Avaya Solution & Interoperability Test Lab

Application Notes for Empix evolve Connect2 Server v3.1 with Avaya IP Office 7.0 – Issue 1.0

Abstract

These Application Notes describe the compliance testing of Empix evolve Connect2 Server with Avaya IP Office. Empix evolve Connect2 Server is a mobility enhancement program which provides the users of local IP Office extensions with the means to use their mobile handsets to make and receive calls via 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

The Empix evolve Connect2 Server is a member of the xtension **evolve** program suite. Empix evolve Connect2 Server can be used alone, or together with the other xtension **evolve** components. Empix evolve Connect2 Server is a PC-resident service which provides mobility service to local IP Office extensions. Empix evolve Connect2 Server provides mobile endpoints which are paired with local IP Office extensions with the following functionality:

- Answer incoming calls which were made to the paired local IP Office extension.
- Hold/retrieve.
- "Call through", allowing mobile endpoints to use existing connections to IP Office to make calls to PSTN endpoints.
- Initiate a second call.
- Switch between calls.
- Transfer a call to a local IP Office endpoint.
- Remotely activate / deactivate Empix evolve Connect2 service.
- Remotely activate / deactivate Do Not Disturb.

2. General Test Approach and Test Results

All tests were performed manually. Only functional testing was performed: no performance testing was done.

2.1. Interoperability Compliance Testing

The following tests were performed as part of the compliance testing.

- Verify the ability to simultaneously signal incoming calls to both the user's local extension and mobile phone, and to answer such calls from either the local extension or mobile phone.
- Verify the ability to do hold/retrieve from mobile phones.
- Verify the ability of a mobile phone to use the IP Office to make a "call through" to a PSTN endpoint.
- Verify the ability of a mobile phone user to establish a second call and switch between calls.
- Verify the ability of a mobile phone user to transfer a call to another endpoint.
- Verify the ability of a mobile phone to activate/deactivate the Empix evolve Connect2 service for that phone.
- Verify the ability of a mobile phone to activate/deactivate Do Not Disturb (DND) for that phone.
- Verify that calls to mobile phones which have activate DND are routed to the system attendant.
- Verify the ability of Empix evolve Connect2 Server to recover from power failure without manual intervention.
- Verify the ability of Empix evolve Connect2 Server to recover from interruptions to its LAN interface.

2.2. Test Results

All tests produced the expected result.

2.3. Support

Support is available from Empix at:

Empix evolve srl
+39 0733 866 870
support@empixevolve.com
http://www.empixevolve.com

3. Reference Configuration

The following **Figure 1** illustrates the configuration which was used for testing.

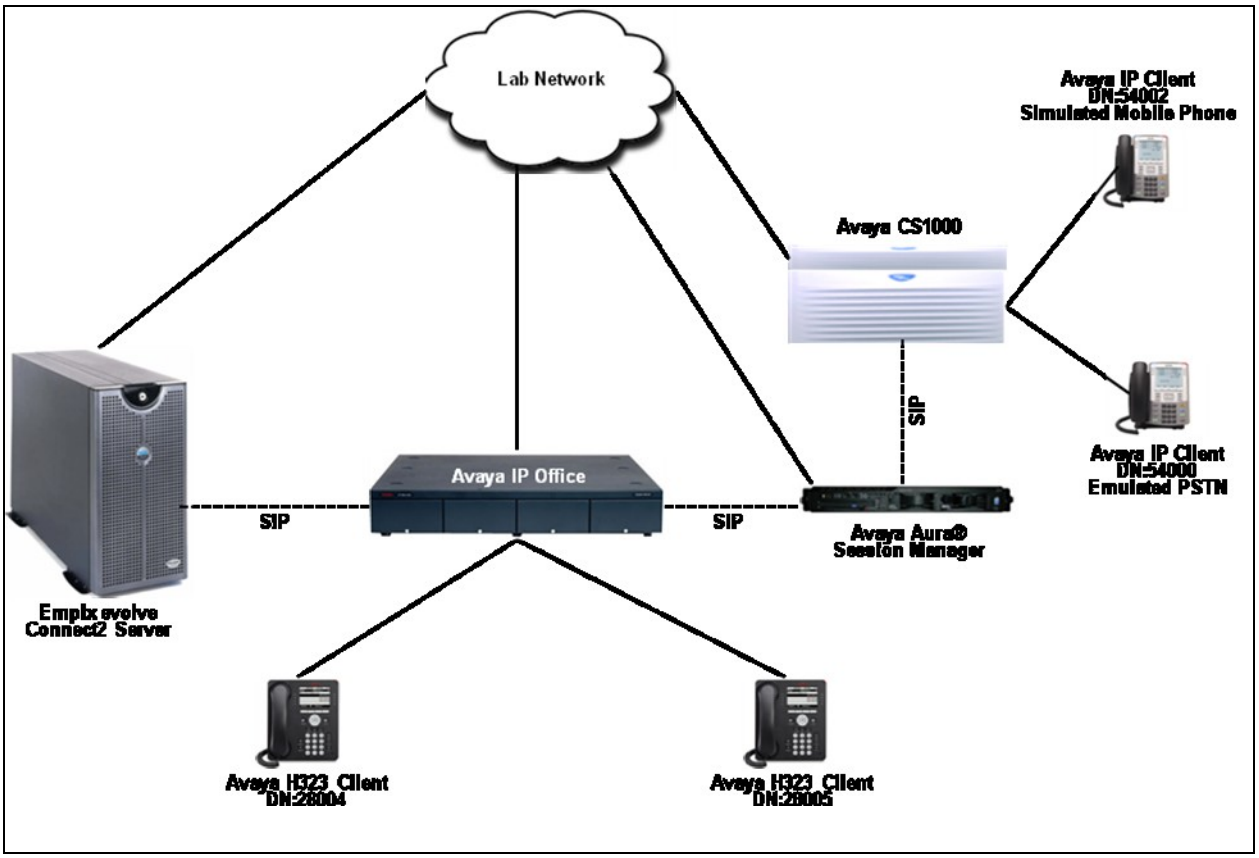

Figure 1: Empix evolve Connect2 Server Lab Configuration

4. Equipment and Software Validated

Software Component	Version
Avaya IP Office	7.0
Avaya CS1000	7.5
Avaya Aura® Session Manager	6.1
Avaya IP Clients	0625C8A
Avaya H323 Clients	6.1(S9608_11HALBR6_1r28_V4r52)
Evolve Server platform OS	Microsoft Windows XP SP3
Empix evolve Connect2 Server	XTENSION EVOLVE 3.1 BUILD 20100802.013

Table 1: Version Numbers of Equipment and Software

5. Configure IP Office

The configuration and verification operations illustrated in this section were performed using the Avaya IP Office Manager program. When this program is started, a tree structure consisting of icons representing the configurable components of the system is displayed as shown in **Figure 2**. When one of these icons is selected, the corresponding system component can be configured.

