



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

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# **Application Notes for Biamp AudiaFLEX VoIP-2 with Avaya IP Office – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for Biamp AudiaFLEX VoIP-2 to interoperate with Avaya IP Office.

Biamp AudiaFLEX is a digital audio platform, and the VoIP-2 card allows connections to IP-based phone systems. In the compliance testing, the VoIP-2 card registered as two SIP endpoints to Avaya IP Office.

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 Biamp AudiaFLEX VoIP-2 to interoperate with Avaya IP Office.

Biamp AudiaFLEX is a digital audio platform, and the VoIP-2 card allows connections to IP-based phone systems. Each VoIP-2 supports a maximum of two channels. In the compliance testing, one VoIP-2 card was used and registered as two SIP endpoints to Avaya IP Office.

Biamp AudioFLEX VoIP-2 is typically controlled by custom third party applications, developed using the Biamp API. The compliance test used the default out-of-the-box Biamp Audia application to configure and control the VoIP-2 card, along with microphones and speakers to test the audio connections. Any customized application developed using the Biamp API is outside the scope of this compliance test.

## 2. General Test Approach and Test Results

The feature test cases were performed manually. Calls were manually established between AudiaFLEX VoIP-2 users with Avaya SIP, Avaya H.323, Avaya Digital and/or PSTN users. Call controls were performed from the various users to verify the call scenarios.

The serviceability test cases were performed manually by disconnecting and reconnecting the Ethernet cable to AudiaFLEX VoIP-2.

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 interoperability compliance test included feature and serviceability testing.

The feature testing included registration, basic call, display, hold/reconnect, drop, media shuffling, G.711, G.729, codec negotiation, music on hold, DTMF, feature access code dialing with asterisk and pound, hunt group membership, long hold with held call reminder, long duration, coverage, simultaneous calls at both AudiaFLEX VoIP-2 channels, call progress tones and treatment of reorder and busy.

The serviceability testing focused on verifying the ability of AudiaFLEX VoIP-2 to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to AudiaFLEX VoIP-2.

## 2.2. Test Results

All test cases were executed. The following were observations on AudiaFLEX VoIP-2 from the compliance testing.

- Only one call appearance is supported by each VoIP-2 channel, therefore features such as call waiting, call park, transfer, and conference are not applicable.
- For outbound calls, only the dialed number is provided.
- The Message Waiting Indicator is not supported.
- When a VoIP-2 channel places the call on hold for more than 20 minutes, the call will be dropped by the card due to failure from RTCP detection, although the Audia application continued to show the call being active and connected.

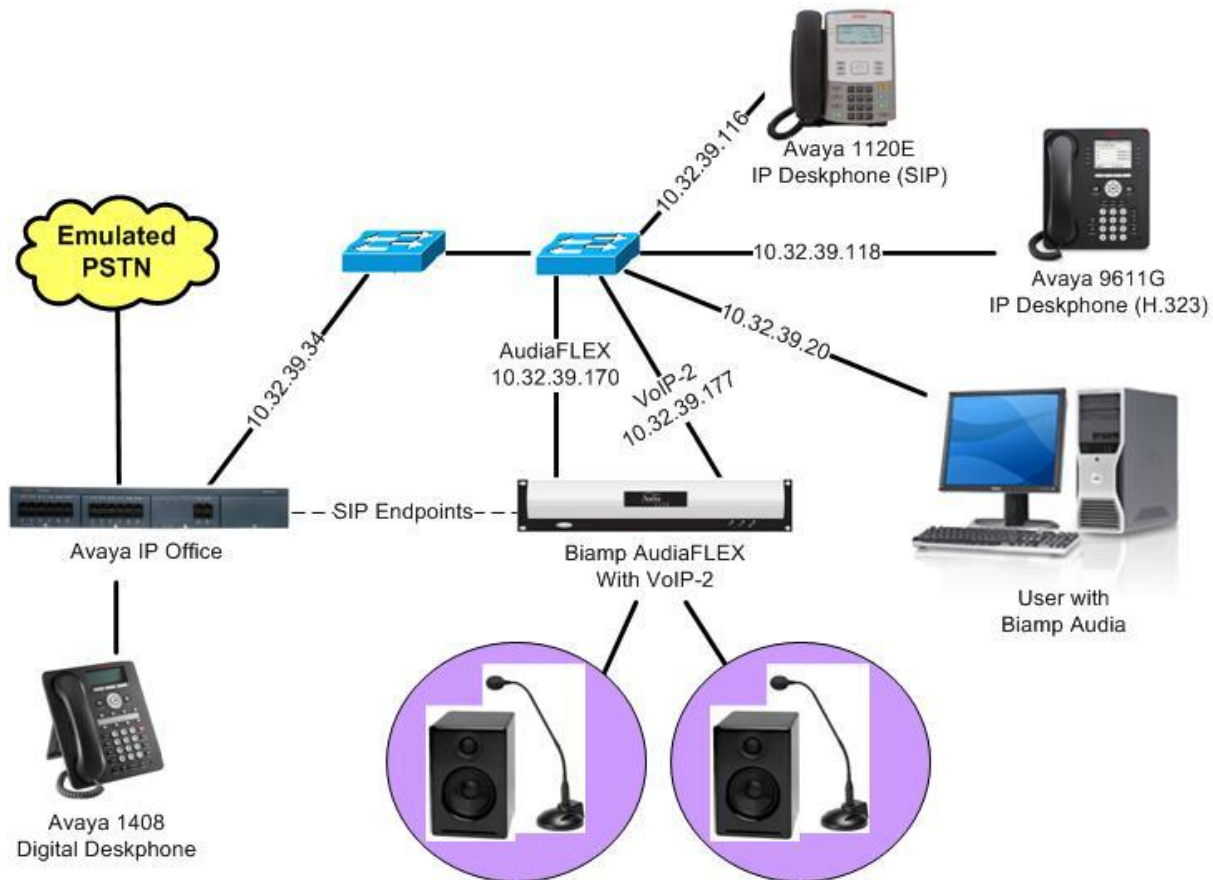
## 2.3. Support

Technical support on AudiaFLEX VoIP-2 can be obtained through the following:

- **Phone:** (800) 826-1457
- **Email:** <http://www.biamp.com/support.php>

### 3. Reference Configuration

The configuration used for the compliance test is shown below. The Biamp Audia application was installed on a PC to configure and control the AudiaFLEX VoIP-2 card. Two separate sets of microphones and speakers were used and physically connected to the AudiaFLEX server to verify the audio connections.



