SIP trunk (UDP) with T.38: send/receive, internal fax, external fax over SIP trunk, simultaneous bi-directional faxes, and miscellaneous failure scenarios.

- Proper handling of faxes with different pages and data rates.

- No adverse impact on the internal and external VoIP calls during fax transmission.

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

2.2. Test Results

All test cases were executed and verified as successful. However, the following observation is noted:

- SIP trunk from IP Office to FAXCOM must have direct media disabled, FAXCOM does not support shuffling.
- FAXCOM only supports MULAW (G.711u). If a different codec is used FAXCOM will reject that fax call.
- Outbound PSTN calls that require an account code were not tested with this release of FAXCOM.

2.3. Support

Technical support on FAXCOM can be obtained through the following:

- **Phone:** 1 (800) 477-2472
- **Email:** support@biscom.com
- **Web:** http://www.biscom.com

3. Reference Configuration

The configuration used for the compliance testing is shown below. FAXCOM is connected to IP Office Server Edition via SIP Trunk. IP Office connected to simulated SIP PSTN and PRI trunks. Numbers in range of 32xxx were used to route faxes to FAXCOM. The FAXCOM server sent and received fax calls to/from a fax machine in the IP Office network as well as from PSTN.

All incoming calls to the fax numbers were routed by IP Office over the SIP trunks to FAXCOM, and all outgoing faxes were routed by FAXCOM over the SIP trunks to IP Office.

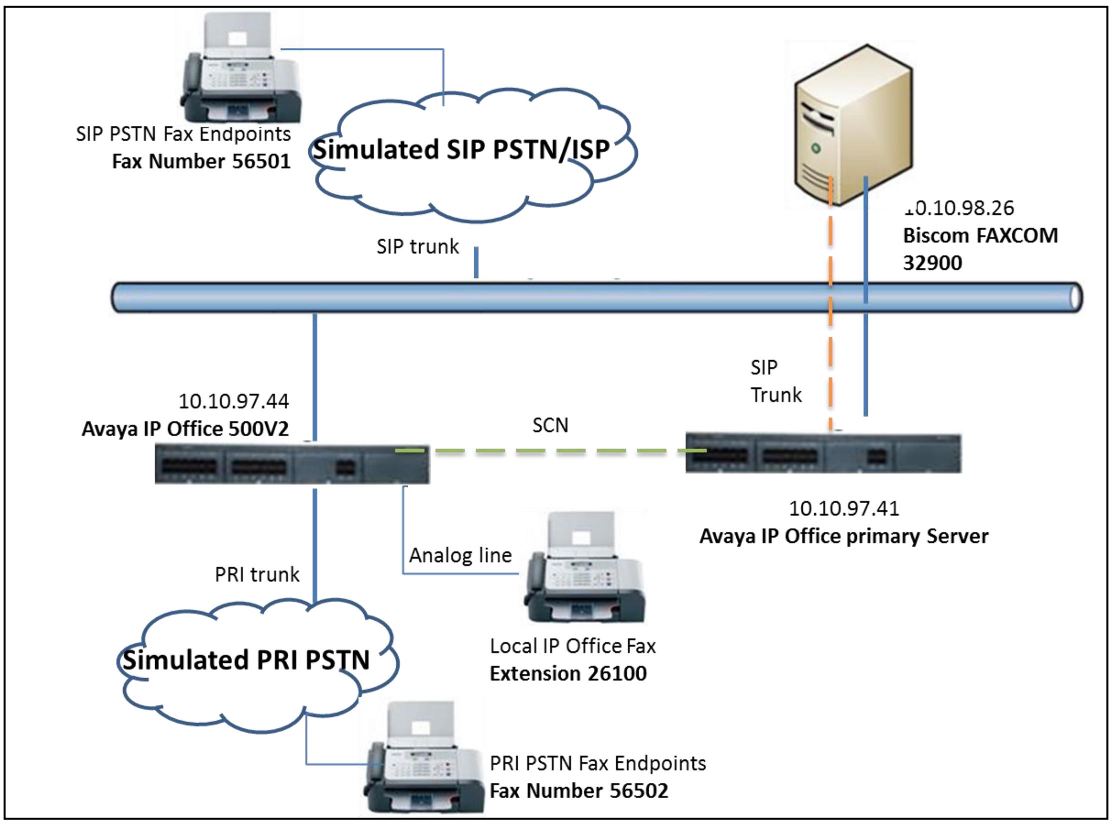


Figure 1: Compliance Testing Configuration

4. Equipment and Software Validated

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

Equipment	Software
Avaya IP Office primary Linux server	10.0.0.0.550
Avaya IP Office 500 V2 Expansion	10.0.0.0.550
Biscom FAXCOM on Microsoft Windows Server 2008 R2 Enterprise SP1 64-bit	6.5.5.13 Dialogic Edition

5. Configure Avaya IP Office

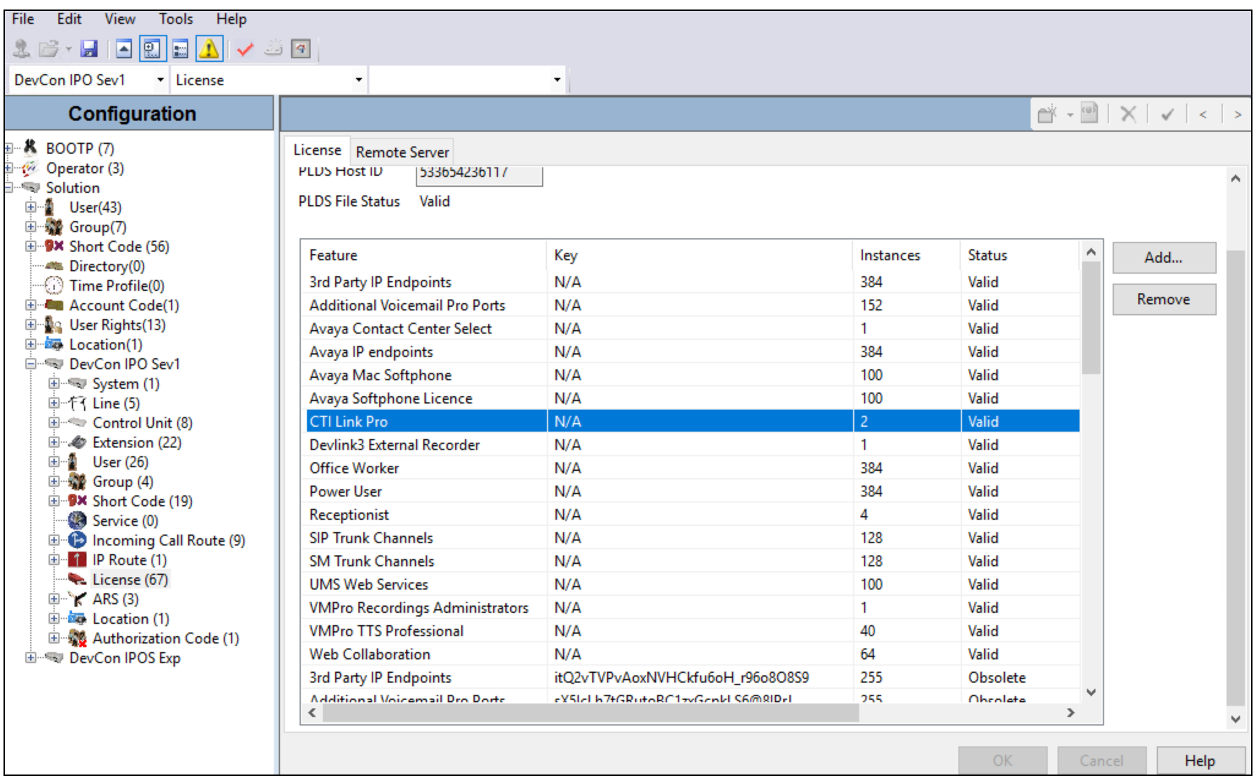
This section provides the procedures for configuring IP Office, assuming it has been installed and licensed. The procedures include the following areas:

- Verify IP Office license
- Obtain LAN IP address
- Enable SIP trunks
- Administer SIP line
- Administer incoming call route
- Administer short code

5.1. Verify IP Office License

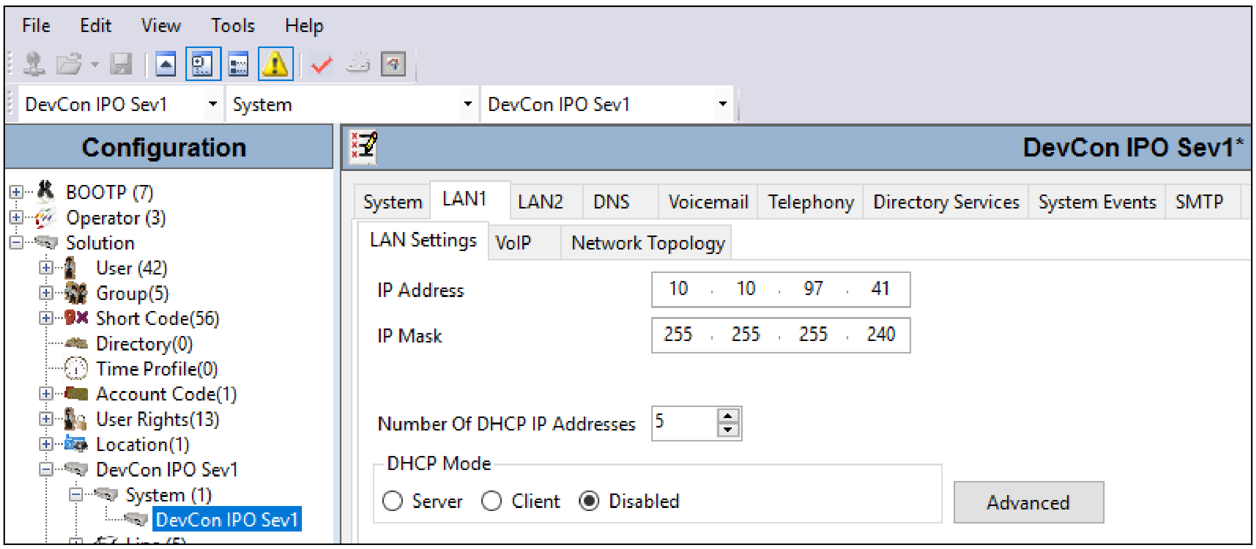
From a PC running the IP Office Manager application, select **Start → All Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system, and log in using the appropriate credentials.

The **Avaya IP Office R10 Manager** screen is displayed. From the configuration tree in the left pane, select **License** to display the **License** screen in the right pane. Verify that the **License Status** for **SIP Trunk Channels** is "Valid", and that the **Instances** value is sufficient for the desired maximum number of simultaneous faxes. If there is insufficient capacity of SIP Trunks, contact an Avaya representative to make the appropriate changes.