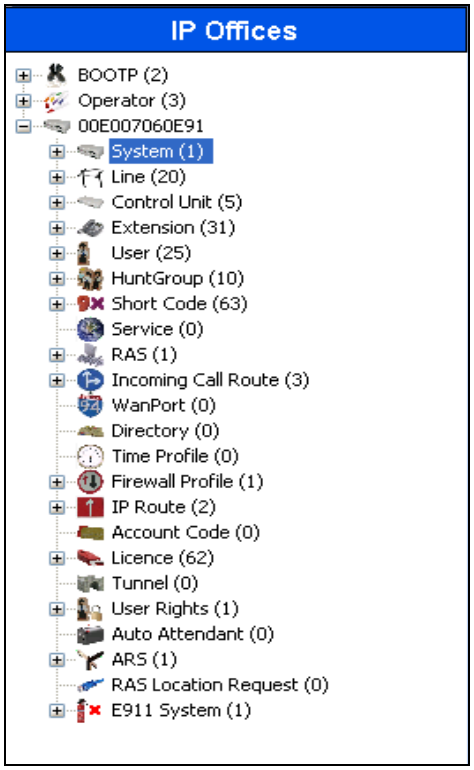

Figure 2: IPO Manager Component Tree

This section explains the configuration of the following components of IP Office that is required for the compliance testing:

- Licensing.
- System Configuration.
- Extension Configuration.
- User Configuration.
- Line Configuration.
- Short Code Configuration.
- Incoming Call Route Configuration.

5.1. Licensing

IP Telephones included in the configuration each consume an **Avaya IP Endpoint** licenses. For complete information on Licensing refer to documents referred in **Section 9[1]**.

Sufficient IP Office **SIP Trunk Channels** license instances are required to cover the maximum number of simultaneous active Empix evolve Connect2 calls which are to be handled by IP Office. Note that each mobile call requires two concurrent SIP channels active.

5.2. System Configuration

Select the **System** icon shown in **Figure 2** and enter the parameters shown in the **Table 1**. Select the tab(s) shown in the "Item" column to configure the parameters for that tab. Refer to **Figures 3** and **4**.

Item	Parameter	Usage
LAN1 LAN Settings	IP Address	Specify the IP address to be assigned to IP Office.
	IP Mask	Enter the IP mask to be used by the LAN.
Telephony Telephony	Inhibit Off-Switch Forward / Transfer	Uncheck this box.