**Figure 1: Compliance Testing Configuration**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office IP500 V2	8.1 (52)
Avaya 1120E IP Deskphone (SIP)	4.3.12
Avaya 9611G IP Deskphone (H.323)	6.2209
Avaya 1408 Digital Deskphone	NA
Biamp AudiaFLEX • VoIP-2	3.401-2.3-4.830 1.201
Biamp Audia on Microsoft Windows XP Professional	5.3 2002 SP3

*Testing was performed with IP Office 500 V2 R8.1, but also applies to IP Office Server Edition R8.1 (single site configuration only).*

## 5. Configure Avaya IP Office

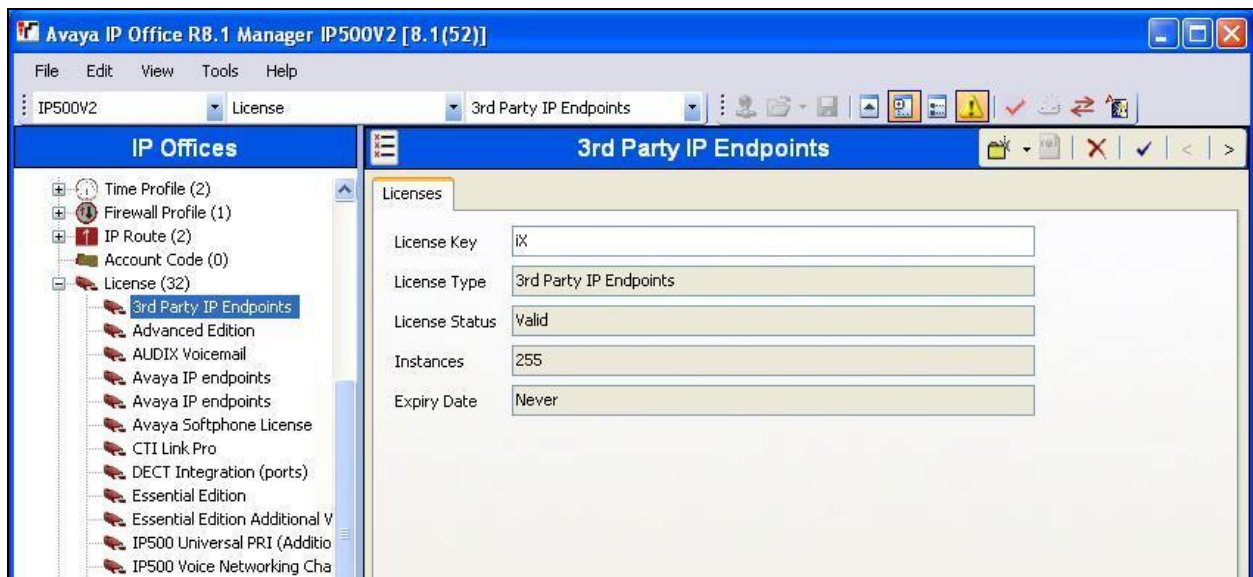
This section provides the procedures for configuring IP Office. The procedures include the following areas:

- Verify license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extensions
- Administer SIP users

### 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 IP Office system, and log in with the appropriate credentials.

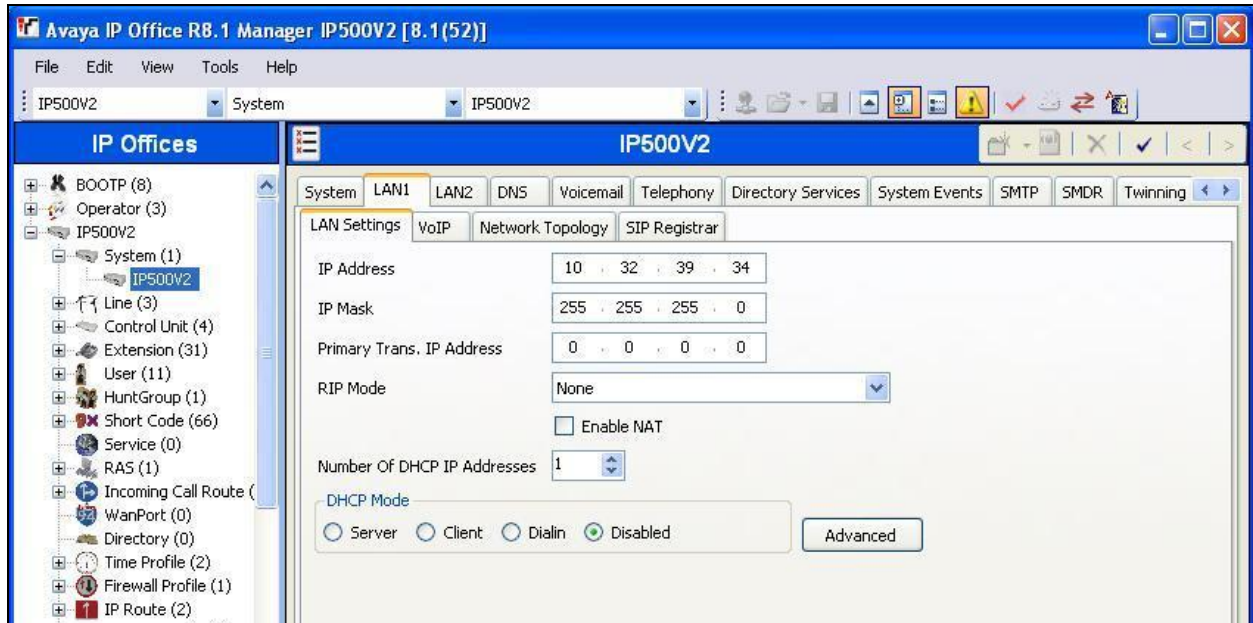
The **Avaya IP Office R8.1 Manager** screen is displayed. From the configuration tree in the left pane, select **License → 3<sup>rd</sup> Party IP Endpoints** to display the **3<sup>rd</sup> Party IP Endpoints** screen in the right pane. Verify that the **License Status** is “Valid”.



## 5.2. Obtain LAN IP Address

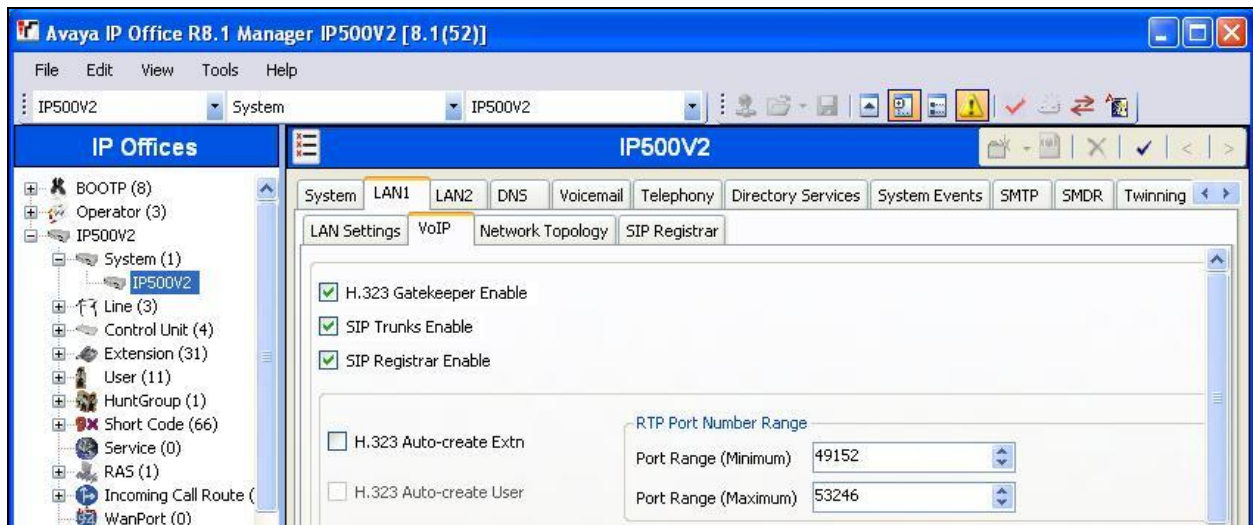
From the configuration tree in the left pane, select **System** to display the screen in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure AudiaFLEX.

Note that IP Office can support SIP extensions on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.