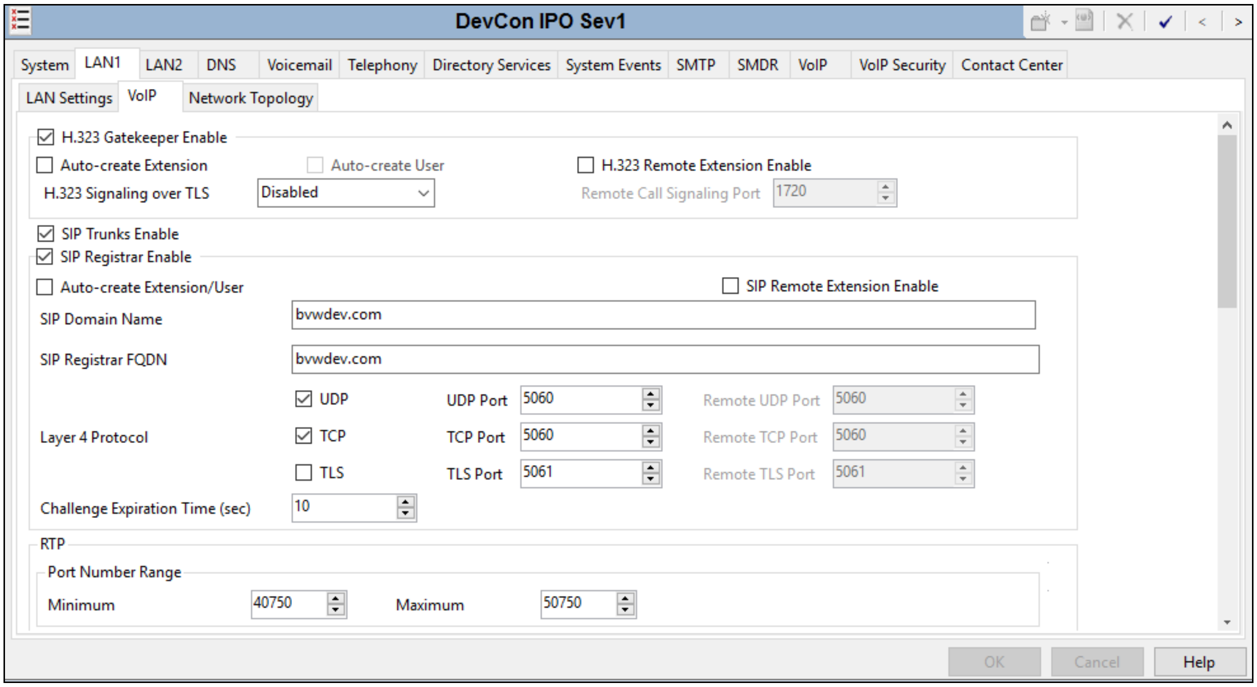
5.2. Obtain LAN IP Address

From the configuration tree in the left pane, under **Solution** select **Primary Server → System** for example, **DevCon IPO Sev1 → System** tab to display the **DevCon IPO Sev1** screen in the right pane, where **DevCon IPO Sev1** is the name of IP Office Primary Server. 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 FAXCOM in **Section 6.3**. Note that IP Office can support SIP trunks on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.



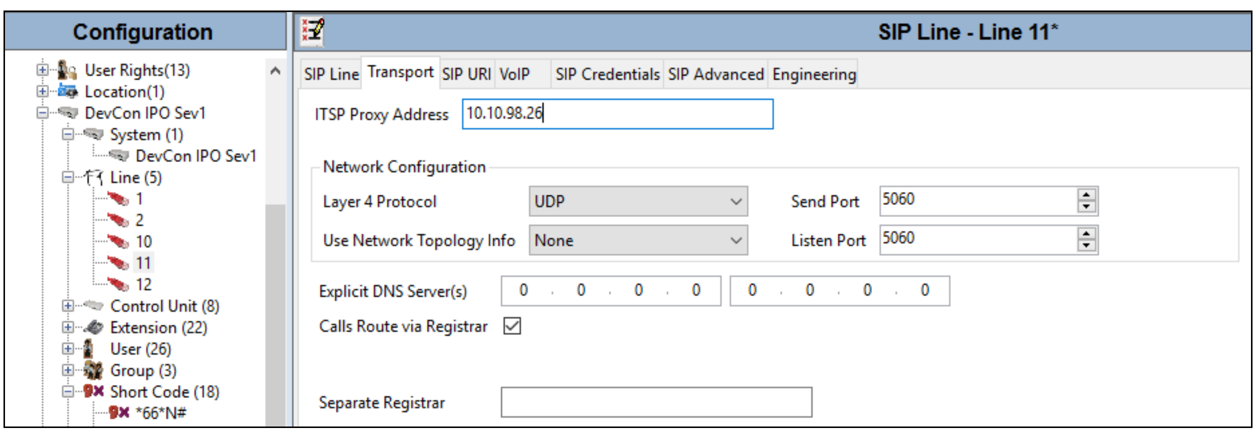
5.3. Enable SIP Trunks

Continuing from above, select the **VoIP** sub-tab. Make certain that **SIP Trunks Enable** is checked, as shown below.

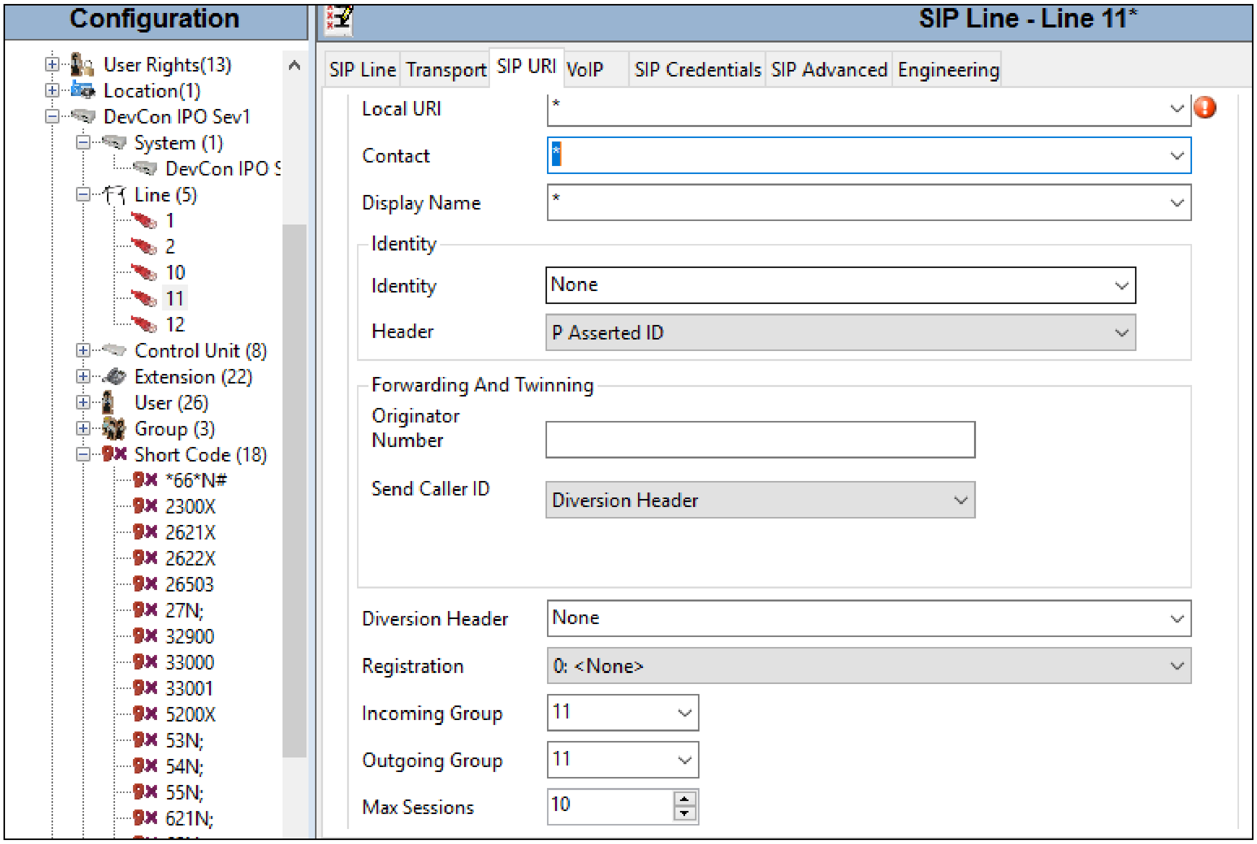


5.4. Administer SIP Line from IP Office to FAXCOM Server

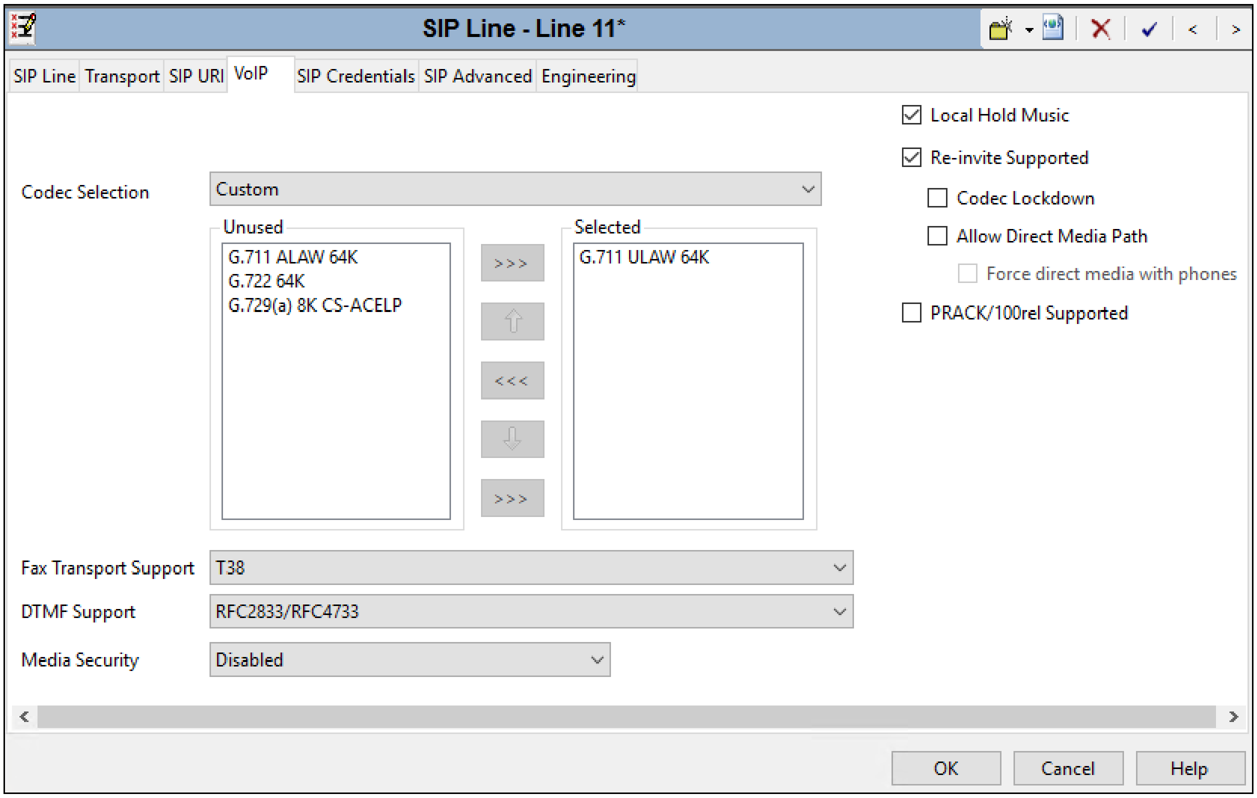
From the configuration tree in the left pane, right-click on **Line** and select **New → SIP Line** from the pop-up list to add a new SIP line. Select the **Transport** tab in the right pane. For **ITSP Proxy Address**, enter the IP address of FAXCOM. Set the **Layer 4 Protocol** field to "UDP". Retain the default values for the remaining fields.



Select the **SIP URI** tab, and click **Add** (not shown) to display the **New Channel** section. Enter the wildcard character "*" for **Local URI**, **Contact**, and **Display Name**. Enter an unused group number such as "11" for **Incoming Group** and **Outgoing Group**. Set **Max Calls per Channel** to the maximum number of simultaneous faxes allowed by the FAXCOM license, in this case default value 10 is used. Retain the default values in the remaining fields. Click **OK** (not shown).