Table 1: System Configuration Parameters

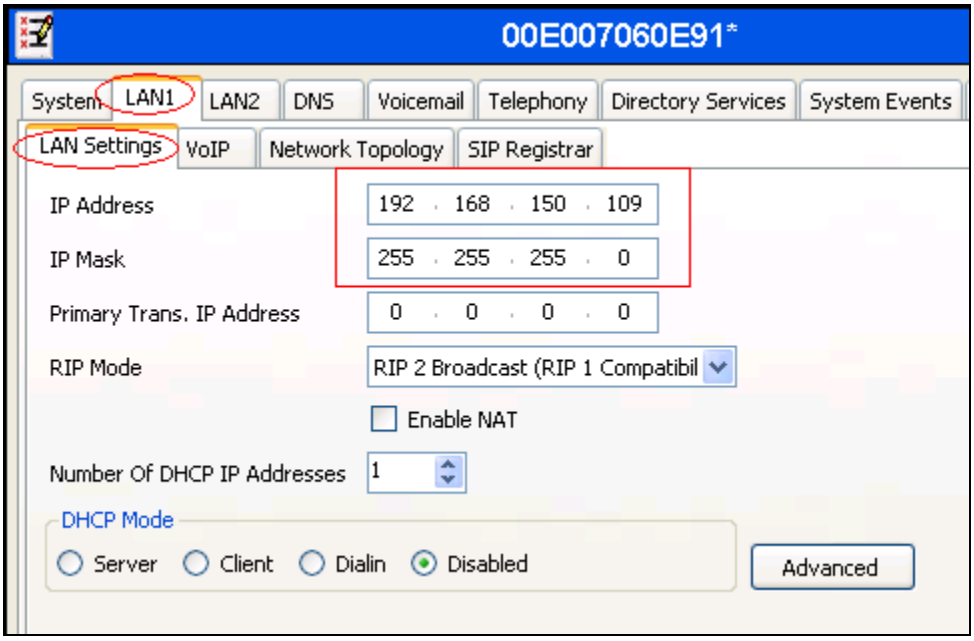

Figure 3: System Parameters: LAN1

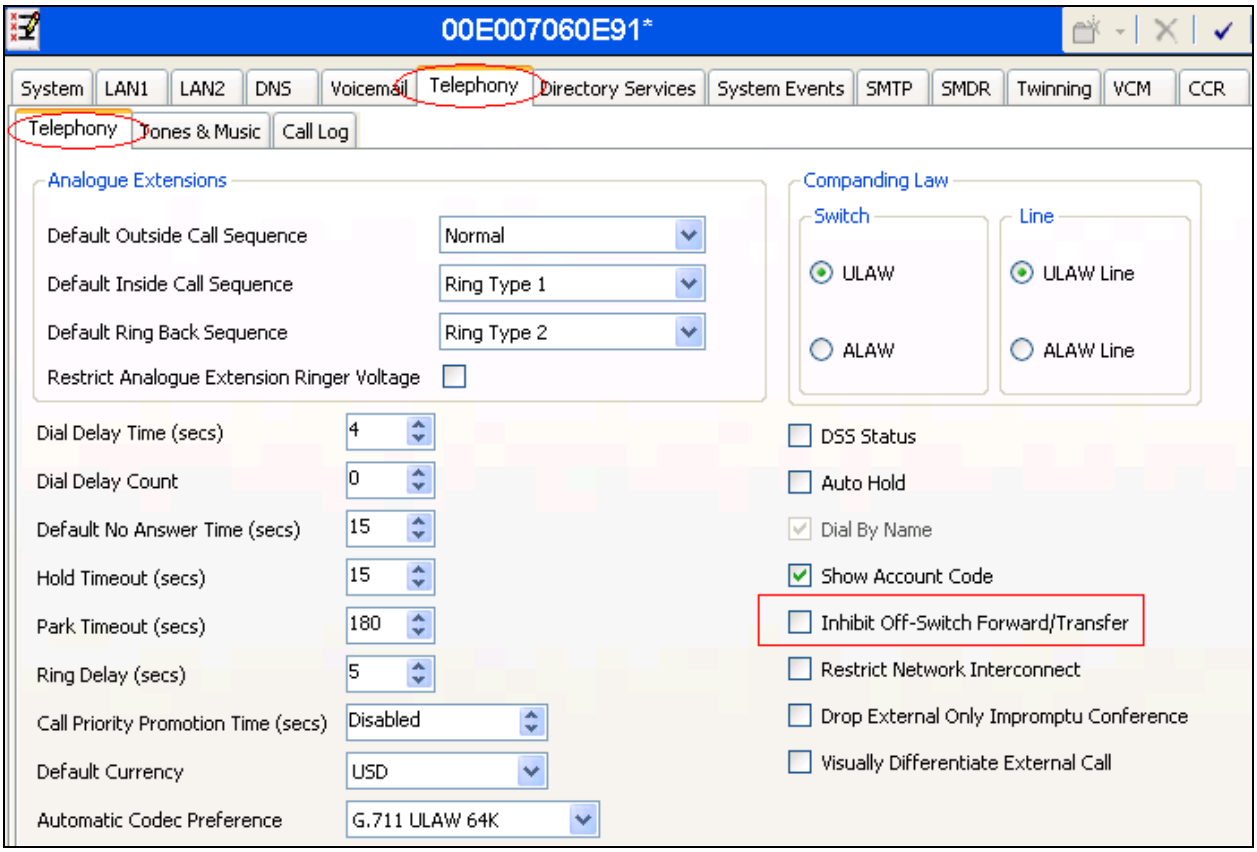

Figure 4: System Parameters: Telephony

5.3. Extension Configuration

To add a new extension, right-click the **Extension** icon shown in **Figure 2** and select **New H.323 Extension** (not shown). Set the **Base Extension** parameter to the extension to be assigned, and accept the default values for the remaining parameters as shown in **Figure 5** below. Repeat for any number of extensions that will be required.

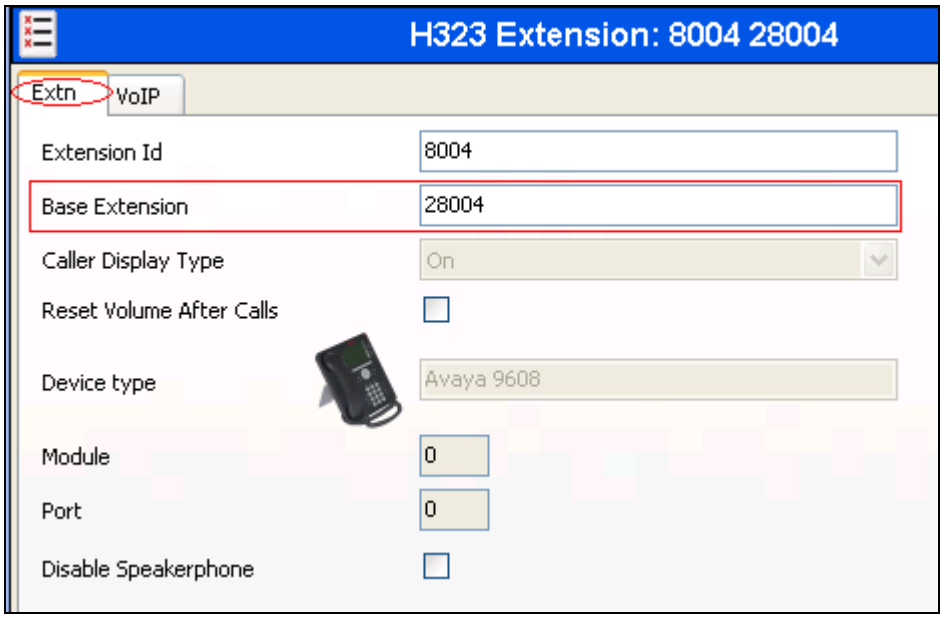

Figure 5: Extension Screen

5.4. User Configuration

Right-click the **User** icon shown in **Figure 2** and select **New** (not shown) to create a user for each of the extension created using the parameters shown in the **Table 2**. Refer to **Figure 6**.

Item	Parameter	Usage
User	Name	Enter a descriptive name to identify the user.
	Password	Enter a password.
	Confirm Password	Confirm the password entered above.
	Full Name	Enter a descriptive name to identify the user.
	Extension	Enter the telephone extension to be assigned to the endpoint (which was allocated in **Figure 5**).