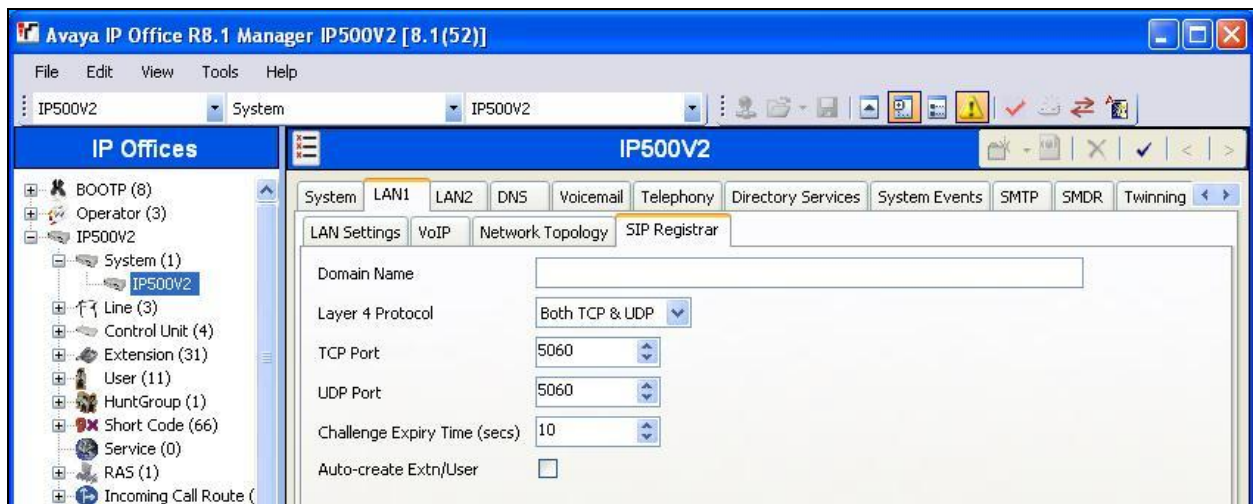


### 5.3. Administer SIP Registrar

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



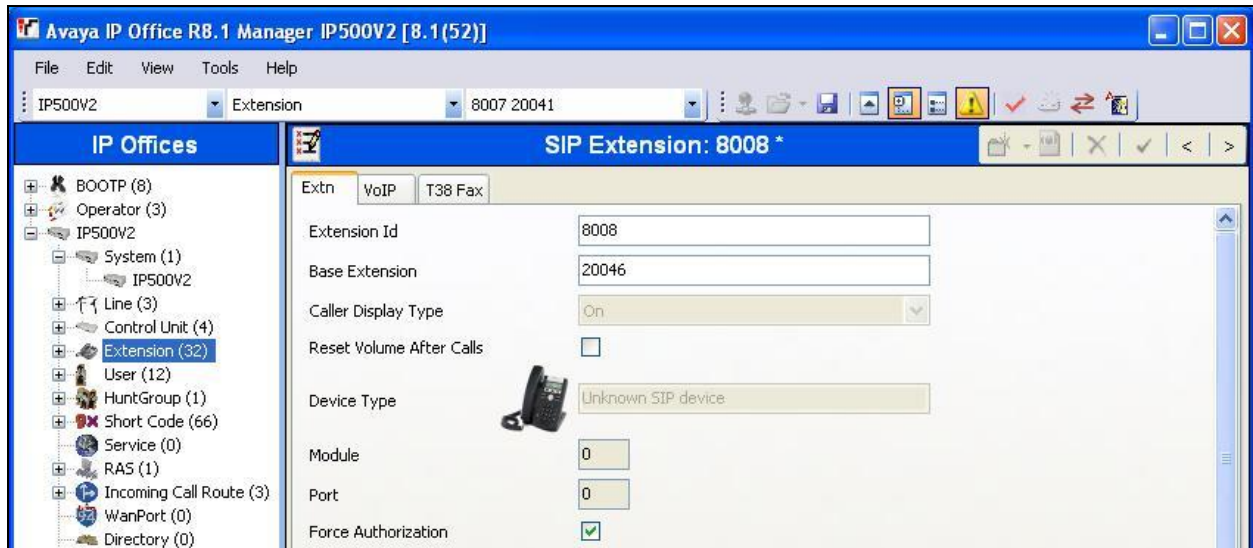
Select the **SIP Registrar** sub-tab, and enter a valid **Domain Name** for SIP endpoints to use for registration. In the compliance testing, the **Domain Name** was left blank, so the SIP endpoints used the LAN IP address for registration.



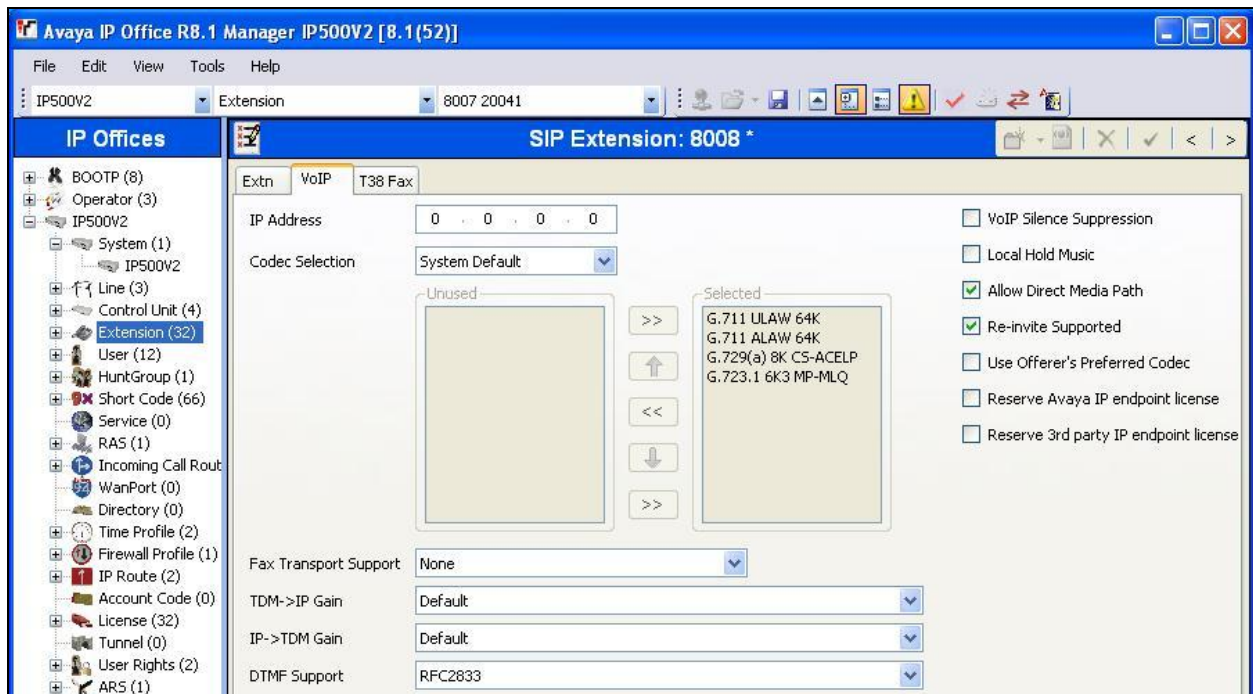


## 5.4. Administer SIP Extensions

From the configuration tree in the left pane, right-click on **Extension** and select **New → SIP Extension** from the pop-up list to add a new SIP extension. Enter the desired digits for **Base Extension**, and retain the default check in the **Force Authorization** field shown below.