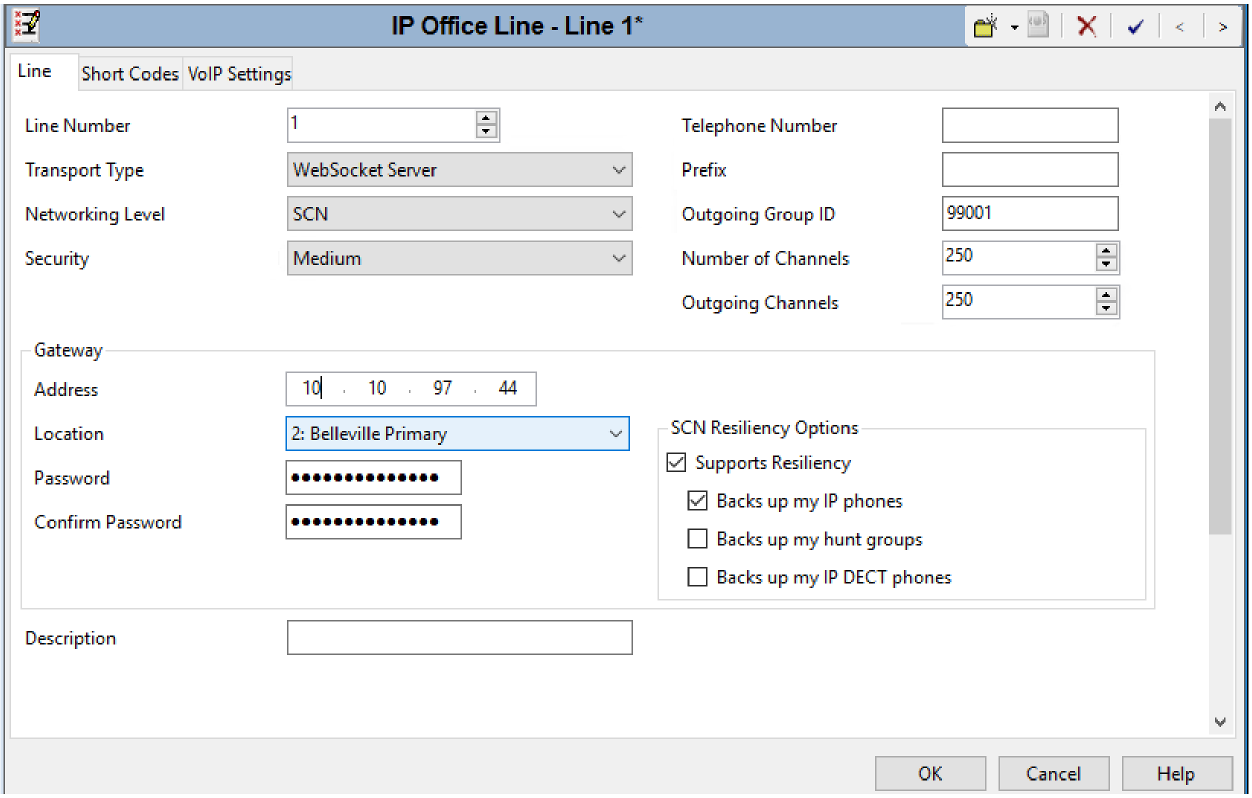


Select the **VoIP** tab. Select only codec "G.711 ULAW 64K" as configured on FAXCOM. Check **Re-invite Supported**. Make sure **Allow Direct Media Path** is unchecked. For **Fax Transport Support**, select "T38" from the drop-down list. Retain the default values in the remaining fields.

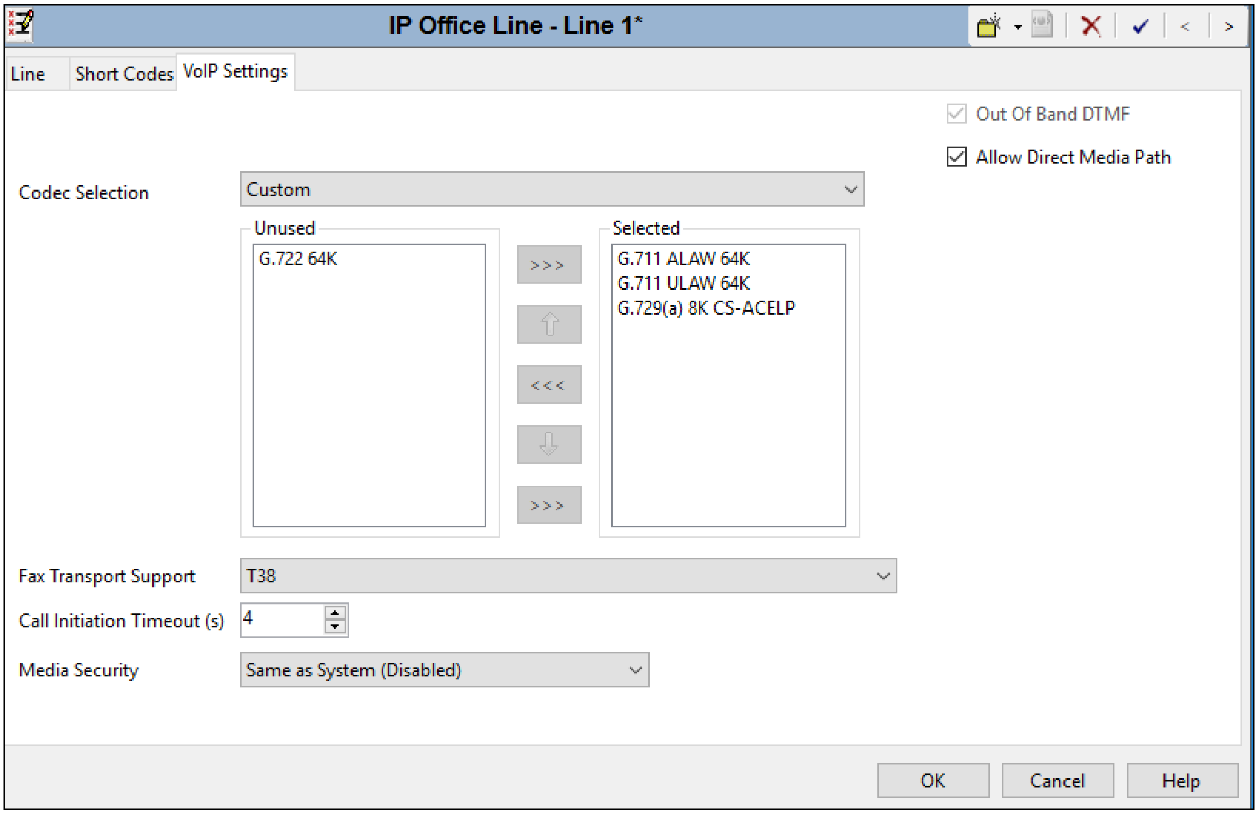


5.5. Small Network Community

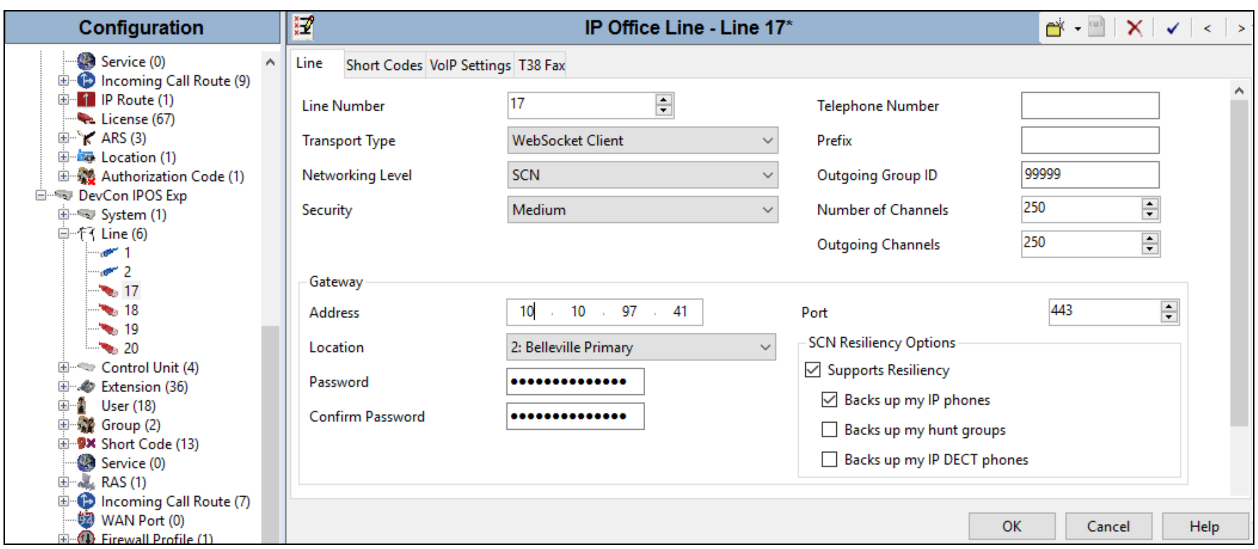
A Small Network Community (SCN) trunk was pre-configured on the IP Office Server Edition for connectivity between IP Office Linux Primary to IP500V2 Expansion. Since it is an integral part of the test configuration, a screenshot is included in this section for informational purposes. Below is screen shot of SCN on Linux primary, in this case it is **Line 1**.



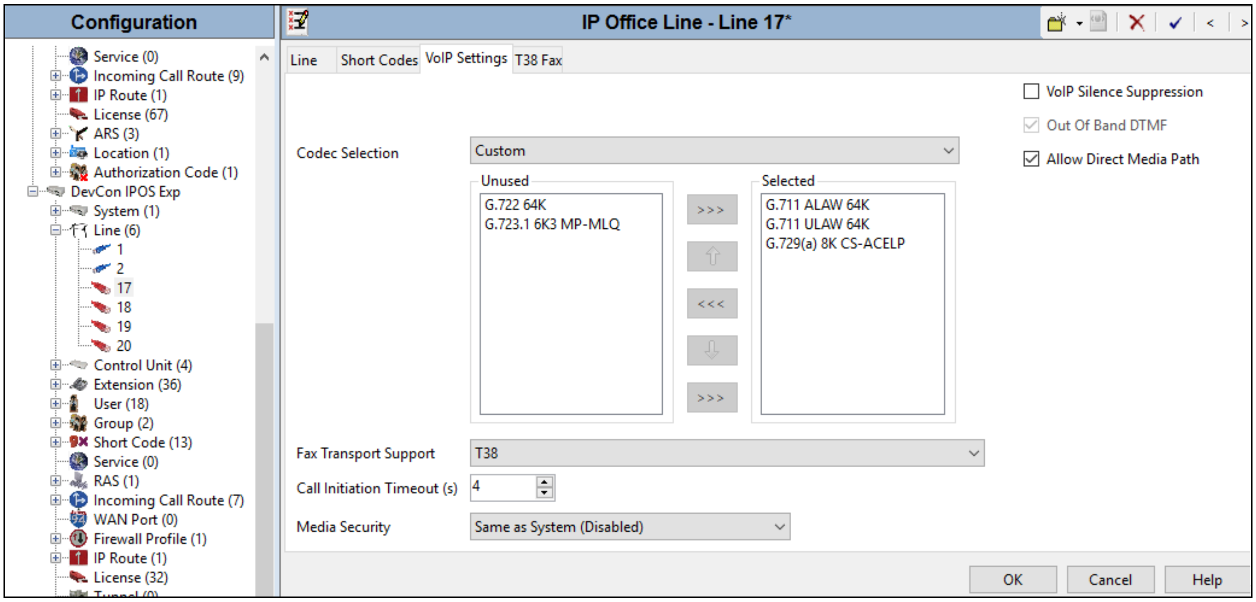
Click on **VoIP Settings** tab to configure **Codec Selection**. Below are the codes used during compliance test for SCN on IP Office Server Edition for **Line 1.**