Table 2: User Configuration Parameters

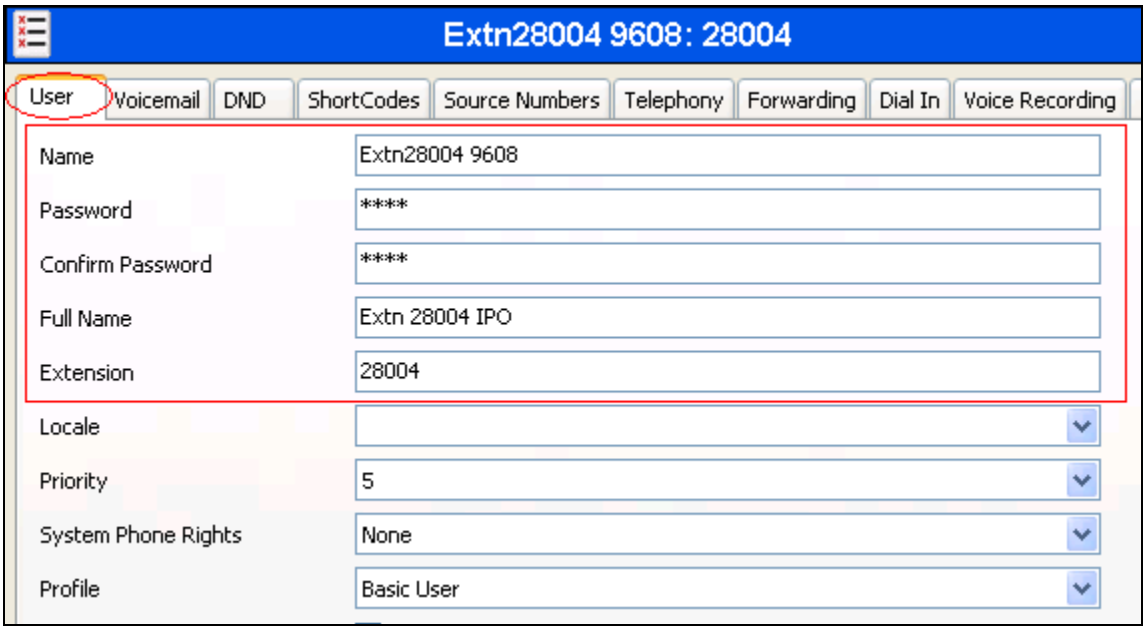

Figure 6: User Screen

5.5. Line Configuration

This section contains a description of the IP Office configuration for use with a SIP interface to the PSTN, which was used for conformance testing. Other types of PSTN trunks can be used as well. Right click the **Line** icon shown in **Figure 2,** select **SIP** Line (not shown) to be configured, and enter the parameters shown in **Table 3**. Refer to **Figures 7**, **8** and **9**.

Item	Parameter	Usage
SIP Line	Line Number	Assign an available Line from the drop down box.
	ITSP Domain Name	Enter the relevant domain name configured in Session Manager
Transport	ITSP Proxy Address	Enter the IP Address of the Session Manager.
SIP URI	Local URI	Select "Use Internal Data" option from the drop down list.
	Contact	Select "Use Internal Data" option from the drop down list.
	Display Name	Select "Use Internal Data" option from the drop down list.
	Registration	Select "0: <None>" option from the drop down list.
	Incoming Group	Enter the line number assigned.
	Outgoing Group	Enter the line number assigned.