Select the **VoIP** tab, and retain the default values in all fields. Repeat this section to add a new SIP extension for each AudiaFLEX VoIP-2 channel. In the compliance testing, two SIP extensions with base extensions of “20046” and “20047” were created.



## 5.5. Administer SIP Users

From the configuration tree in the left pane, right-click on **User**, and select **New** from the pop-up list. Enter desired values for **Name** and **Full Name**. For **Extension**, enter the first SIP base extension from **Section 5.4**.

The screenshot shows the Avaya IP Office R8.1 Manager IP500V2 [8.1(52)] interface. The left pane displays the configuration tree with 'User (12)' selected. The right pane shows the 'User' configuration window for '20041 sip20041'. The 'User' tab is active, showing fields for Name (sip20046), Password, Confirm Password, Full Name (AudiaFlex 1), Extension (20046), Locale, Priority (5), System Phone Rights (None), and Profile (Basic User). There are also checkboxes for Receptionist, Enable Softphone, and Enable one-X Portal Services.

Select the **Supervisor Settings** sub-tab, and enter a desired **Login Code**.

Repeat this section to add a new user for each SIP extension from **Section 5.4**. In the compliance testing, two users with names “sip20046” and “sip20047” were created.

The screenshot shows the Avaya IP Office R8.1 Manager IP500V2 [8.1(52)] interface. The left pane displays the configuration tree with 'User (12)' selected. The right pane shows the 'Supervisor Settings' sub-tab for '20041 sip20041'. The 'Supervisor Settings' sub-tab is active, showing fields for Login Code (\*\*\*\*\*), Login Idle Period (secs), Monitor Group (<None>), Coverage Group (<None>), Status on No-Answer (Logged On (No change)), Force Login, Force Account Code, and Outgoing Call Bar.

## 6. Configure Biamp AudiaFLEX VoIP-2

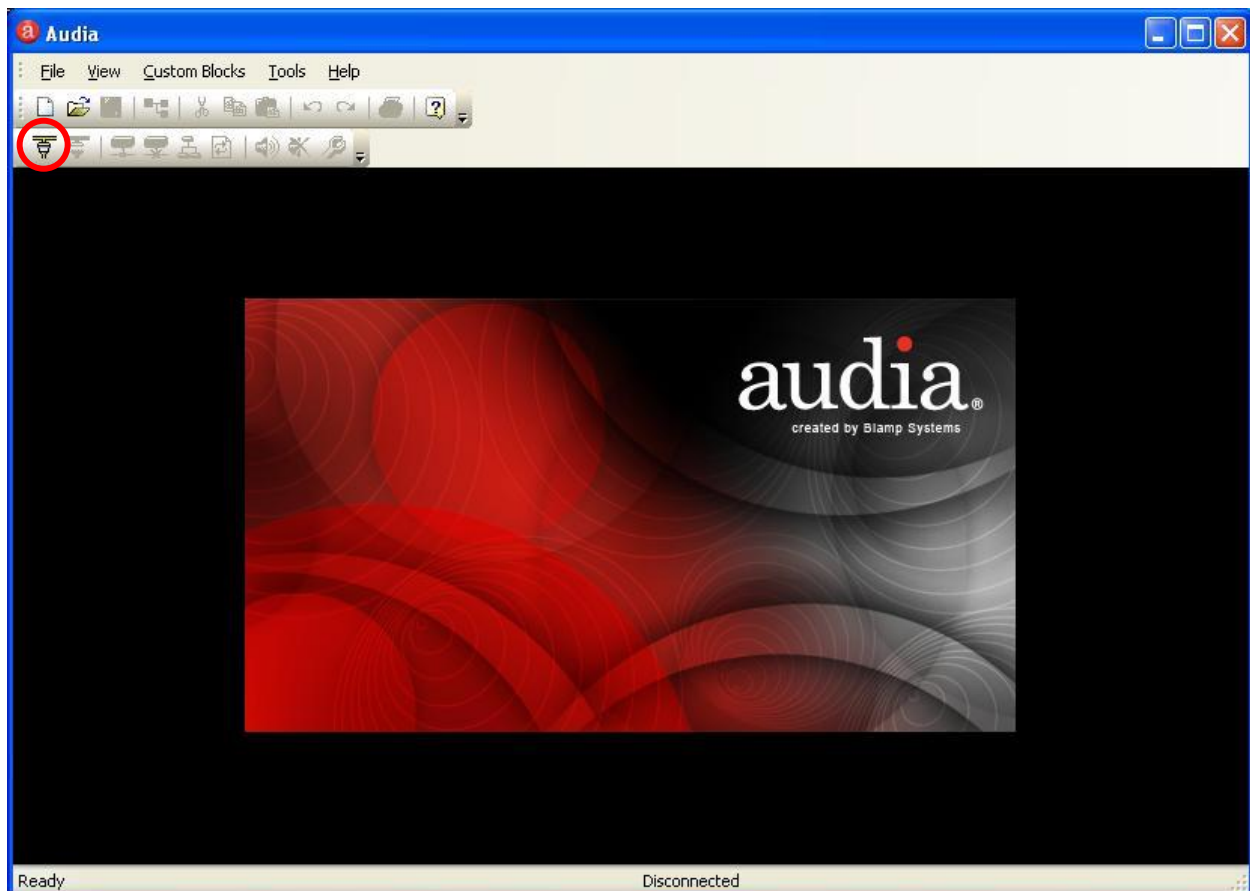
This section provides the procedures for configuring AudiaFLEX VoIP-2. The procedures include the following areas:

- Launch Audia
- Administer design components
- Administer VoIP console

The configuration of AudiaFLEX VoIP-2 is typically performed by authorized third party integrators. The procedural steps are presented in these Application Notes for informational purposes.