Select the line configured for IP Office Expansion system, in this case, **Line 17.**



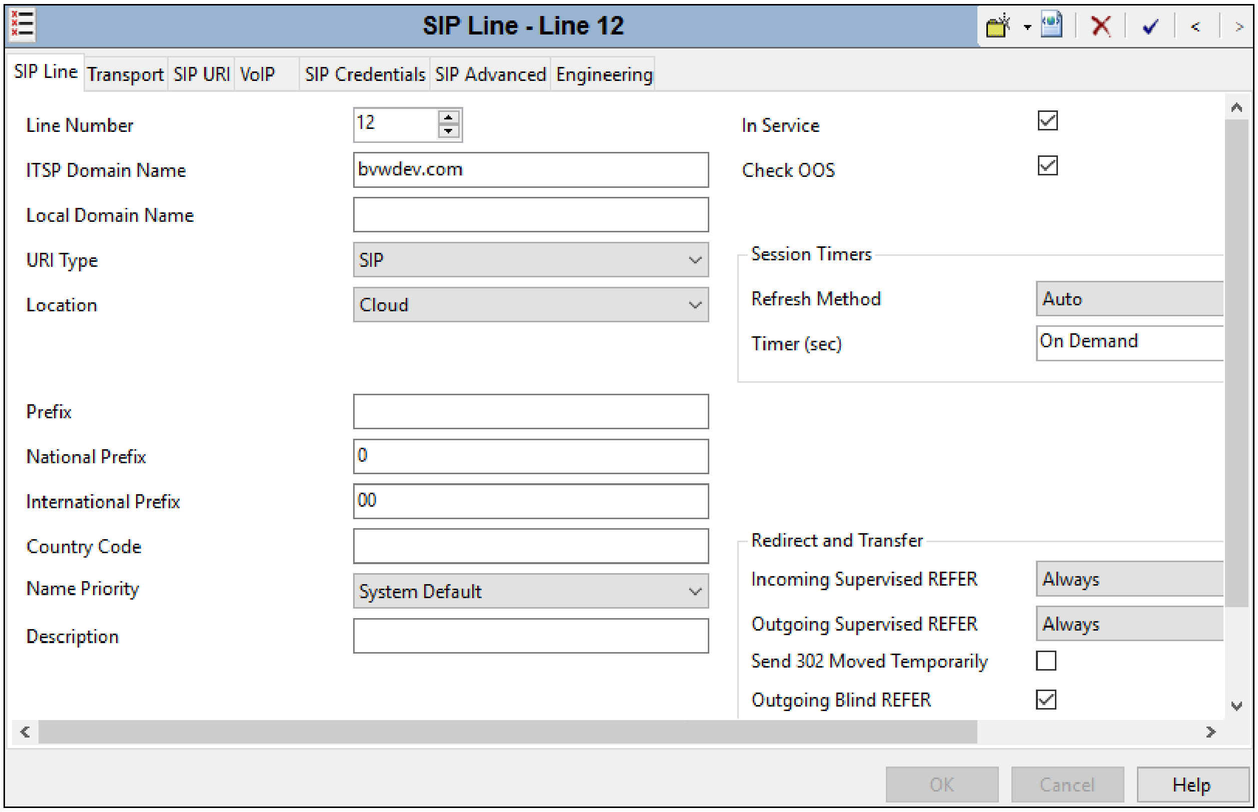
Click on **VoIP Settings** tab to configure Codec Selection. Below are the codecs used during compliance test for IP Office Expansion System.



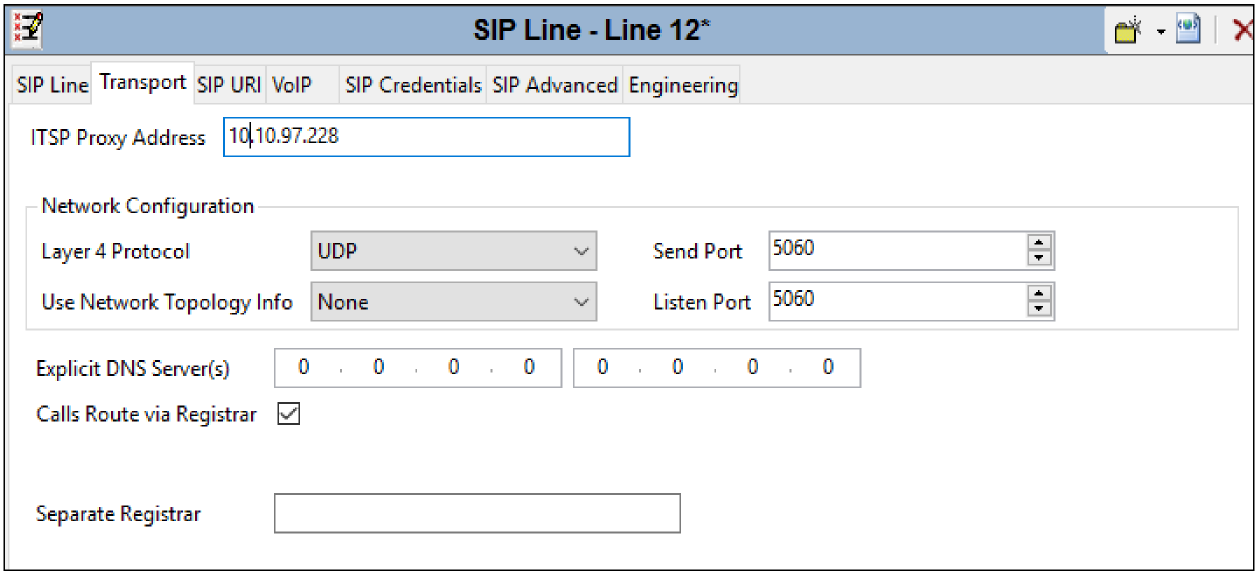
5.6. Simulated PSTN/ISP SIP Trunk Configuration

A SIP trunk was pre-configured on the IP Office for connectivity to the simulated PSTN/ISP. Since it is an integral part of the test configuration, a screenshot is included in this section for informational purposes.

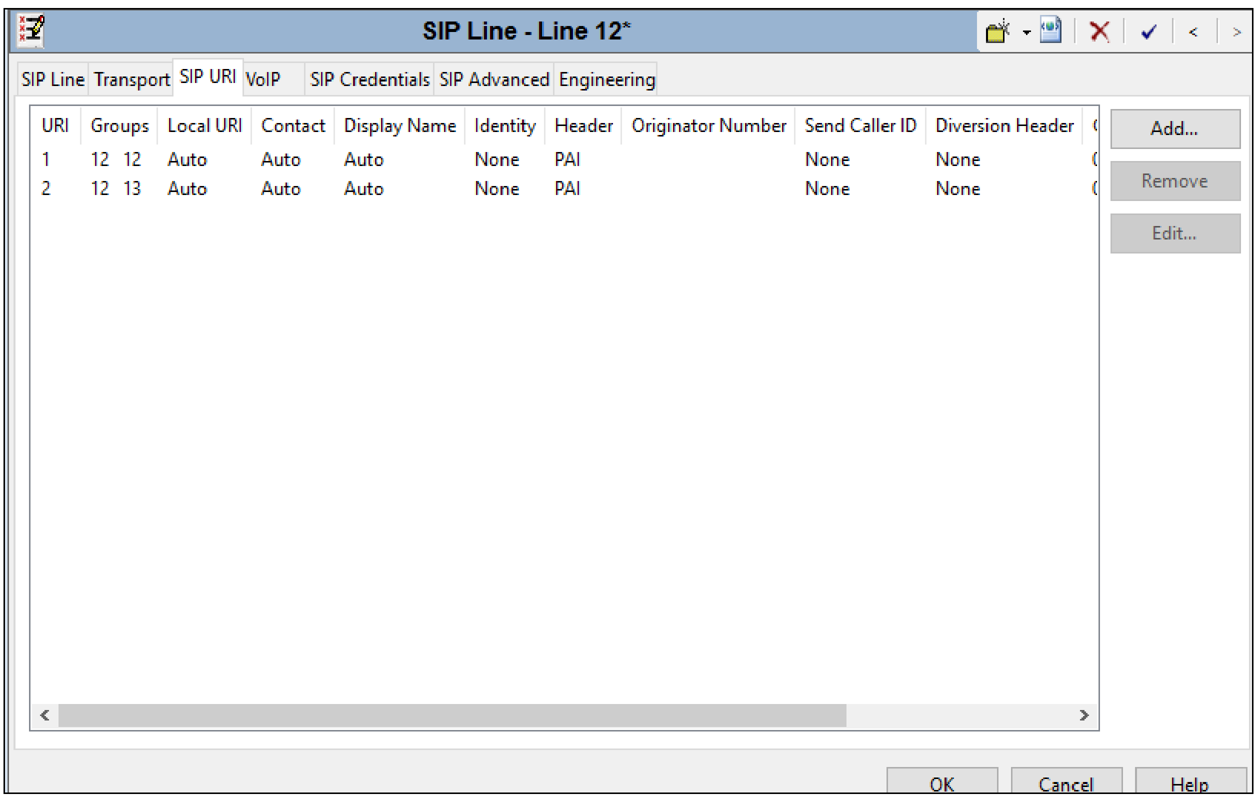
On Primary IP Office, **Line 12** was used to connect IP Office to simulated PSTN/ISP.



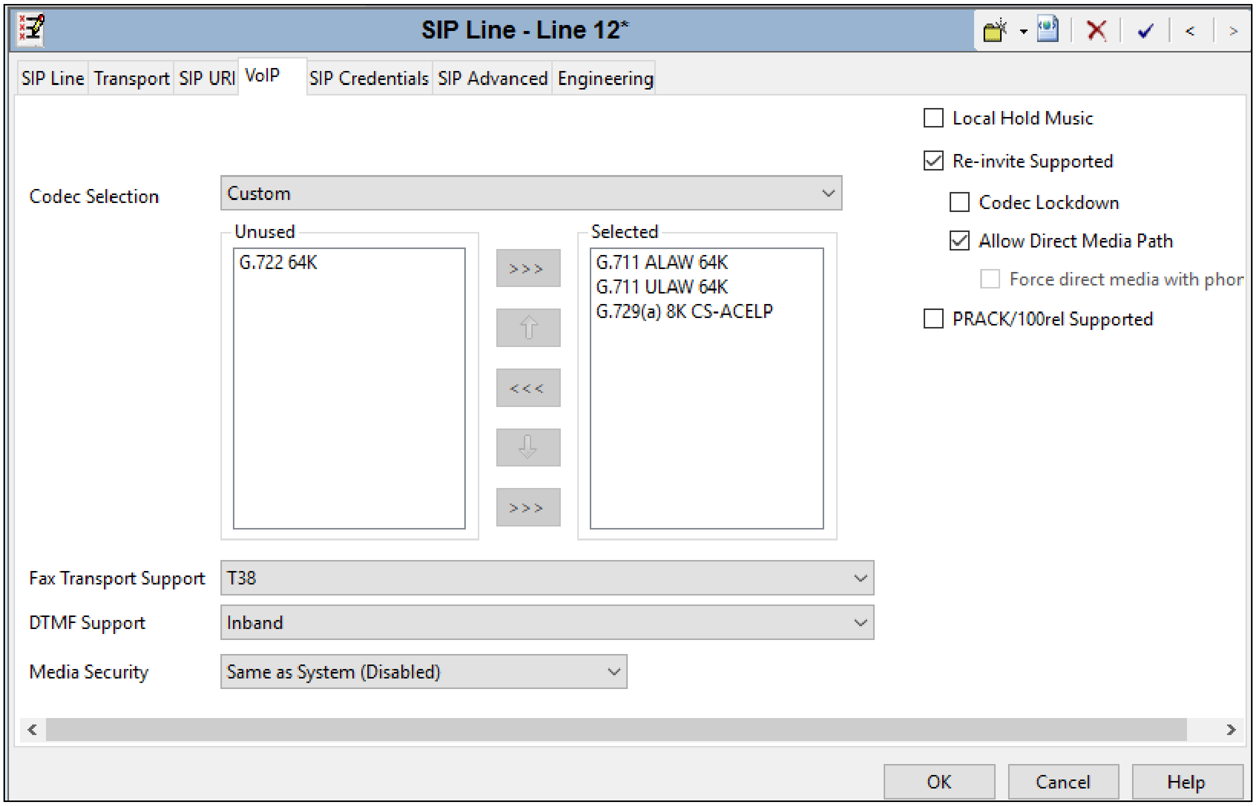
Under the **Transport** tab, for **ITSP Proxy Address** the IP address of the simulated PSTN/ISP was configured.