Table 3: SIP Line Configuration Parameters

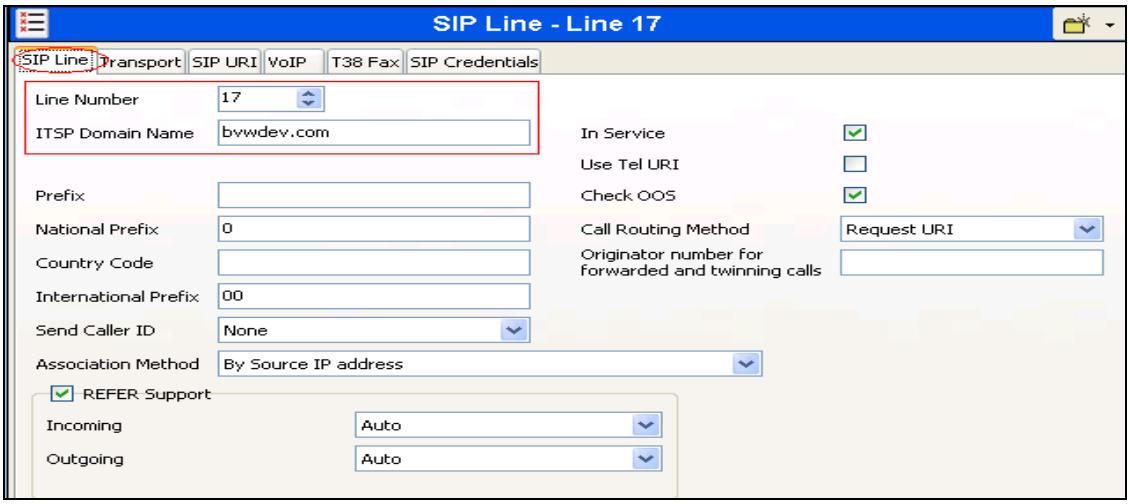

Figure 7: Line Configuration: SIP Line

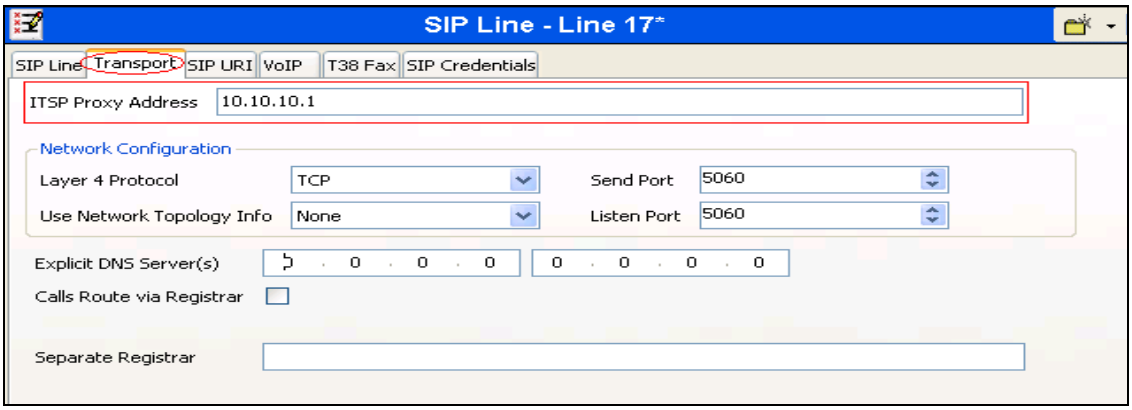

Figure 8: Line Configuration: Transport

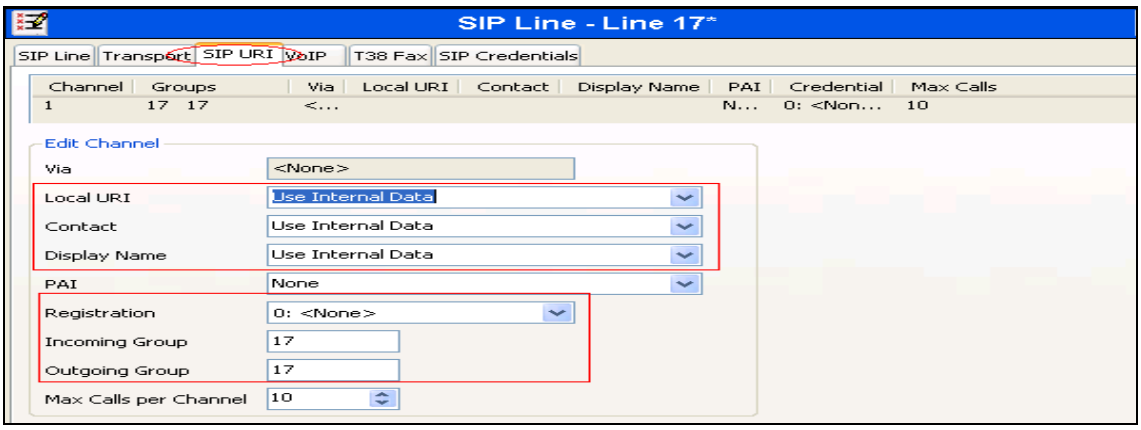

Figure 9: Line Configuration: SIP URI

This section also contains a description of the configuration of the SIP trunk between IP Office and Empix evolve Connect2 Server. Right click the **Line** icon shown in **Figure 2,** select **SIP** Line (not shown) to be configured, and enter the parameters shown in **Table 4**. Refer to **Figures 10**, **11, 12** and **13**.

Item	Parameter	Usage
SIP Line	Line Number	Assign an available Line from the drop down box.
	ITSP Domain Name	Enter the IP address of the Empix evolve Connect2 Server.
Transport	ITSP Proxy Address	Enter the IP address of the Empix evolve Connect2 Server.
	Send Port	Enter the port number to communicate with the Empix evolve Connect2 Server.
SIP URI	Local URI	Enter "*".
	Contact	Select "Use Internal Data" from the drop-down menu.
	Display Name	Select "Use Internal Data" from the drop-down menu.
	Registration	Select "None" from the drop-down menu.
	Incoming Group	Enter the line number assigned.
	Outgoing Group	Enter the line number assigned.
VoIP	Compression Mode	Check the "G.711 ALAW" box, and uncheck the others.