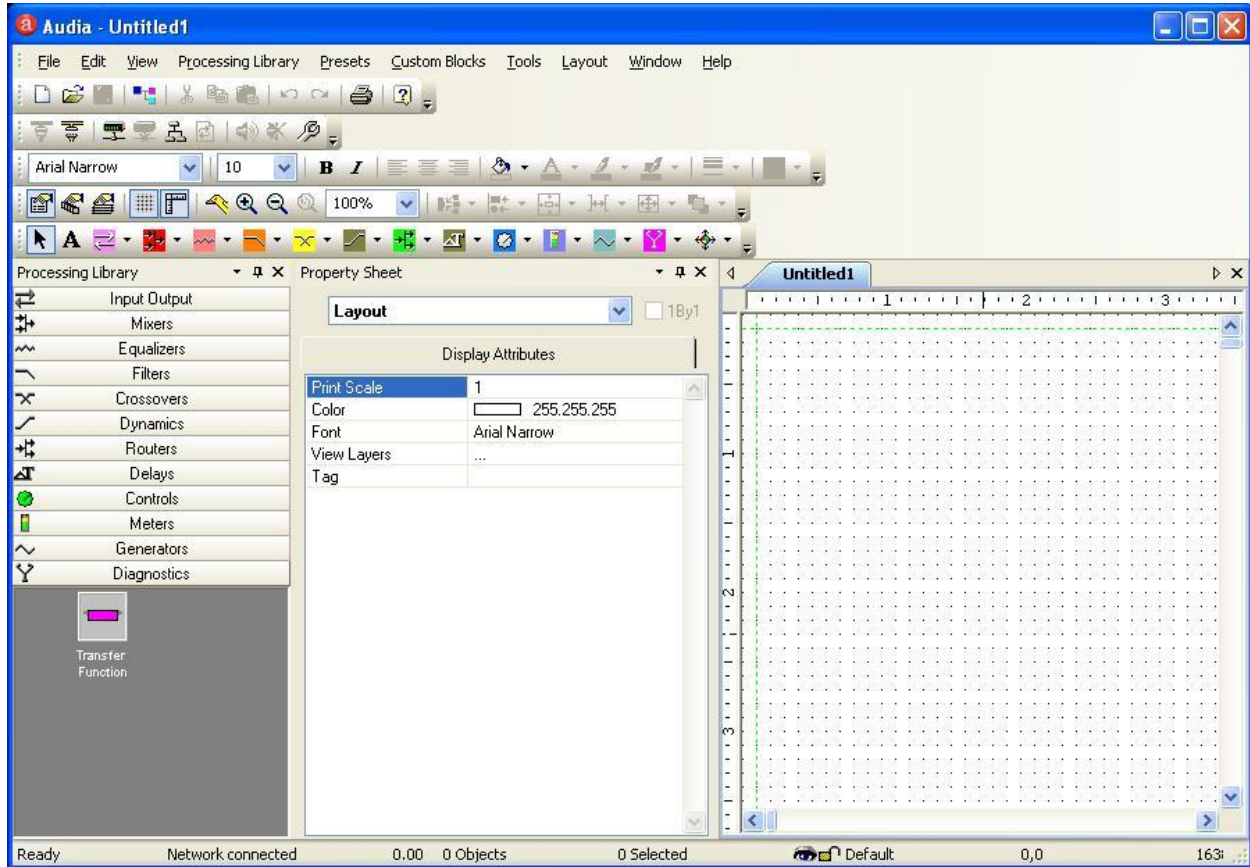
### 6.1. Launch Audia

From a PC running the Audia application, select **Start** → **All Programs** → **Audia** → **Audia** to launch the application. Click on the **Connect** icon show below.

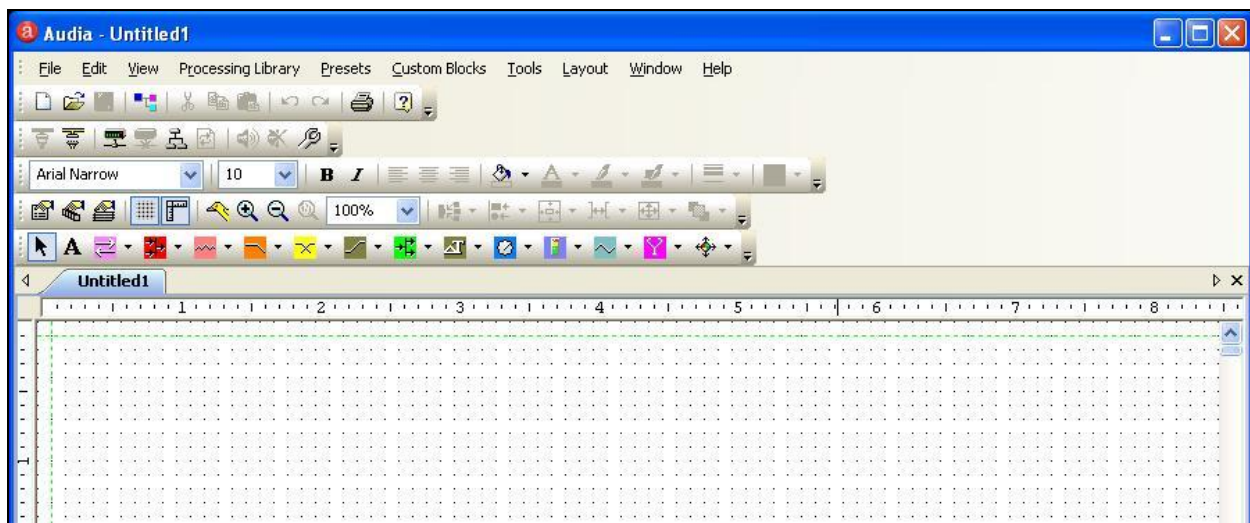


## 6.2. Administer Design Components

The **Audia** screen is displayed, as shown below. Close the **Processing Library** in the lower left pane, and **Property Sheet** in the lower middle pane.



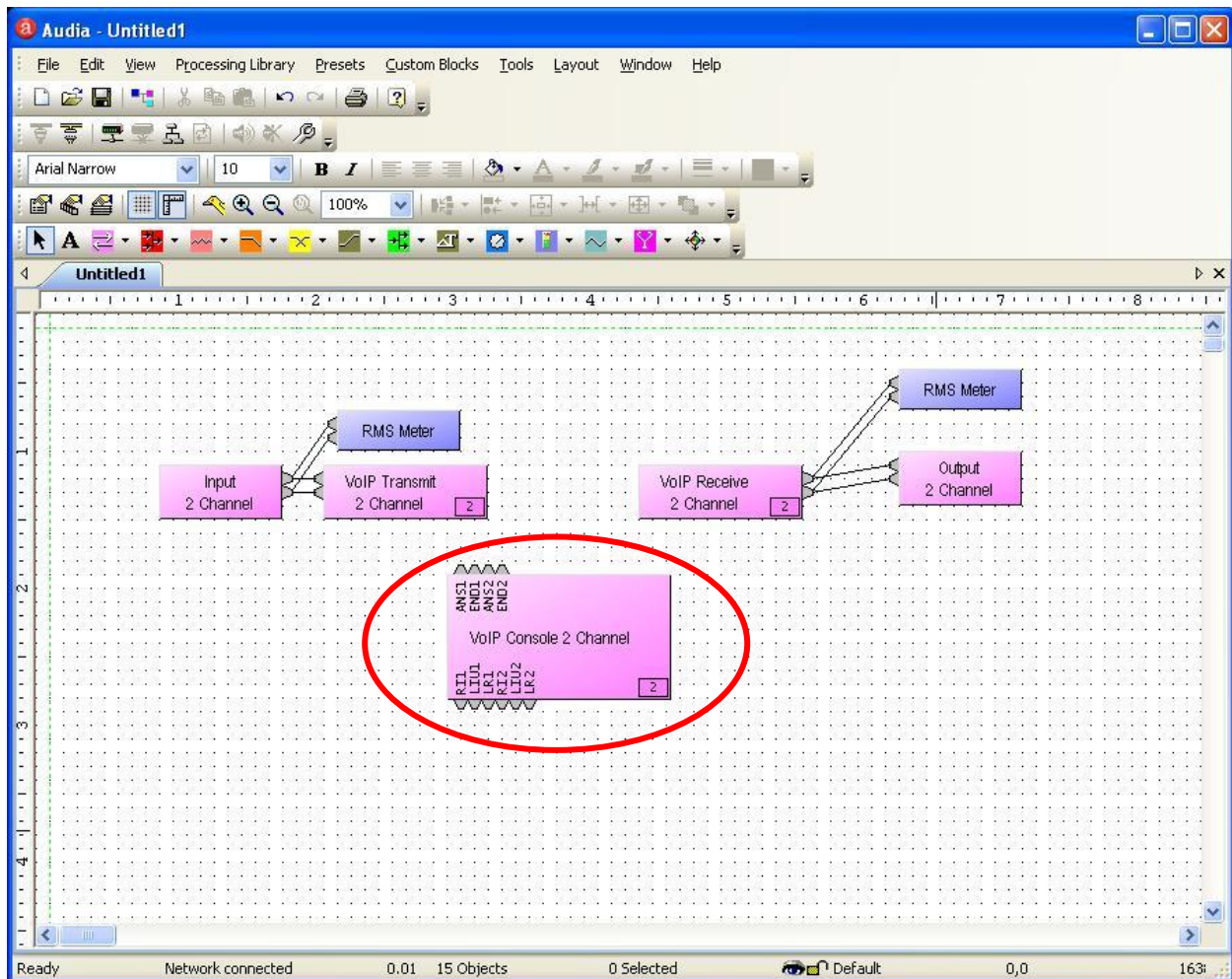
The **Audia** screen is updated as shown below.