In the **SIP URI** tab, SIP URI record created as shown below:

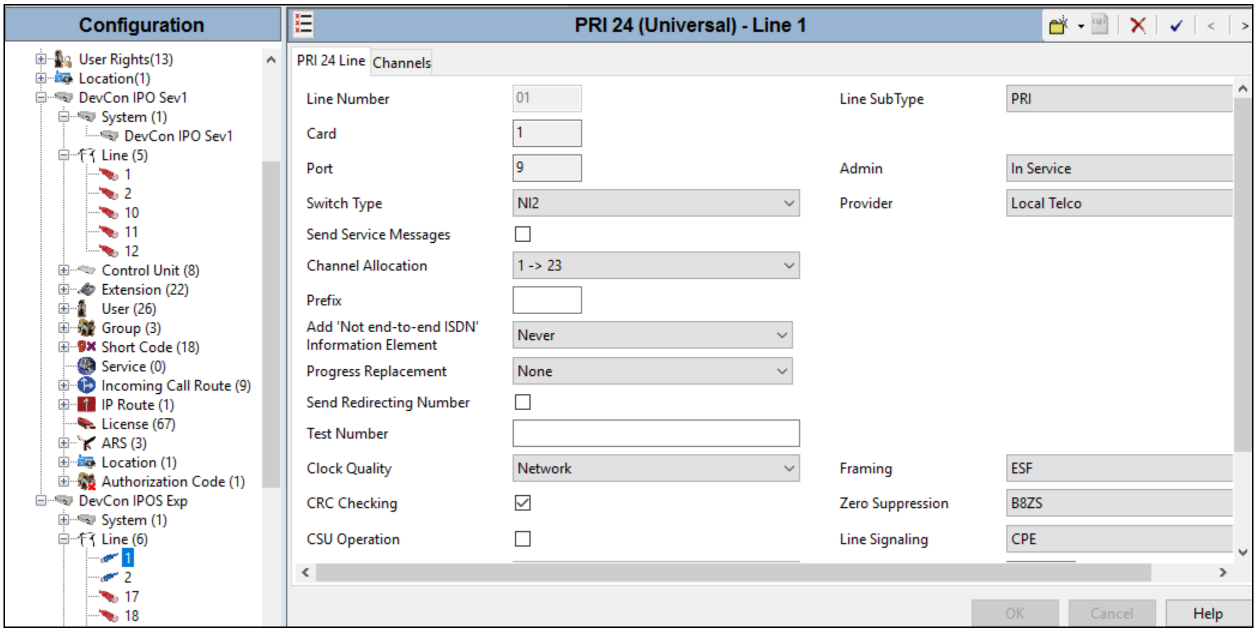


In **VoIP** tab, default values were used as shown below:



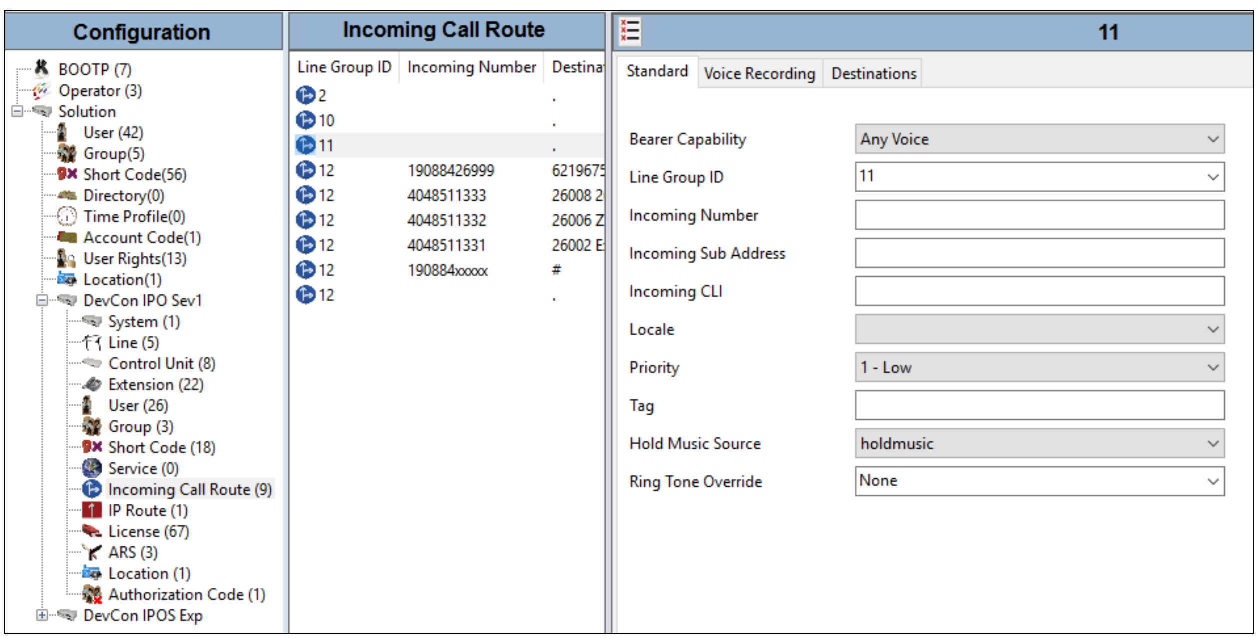
5.7. Simulated PSTN PRI on IP 500V2 Expansion

On the IP Office Expansion system, PRI trunk is used to connect to simulated PSTN, in this case it is **Line 1**.

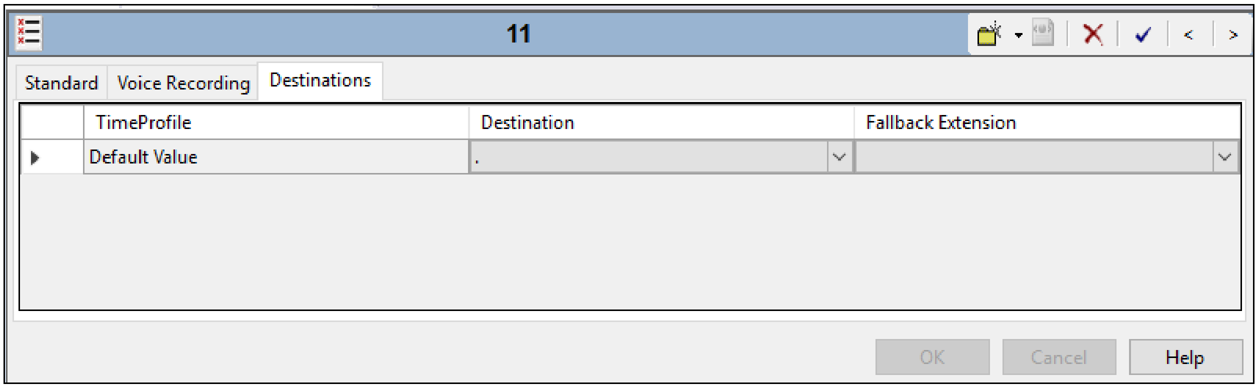


5.8. Administer Incoming Call Route

From the configuration tree in the left pane, right-click on **Incoming Call Route**, and select **New** from the pop-up list to add a new route (not shown). For **Line Group Id**, select the incoming group number from **Section 5.4**, in this case “11”. Click **OK**.



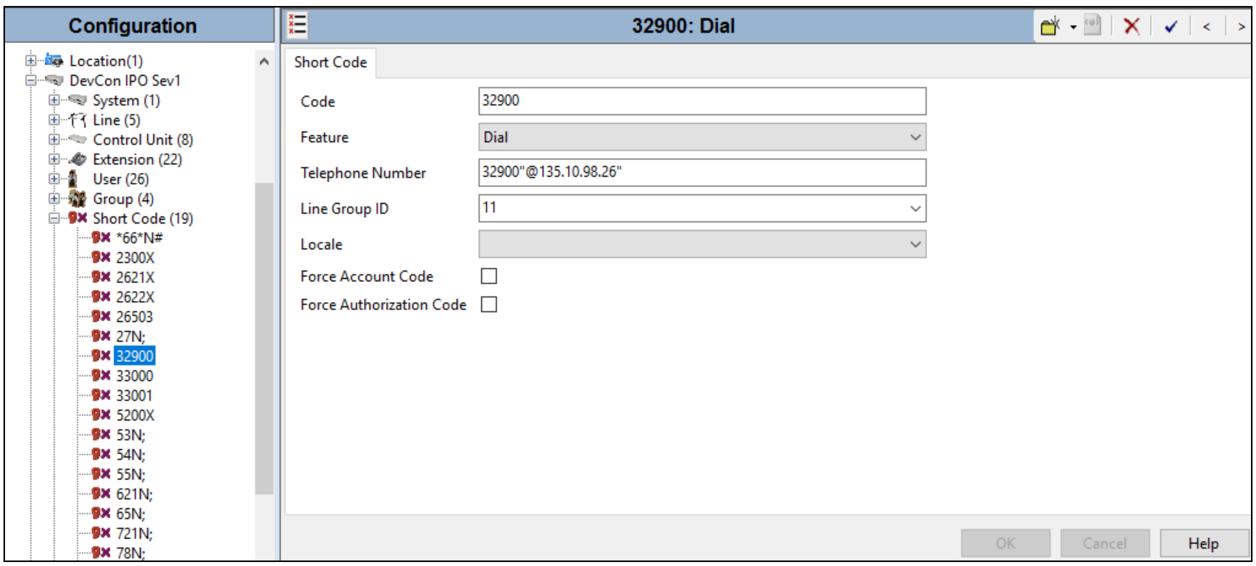
Select the **Destinations** tab. For **Destination**, enter "." to route the call to the dialed number received from FAXCOM without modification.