Table 4: SIP Line Configuration Parameters

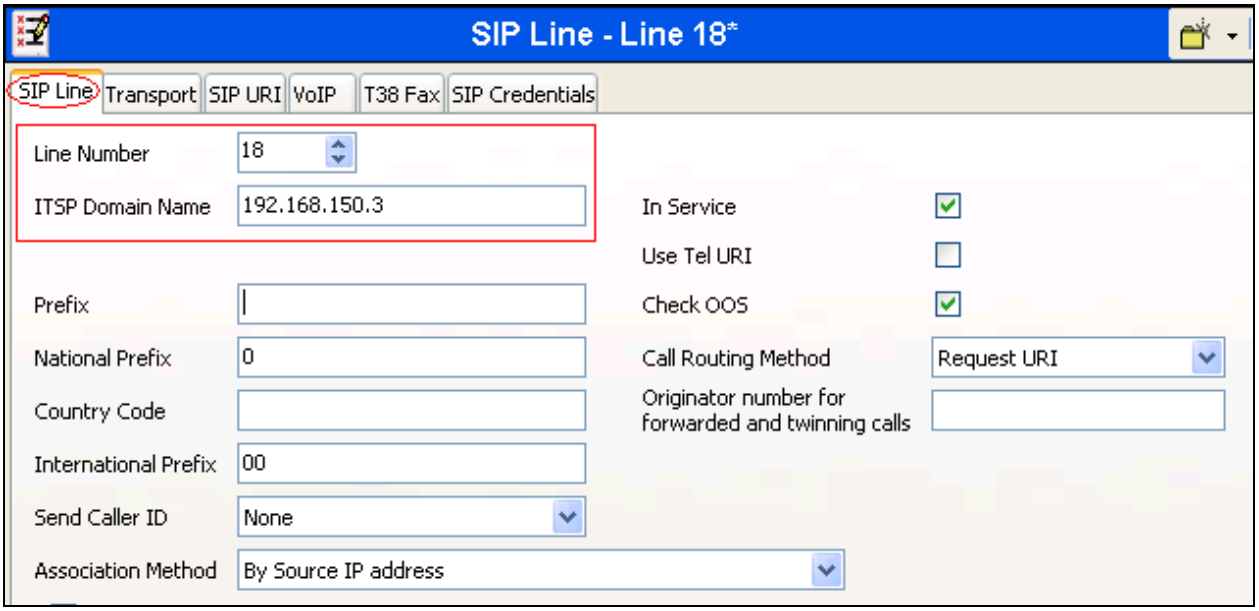

Figure 10: SIP Line Configuration Screen

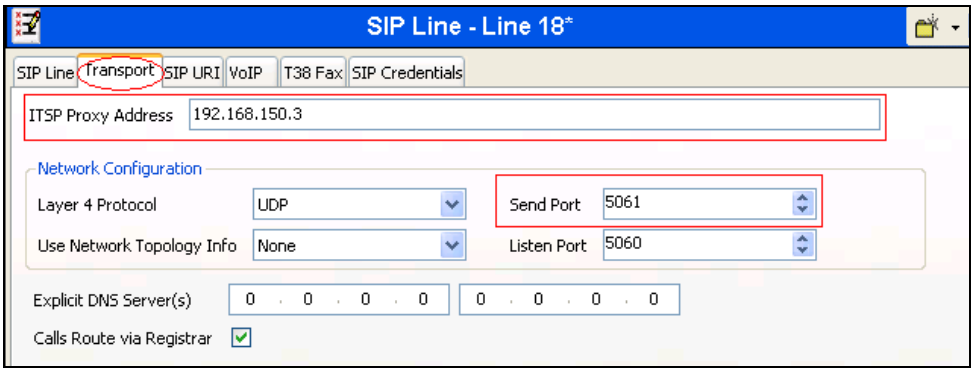

Figure 11: Line Configuration: Transport

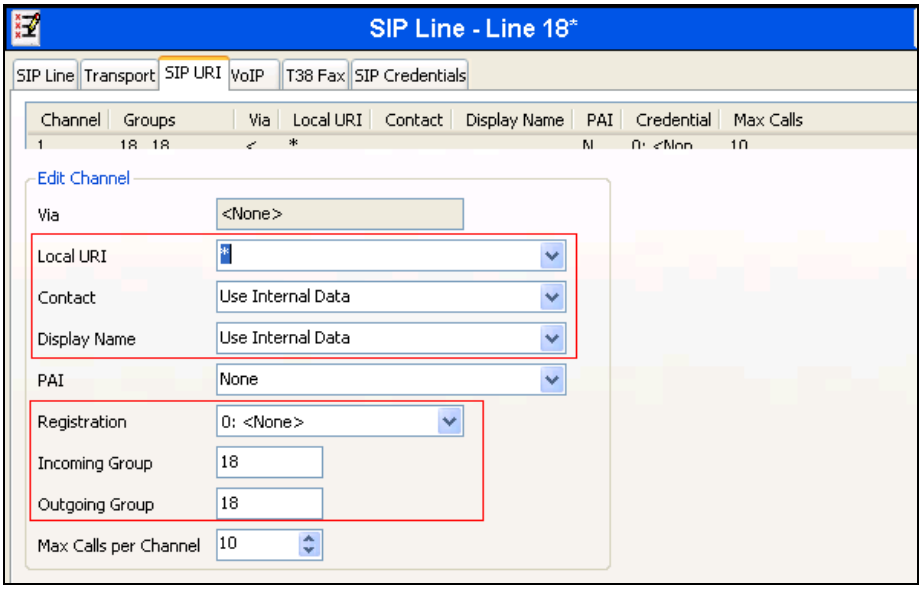

Figure 12: SIP: SIP URI Configuration Screen

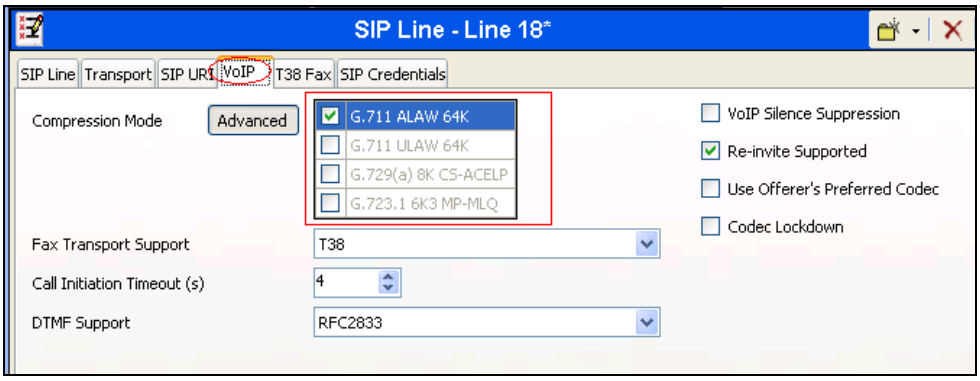

Figure 13: SIP: VoIP Configuration Screen

5.6. Short Codes

Right-click the **Short Code** icon shown in **Figure 2** and click **New** (not shown) to allocate a short code to provide access to the PSTN via the SIP interface, using parameters as shown in **Table 5**. Refer to **Figure 14**.

Item	Parameter	Usage
Short Code	Code	Enter **54xxx;** Since DN of client on Avaya CS1000 used during compliance testing is 54000.
	Telephone Number	Enter **54N"@10.10.10.1"** where 10.10.10.1 is the IP address of Session Manager.
	Line Group ID	Enter the line number which was assigned to the PSTN interface in **Figure 7**.

Table 5: Shortcode Configuration Parameters: PSTN

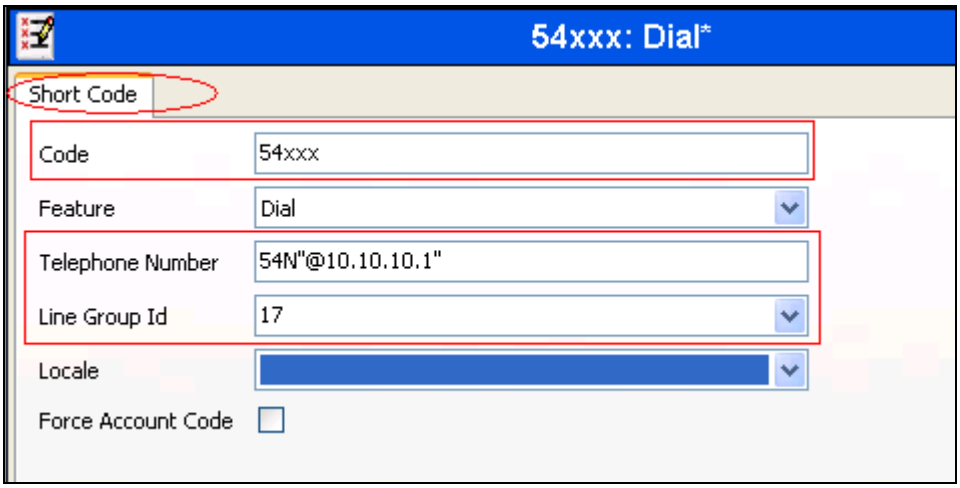

Figure 14: PSTN Access Short Code

Right-click the **Short Code** icon shown in **Figure 2** and click **New** (not shown) to allocate a short code to provide access to the Empix evolve Connect2 Server via the SIP interface, using parameters as shown in **Table 6**. Refer to **Figure 15**.

Item	Parameter	Usage
Short Code	Code	Enter **66N;** Since DN assigned on Empix evolve Connect2 Server used during compliance testing is 66xxx.
	Telephone Number	Enter **66N"@192.168.150.3"** where 192.168.150.3 is the IP address of the Empix evolve Connect2 Server.
	Line Group ID	Enter the line number which was assigned to the interface in **Figure 10**.