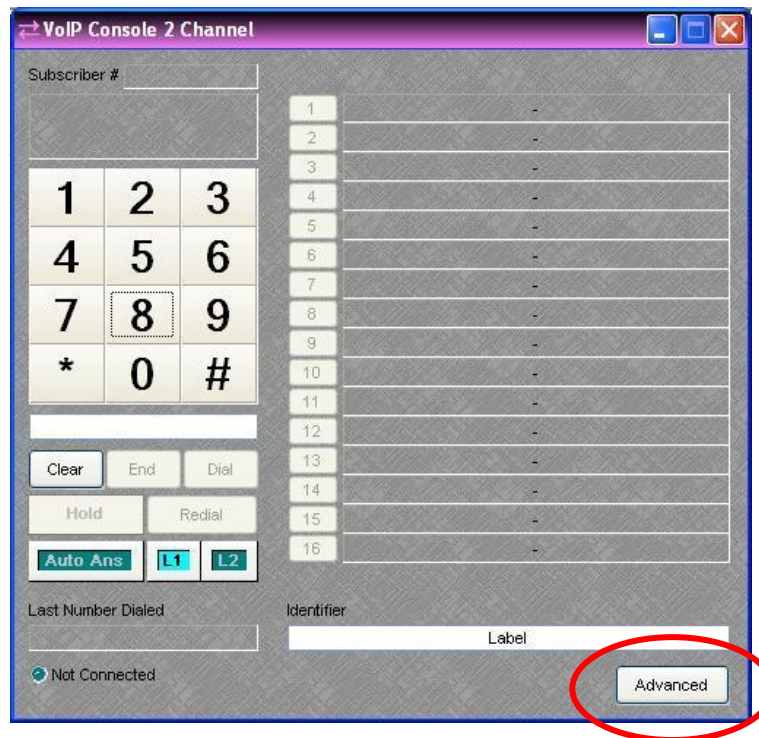
Follow [2] to place relevant component objects into the layout to match the system design. Below is the resultant layout used in the compliance testing. Note that both channels of the VoIP-2 card were used, as shown below.

Double click on the **VoIP Console 2 Channel** object.



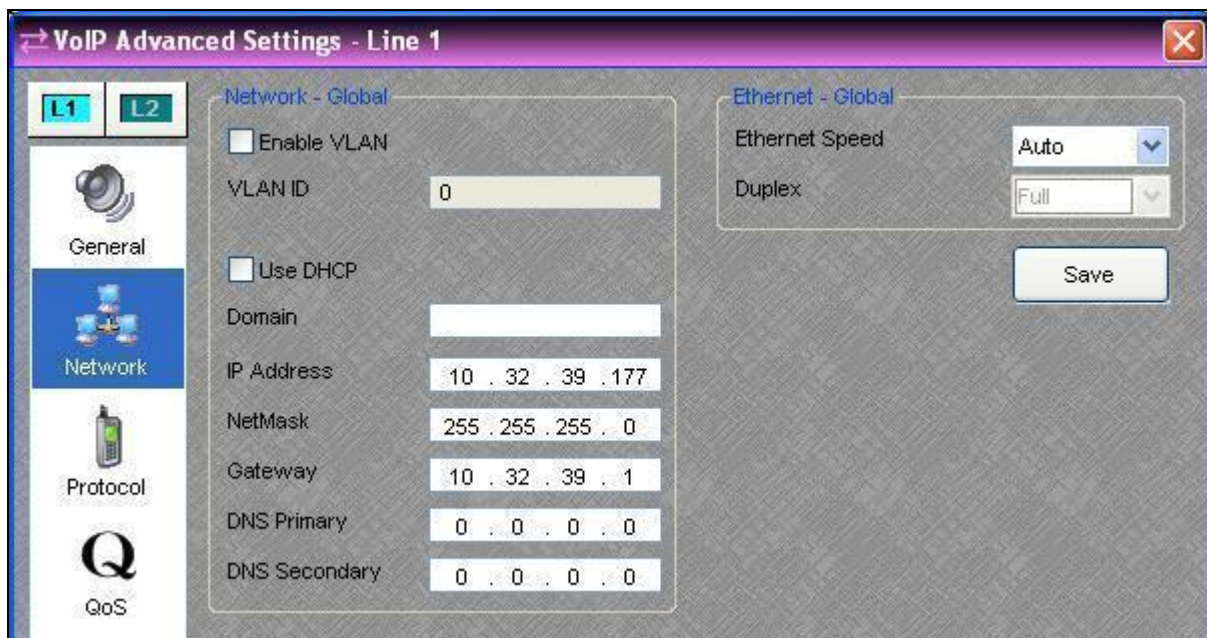
### 6.3. Administer VoIP Console

The VoIP Console 2 Channel screen is displayed. Click **Advanced**.



The screenshot shows the 'VoIP Console 2 Channel' window. It features a numeric keypad on the left with buttons for digits 1-9, \*, 0, and #. Below the keypad are buttons for 'Clear', 'End', 'Dial', 'Hold', 'Redial', 'Auto Ans', 'L1', and 'L2'. A 'Subscriber #' field is at the top left. On the right, there is a list of 16 channels, each with a number and a status indicator. At the bottom, there are fields for 'Last Number Dialed', 'Identifier', and 'Label'. A red circle highlights the 'Advanced' button in the bottom right corner.