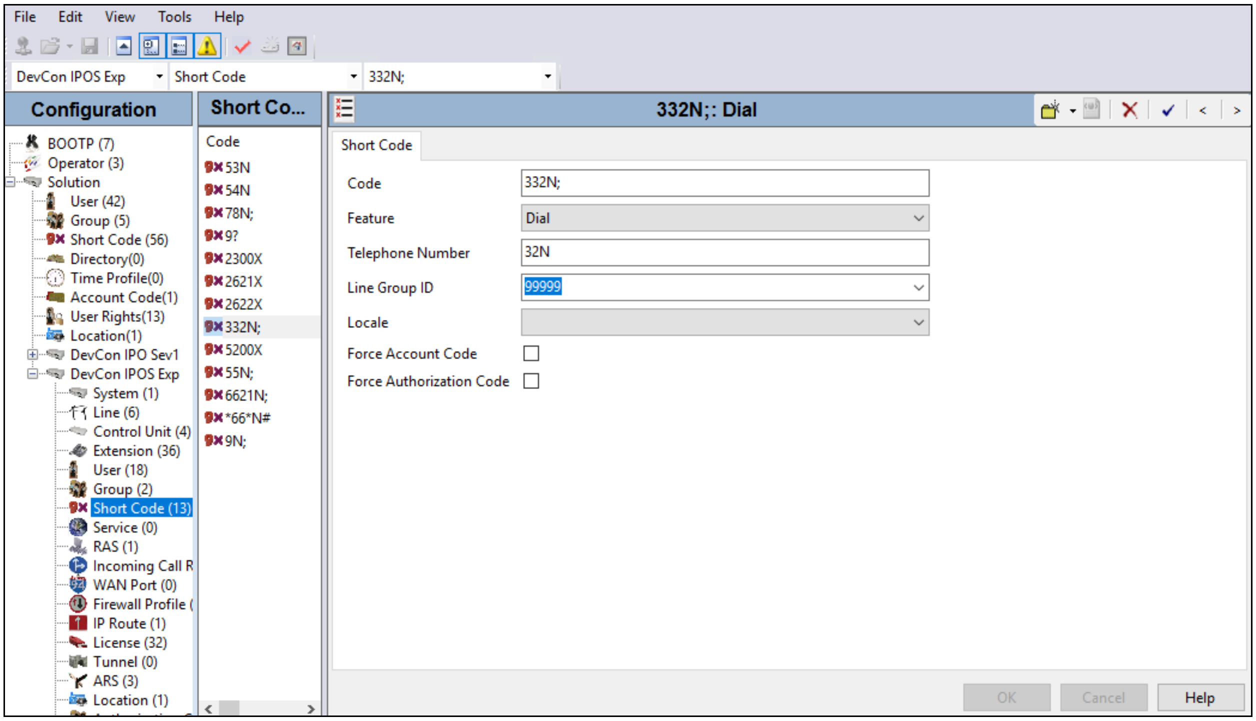
5.9. Administer Short Code

From the configuration tree in the left pane, right-click on **Short Code** and select **New** from the pop-up list to add a new short code for fax calls to FAXCOM. In the compliance testing, users on IP Office are designated with fax numbers 320xx, and faxes are routed over the SIP trunks to FAXCOM. Users on IP Office Expansion system used 3320xx to reach FAXCOM on Primary IP Office.

For **Code**, enter "32900". For **Feature**, select "Dial" from the drop-down list. For **Telephone Number**, enter "32900"@10.10.98.26" where "32900" corresponds to the short code and "10.10.98.26" is the IP address of FAXCOM. For **Line Group ID**, enter the outgoing group number from **Section 5.4**, example 11**.** Click **OK**.



Repeat same step to create a Short Code on the IP Office Expansion system to reach FAXCOM, displayed below is the Short Code used during compliance test. For **Code**, enter "332N". For **Feature**, select "Dial" from the drop-down list. For **Telephone Number**, enter "32N". For **Line Group ID**, enter the outgoing group ID from **Section 5.5**, example 99999**.** Click **OK**



Click on **Save** icon to save all changes.

Follow instructions on the screens to save all changes.

6. Configure Biscom FAXCOM

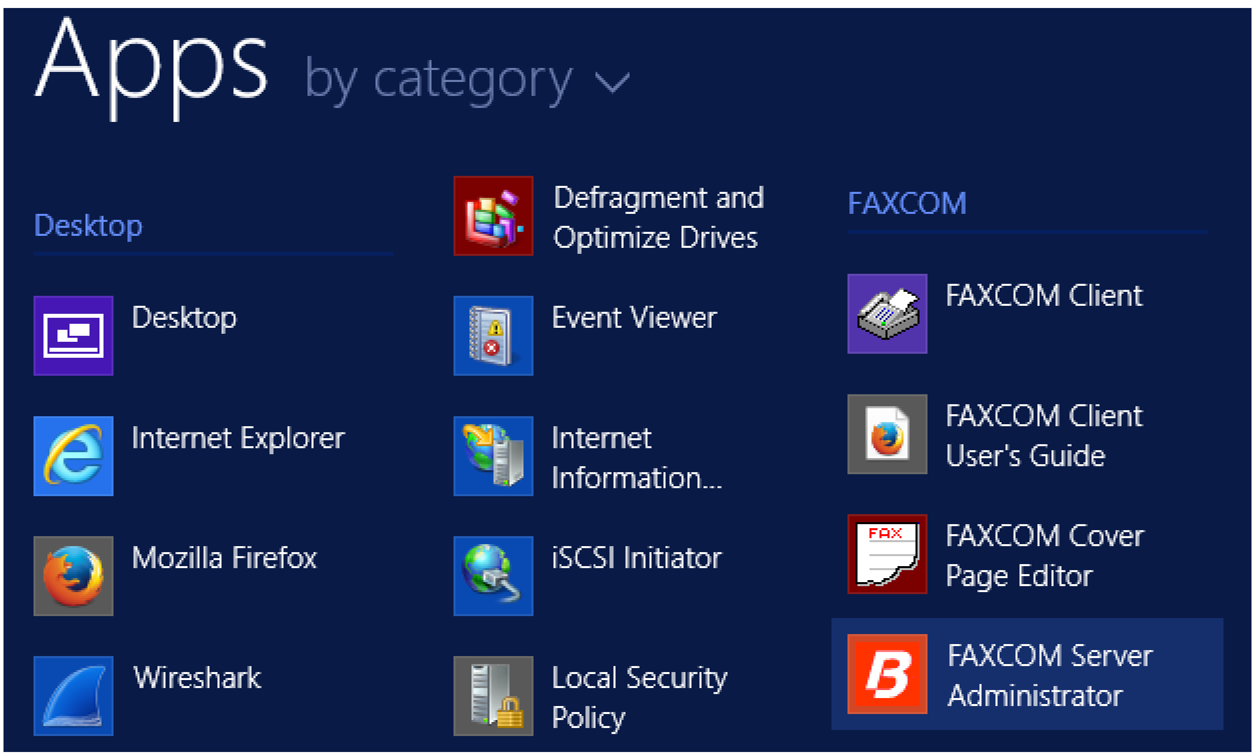
This section provides the procedures for configuring FAXCOM. The procedures include the following areas:

- Launch FAXCOM Server Administrator Program
- Administer Fax Ports
- Administer Server Settings
- Administer incoming routing table
- Restart service

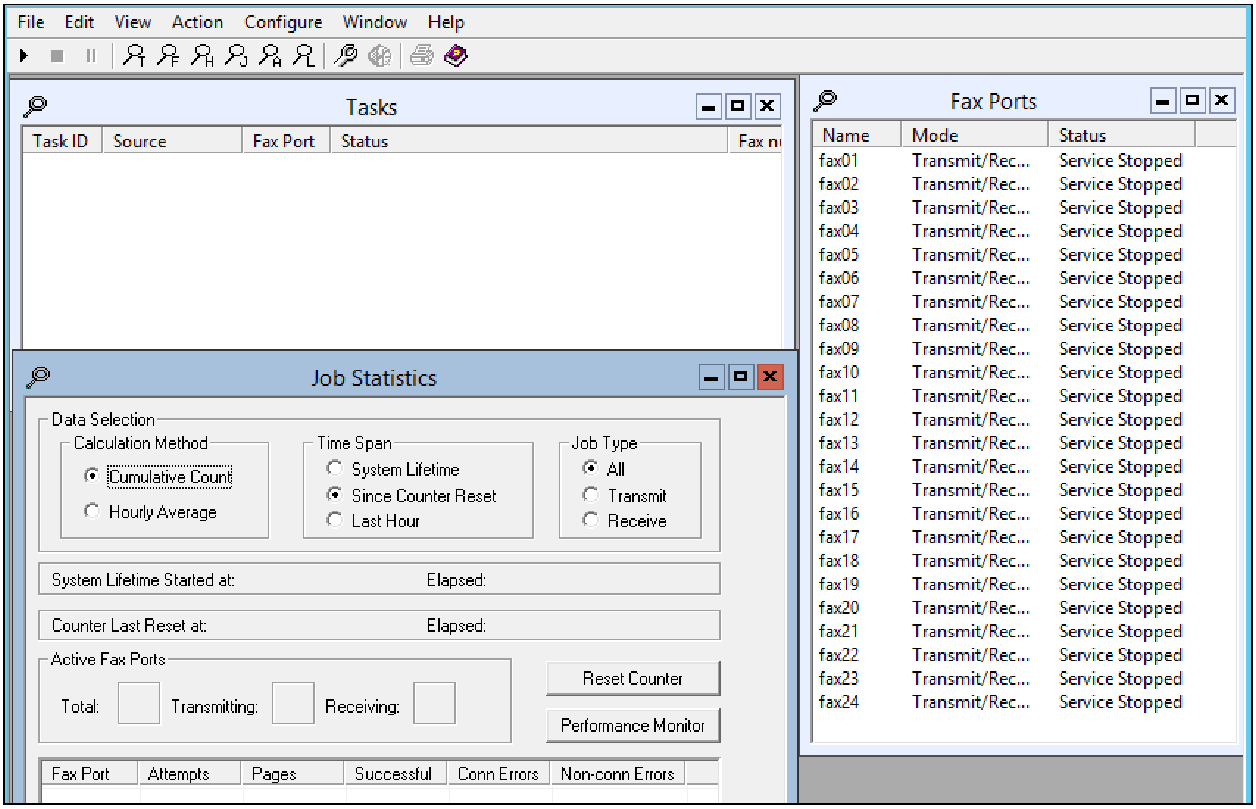
Note that as part of the FAXCOM installation, the IP Office IP address was entered, and a site name and the Basic user profile were created.

6.1. Launch FAXCOM Server Administrator Program

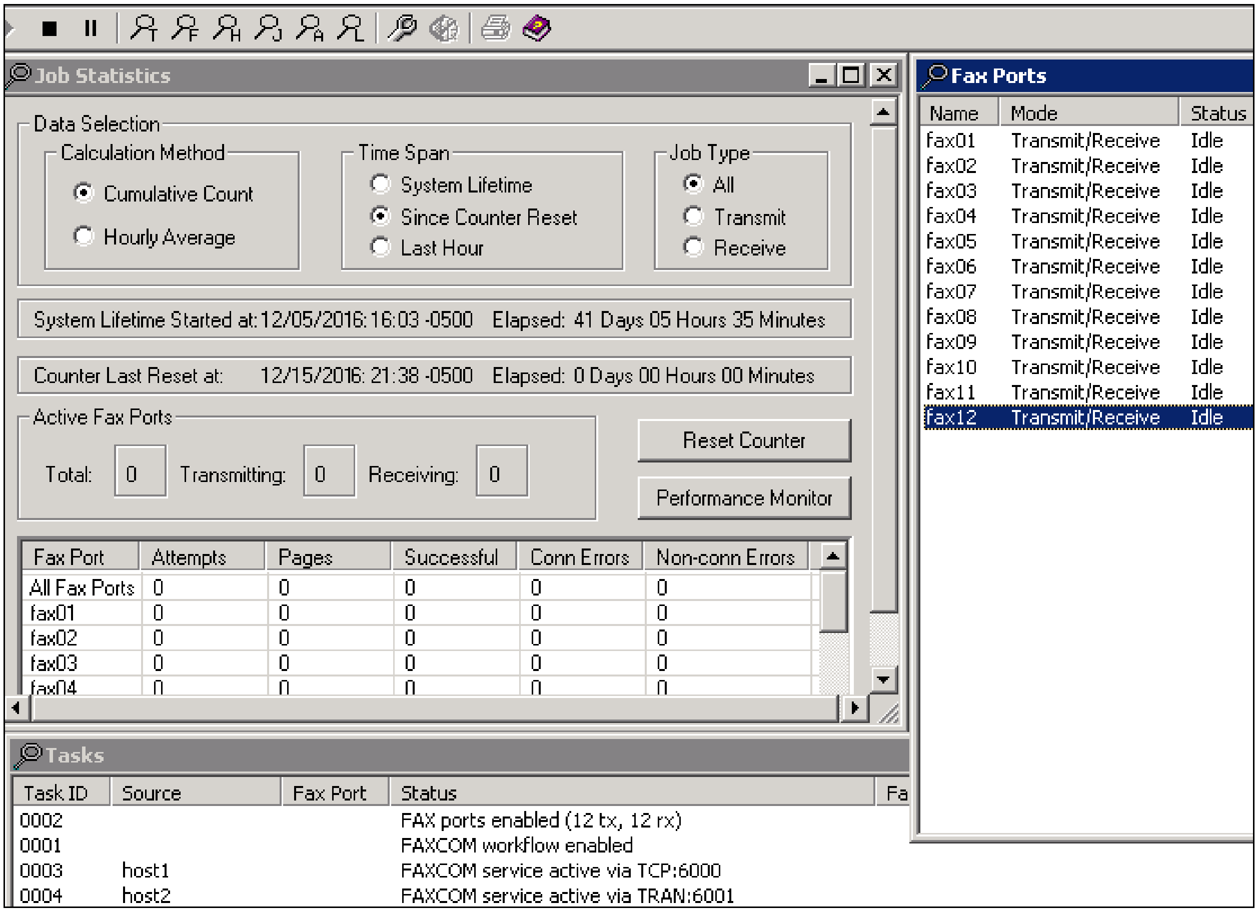
From the FAXCOM server, select **Start → Apps by category → FAXCOM Server Administrator** to launch the application.