Table 6: Shortcode Configuration Parameters: Empix evolve Connect2 Server

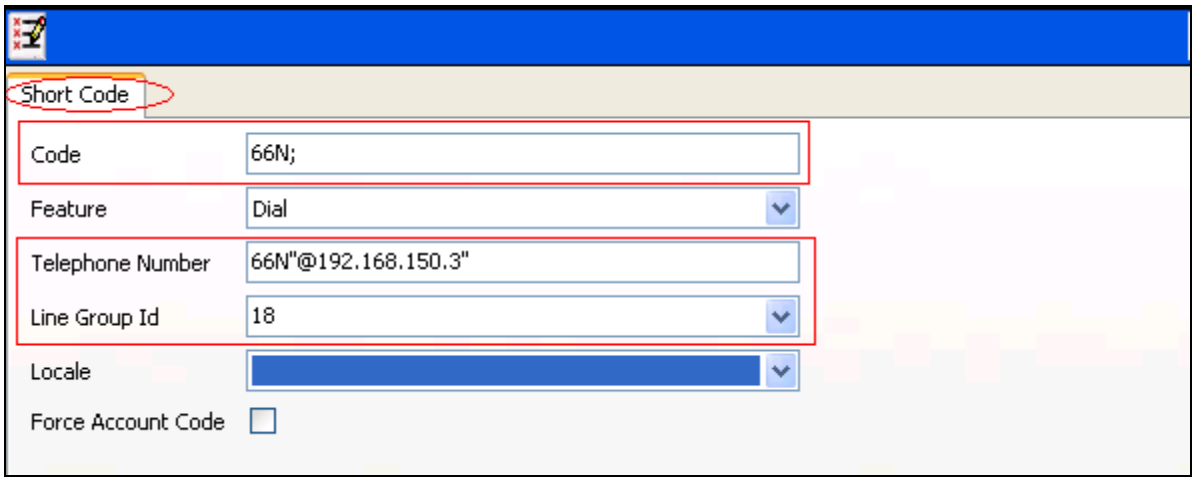

Figure 15: Empix evolve Connect2 Server Access Short Code

5.7. Incoming Call Route

PSTN Incoming Call Routes

Right-click the **Incoming Call Route** icon shown in **Figure 2** and click **New** (not shown) to create an Incoming Call Route for routing calls from the PSTN to local extensions. Assign parameters to this call route as shown in **Table 7**. Refer to **Figures 16** and **17**.

Item	Parameter	Usage
Standard	Line Group Id	Enter the Group Id of the SIP line, as shown in **Figure 7.**
Destinations	Destination	Configure the local extension of the called party number by entering a value of "**.**".

Table 7: Parameters for Incoming Call Routes

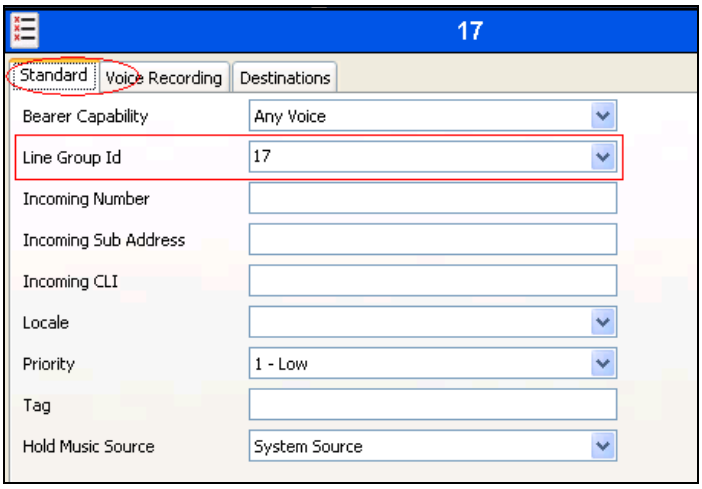

Figure 16: Incoming Call Route - Standard Parameters

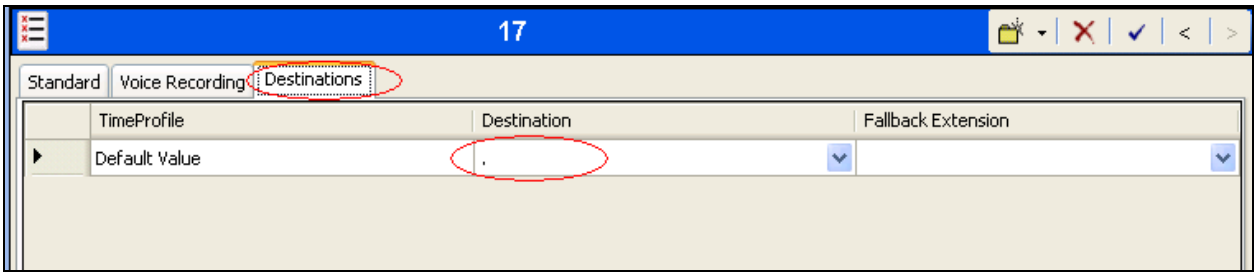

Figure 17: Incoming Call Route - Destinations Screen

SIP Trunk Incoming Call Route

Right-click the **Incoming Call Route** icon shown in **Figure 2** and click **New** (not shown) to create an Incoming Call Route for the SIP trunk to local extensions. Assign parameters to this call route as shown in **Table 8**. Refer to **Figures 18** and **19**.

Tab	Parameter	Usage
Standard	Line Group Id	Enter the Group Id of the SIP line, as shown in **Figure 10**.
Destinations	Destination	Enter "**.**".