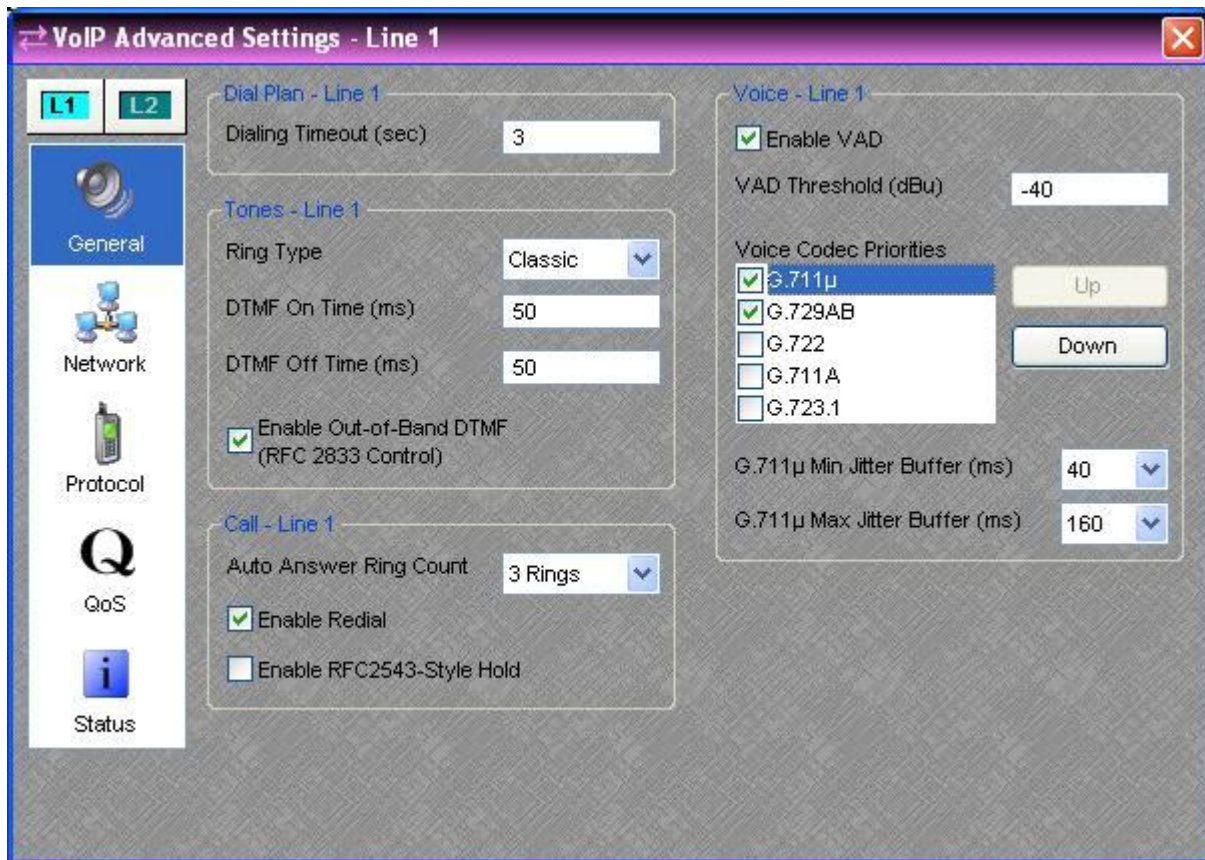
The **VoIP Advanced Settings – Line 1** screen is displayed next. Select **Network** in the left pane, and modify the **Network – Global** section as desired to match the network configuration. Note that the network setting is global and applies to both channels.



The screenshot shows the 'VoIP Advanced Settings - Line 1' window. The left sidebar has tabs for 'L1' and 'L2', and icons for 'General', 'Network' (selected), 'Protocol', and 'QoS'. The main area is divided into two sections: 'Network - Global' and 'Ethernet - Global'. The 'Network - Global' section includes checkboxes for 'Enable VLAN' and 'Use DHCP', and input fields for 'VLAN ID', 'Domain', 'IP Address', 'NetMask', 'Gateway', 'DNS Primary', and 'DNS Secondary'. The 'Ethernet - Global' section includes dropdown menus for 'Ethernet Speed' and 'Duplex', and a 'Save' button.

Select **General** in the left pane. For **Voice Codec Priorities**, select and rearrange the desired codecs. The screenshot below shows the codec configuration used in the compliance testing.

Select **L2** in the upper left portion of the screen, and repeat the same procedure for the second channel.





Select **Protocol** in the left pane. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Subscriber Name:** The first user extension from **Section 5.5**.
- **Proxy Username:** The first user name from **Section 5.5**.
- **Proxy Password:** The first user login code from **Section 5.5**.
- **Proxy Address:** The LAN IP address from **Section 5.2**.

Select **L2** in the upper left portion of the screen, and repeat similar procedure for the second channel.

The image shows a screenshot of the 'VoIP Advanced Settings - Line 1' window. The window has a purple title bar and a sidebar on the left with icons for General, Network, Protocol (selected), QoS, and Status. At the top of the main area, there are tabs for L1 and L2. The 'Protocol - Line 1' section contains the following fields: Subscriber Number (20046), Proxy Username (sip20046), Proxy Password (masked with dots), Reg. Expiration (sec) (3600), Proxy Discovery (Static), Proxy Address (10.32.39.34), and Proxy Port (5060). The 'Outbound Proxy Server - Line 1' section contains Outbound Proxy Address (empty) and Outbound Proxy Port (5060). A 'Save' button is located at the bottom right.

Section	Field	Value	
Protocol - Line 1	Subscriber Number	20046	
	Proxy Username	sip20046	
Proxy Server - Line 1	Proxy Password	••••••	
	Reg. Expiration (sec)	3600	
	Proxy Discovery	Static	
	Proxy Address	10.32.39.34	
	Proxy Port	5060	
	Outbound Proxy Server - Line 1	Outbound Proxy Address	
		Outbound Proxy Port	5060