FAXCOM Server Administrator window opens and a set of three windows are displayed on the FAXCOM desktop –Job Statistics, Tasks, and Fax Ports.

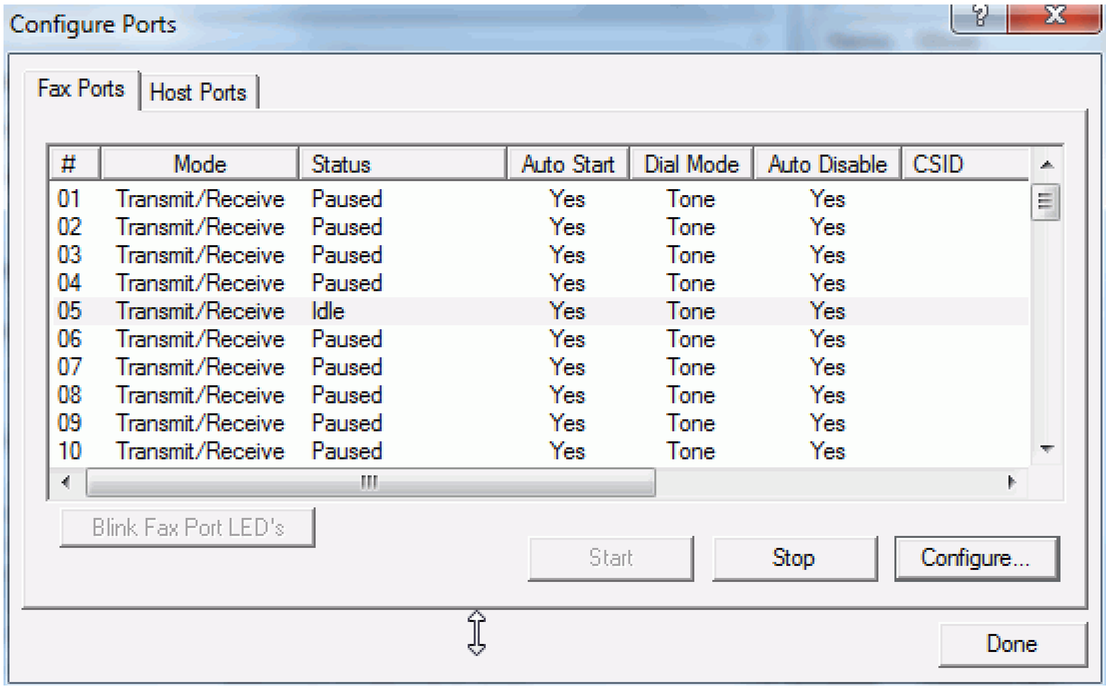


Click on  icon to start fax service. Verify all the ports are “Idle” as shown below:

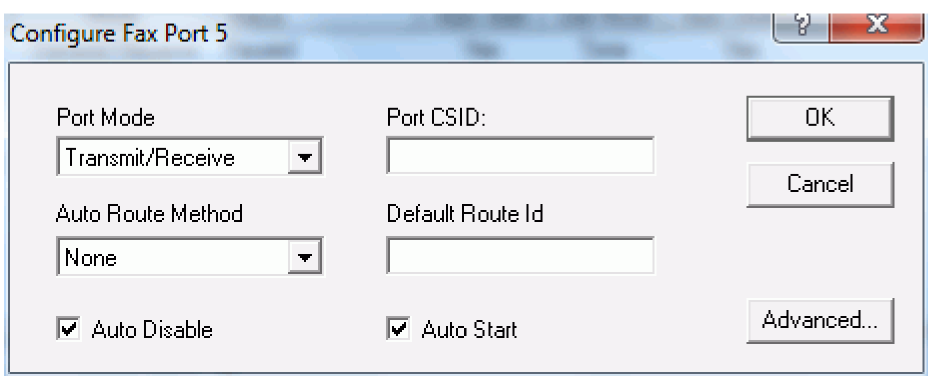


6.2. Administer Fax Ports

Navigate to **Configure → Ports → Fax Ports (**not shown). Configure **Fax Ports** tab shown as below:

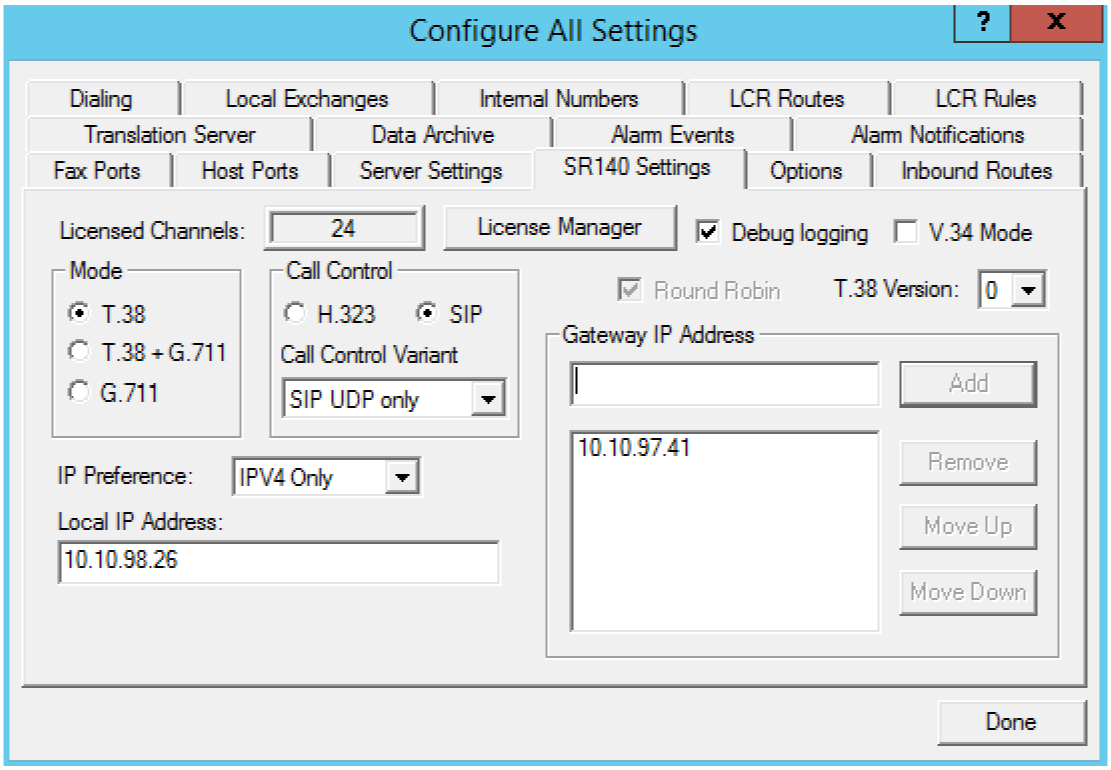


To configure the port, highlight the port and click the **Configure** button to display the Fax Port dialog. (If the port is not stopped, you are prompted whether to stop the port since you cannot configure a port unless you first stop it. You can, however, view the configuration in read-only mode without stopping the port.). Specify the appropriate information as follows, clicking **OK** when done. During compliance testing, **Port Mode** "Transmit/Receive" was selected.

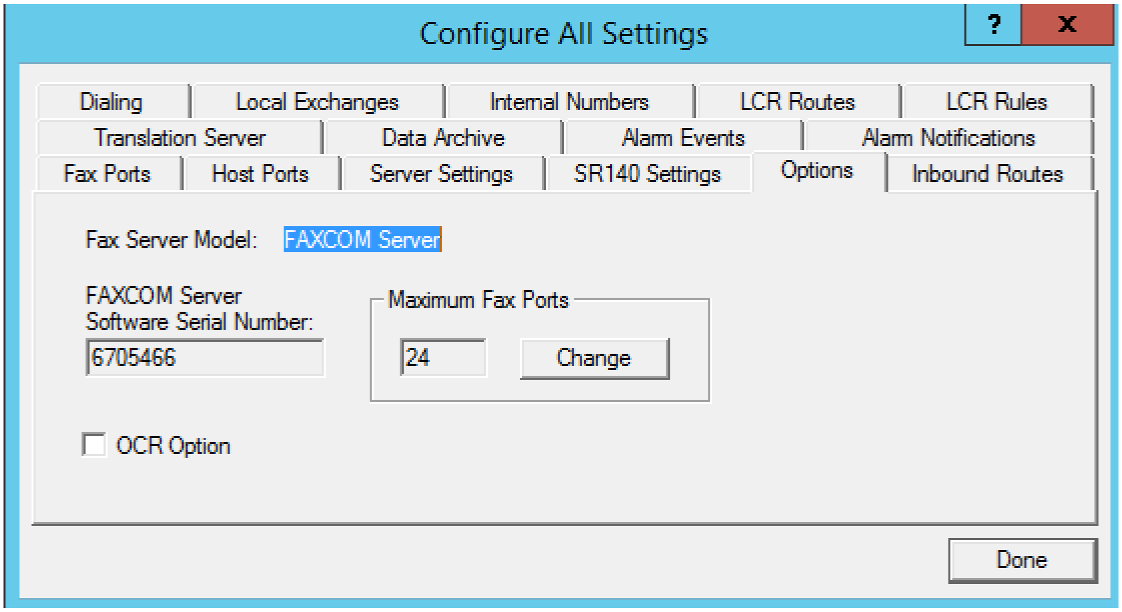


6.3. Administer Server Setting

From the **FAXCOM Server Administrator** window, select **Configure → Server Setting.** Select **SR140 Settings**; select "T.38" for **Mode.** In **Call Control** box, select "SIP" and "Avaya" for **Call Control Variant**. **T.38 Version** is "0". **Local IP address** is FAXCOM IP address; in this case it is "10.10.98.26". **Gateway IP Address** is the IP Office IP address; in this case it is "10.10.97.41". Click **Done** to save changes.

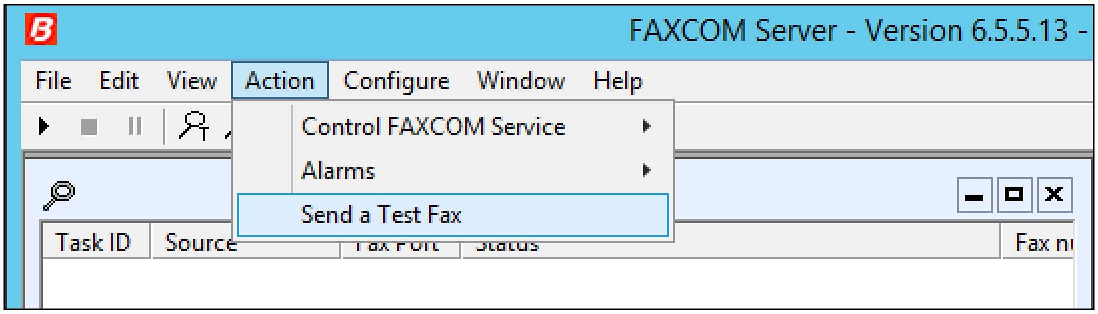


Select **Configure → All Settings**, select **Options** tab. Verify maximum number of ports setup. Click **Done** to close window.

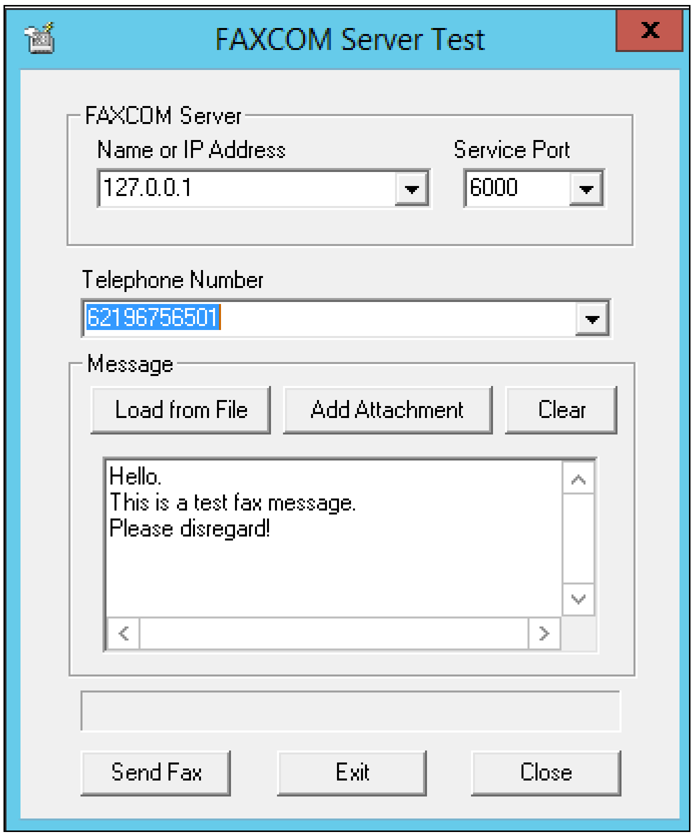


6.4. Send a Test Fax

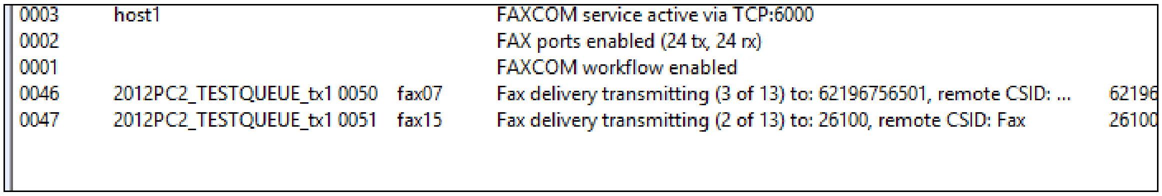
From the **Action** menu, select **Send a Test Fax**.



The FAXCOM Server Test dialog box is displayed, with the name or internal IP Address of the FAXCOM Server itself and the default TCP port number prefilled. In the **Telephone Number** box, specify the fax number of a nearby fax machine. Click the **Send Fax** button.



Verify in the log window job is created and sending fax.



Upon completion, the Completion Status window is displayed. Confirm the **result** is "trok" (for transmit ok). Click **OK**. When returned to the FAXCOM Server Test dialog, close the dialog.

7. Verification Steps

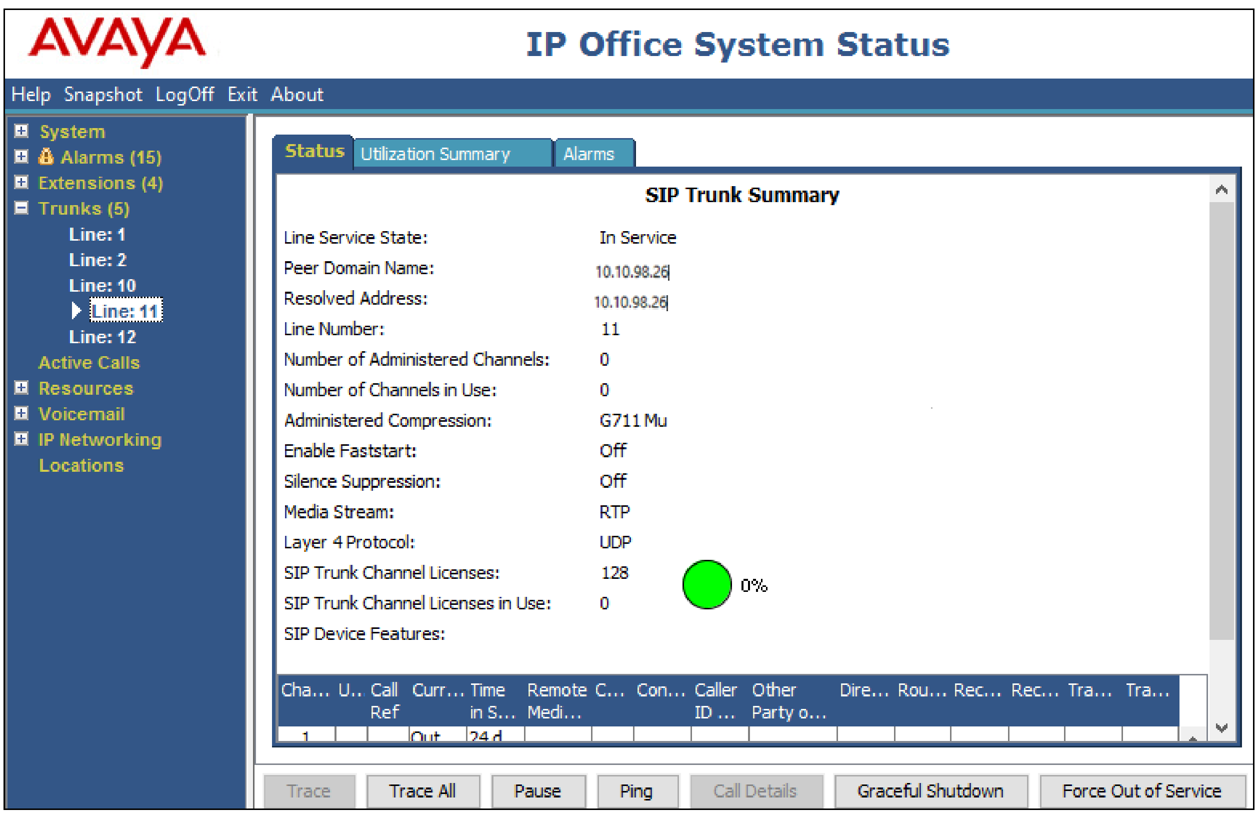
This section provides the tests that can be performed to verify proper configuration of IP Office and FAXCOM. Prior to verification, start sending a fax from the PSTN to a fax user on IP Office.

7.1. Verify Avaya IP Office

Send a fax from FAXCOM to a simulated PSTN fax machine. Verify the connection status of a trunk on IP Office by navigate to **Avaya IP Office R10 Manager** screen shown in **Section 5.1**, select **File → Advanced → System Status** to launch the System Status application, and log in using the appropriate credentials (not shown).

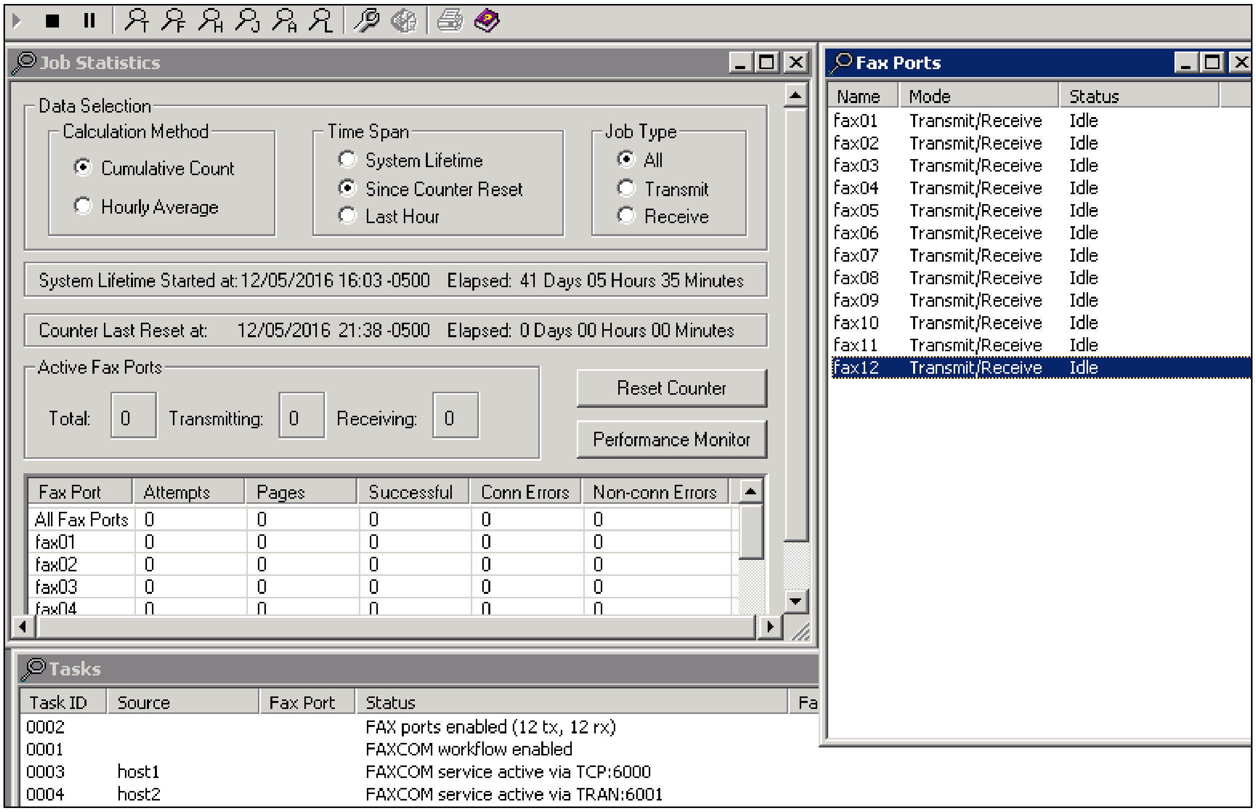
The **IP Office System Status** screen is displayed. Expand **Trunks** in the left pane and select the SIP line in this case "11" SIP trunk to FAXCOM.

Verify that the **SIP Trunk Summary** screen shows an active channel with **Current State** of "Connected". Also verify that the **Other Party on Call** contains the proper information for the trunk "Line: 17 SIP bvwdev.com" to simulated PSTN, as shown below



7.2. Verify Biscom FAXCOM

In the **FAXCOM** screen, verify all the ports in **Fax Ports** window shows that all ports are idle.



8. Conclusion

These Application Notes describe the configuration steps required for Biscom FAXCOM 6.5.5.13 to successfully interoperate with Avaya IP Office R10. All feature and serviceability test cases were completed with an observation noted in **Section 2.2**.

9. Additional References

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

1. *IP Office Manager R10*, Document 15-601011, available at http://support.avaya.com.
2. *FAXCOM_Server_Administrator's_Guide*.
3. *FAXCOM-Fax-Server-Data-Sheet*.

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.