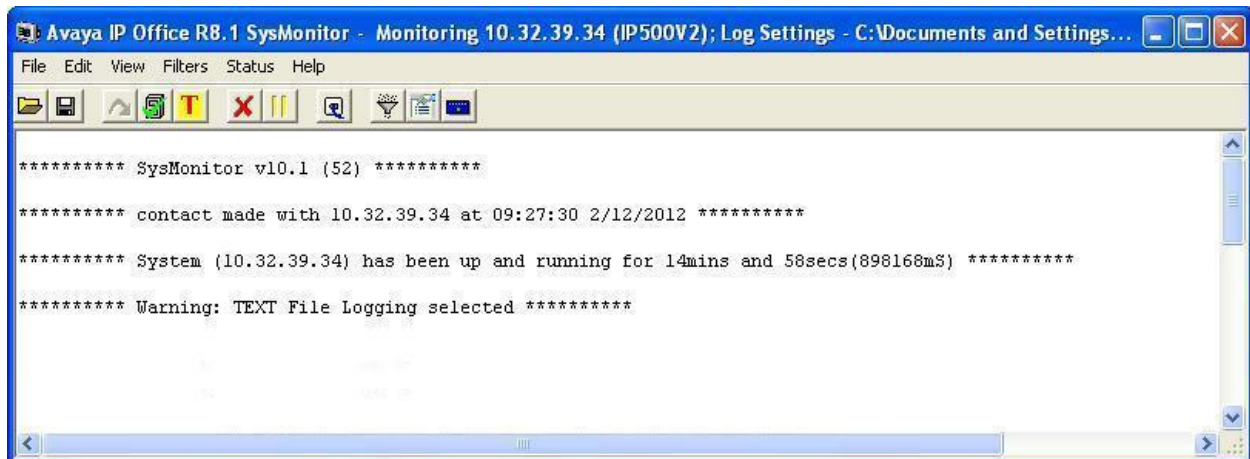


## 7. Verification Steps

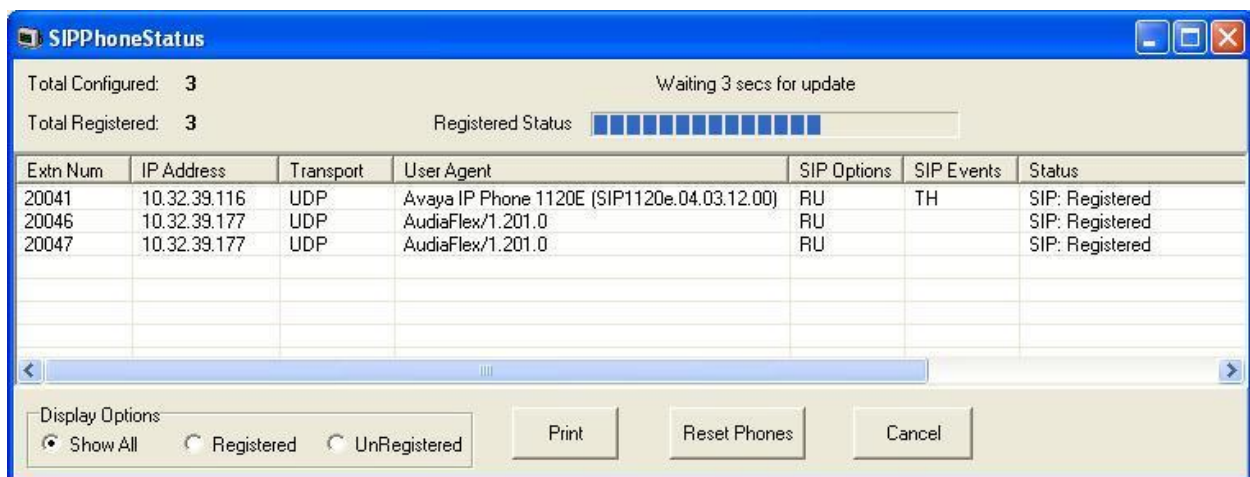
This section provides the tests that can be performed to verify proper configuration of IP Office and AudiaFLEX VoIP-2.

### 7.1. Verify Avaya IP Office

From a PC running the IP Office Monitor application, select **Start → Programs → IP Office → Monitor** to launch the application. The **Avaya IP Office R8.1 SysMonitor** screen is displayed, as shown below. Select **Status → SIP Phone Status** from the top menu.

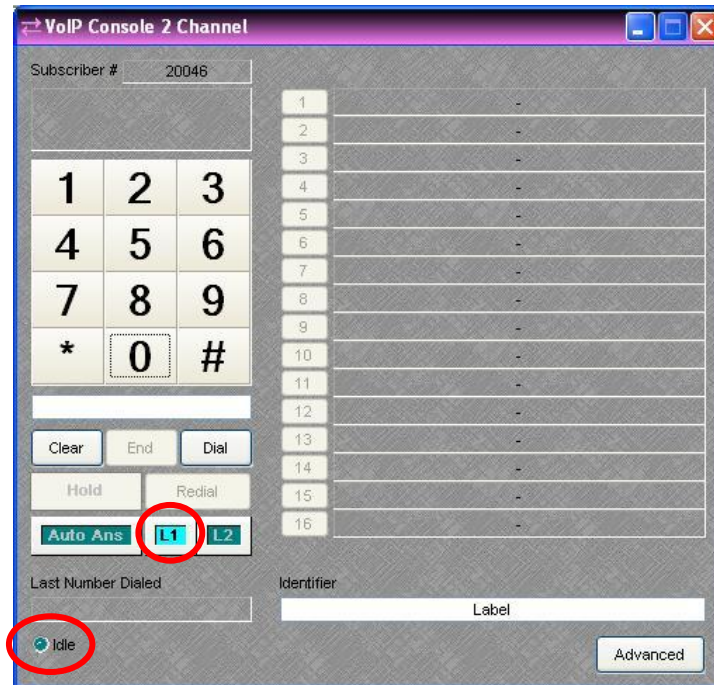


The **SIPPhoneStatus** screen is displayed. Verify that there is an entry for each SIP extension from **Section 5.4**. Verify that the **User Agent** starts with “AudiaFlex”, and that the **Status** is “SIP: Registered”, as shown below.

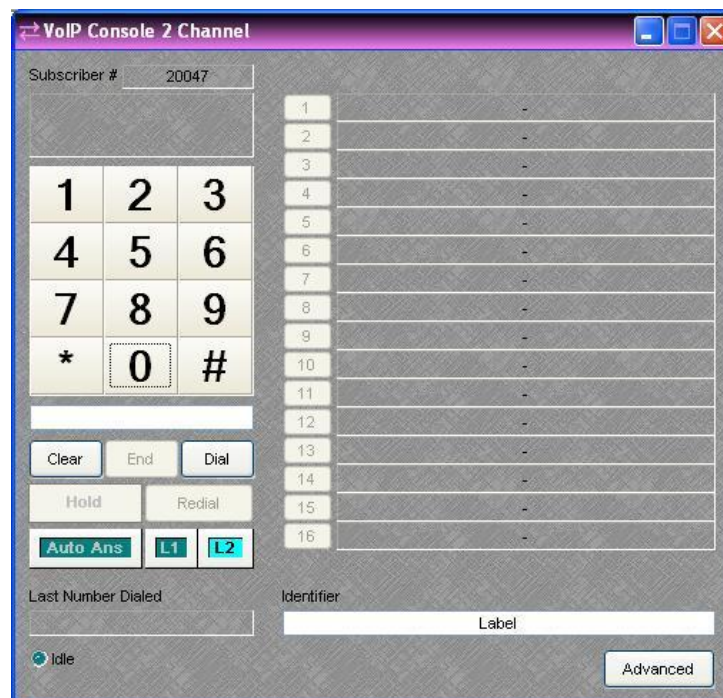


## 7.2. Verify Biamp AudiaFLEX VoIP-2

Follow the procedures in **Section 6.2** to launch the **VoIP Console 2 Channel** screen. Click **L1**, and verify that the status is “Idle”, indicating successful registration.



Click **L2**, and verify that the status is also “Idle”, as shown below.



Make an incoming trunk call from the PSTN to one of the AudiaFLEX VoIP-2 channels. Verify that the display for the corresponding channel shows the calling party information, and that the status shows “Incoming Call”, as shown below. Click **Answer**.

The screenshot shows the 'VoIP Console 2 Channel' window. At the top, it displays 'Subscriber # 20046', '2/5/2012 10:11 AM', and '908-844-5001'. Below this is a numeric keypad with buttons for 1-9, \*, 0, and #. To the right of the keypad is a vertical list of 16 channels, each with a number and a status indicator. The status indicators for all channels are currently dashes (-). Below the keypad are buttons for 'Clear', 'Reject', 'Answer', 'Hold', 'Redial', 'Auto Ans', 'L1', and 'L2'. At the bottom left, there is a 'Last Number Dialed' field and an 'Incoming Call' status indicator with a green light icon. At the bottom right, there is an 'Identifier' field, a 'Label' field, and an 'Advanced' button.

Verify that the call is connected with two-way talk paths, and that the status is updated to “Connected”.

The screenshot shows the 'VoIP Console 2 Channel' window after the call has been answered. The 'Incoming Call' status indicator has changed to 'Connected' with a green light icon. The 'Answer' button is now disabled. The 'Hold' button is now red. The 'L1' and 'L2' buttons are now green. The 'Last Number Dialed' field is now empty. The 'Identifier' field is now empty. The 'Label' field is now empty. The 'Advanced' button is still present.

## 8. Conclusion

These Application Notes describe the configuration steps required for Biamp AudiaFLEX VoIP-2 to successfully interoperate with Avaya IP Office. 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. *IP Office Manager 8.1*, Document 15-601011, Issue 25o, April 2012, available at <http://support.avaya.com>.
2. *AUDIA Help*, available as part of the Biamp Audia application.

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