Table 8: Parameters for Incoming Call Routes

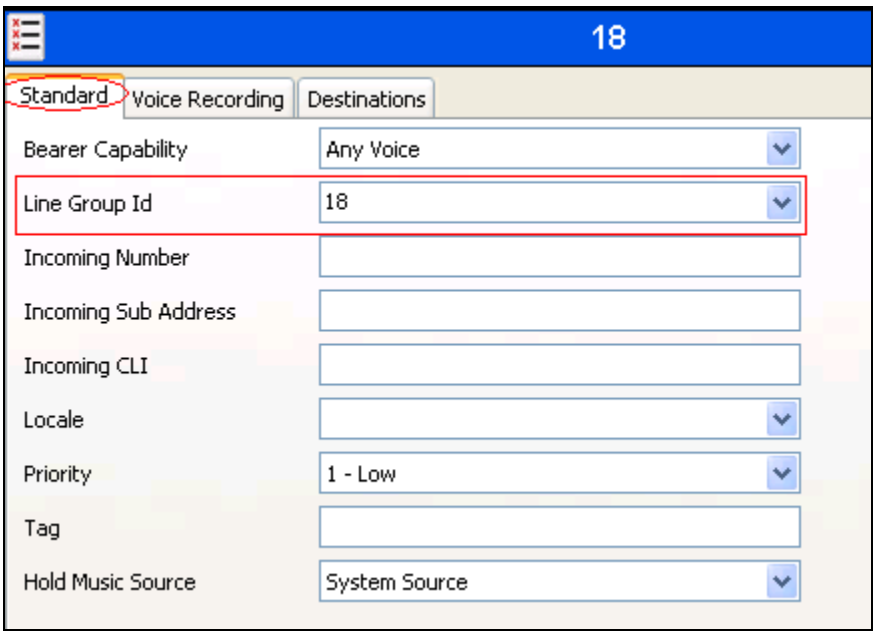

Figure 18: SIP Incoming Call Route - Standard Parameters

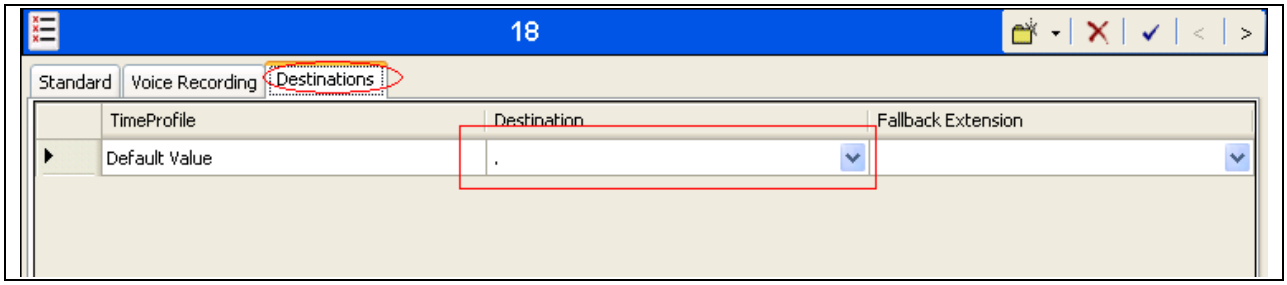

Figure 19: SIP Incoming Call Route - Destinations Screen

6. Configure Empix evolve Connect2 Server

The Empix evolve Connect2 Server installation process also installs MySQL and the Apache server. The installation procedure is beyond the scope of this document. Refer to **Section 9[2]** for further information on complete installation and configurations of the Empix evolve Connect2 Server.

Empix evolve Connect2 Server uses a Web-based tool for configuration, which can be accessed from the server via http://localhost:20080/login.php. Log in using the initial login credentials as shown in **Figure 20** below.

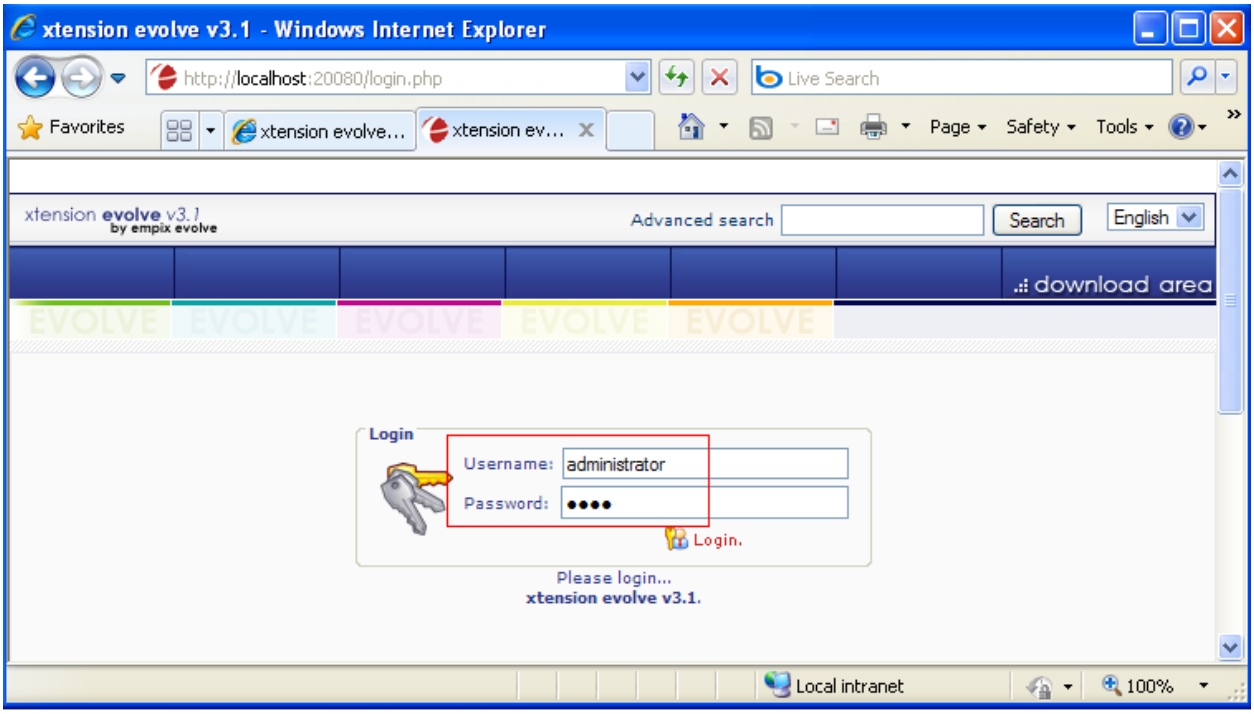

Figure 20: Empix evolve Connect2 Server Login Screen

This section explains the configuration of the following components of Empix evolve Connect2 Server that is required for the compliance testing:

- Installing Updates.
- Installing License.
- Configure Routing Table.
- Configure System Parameters.
- Configure iGate.
- Adding Users.
- Starting Service.

6.1. Install Updates

Navigate to **Administrative tools > Updates**. Click the **Check Updates** button to check for new updates, and the **Download & install** button to install needed updates as shown in **Figure 21** below.

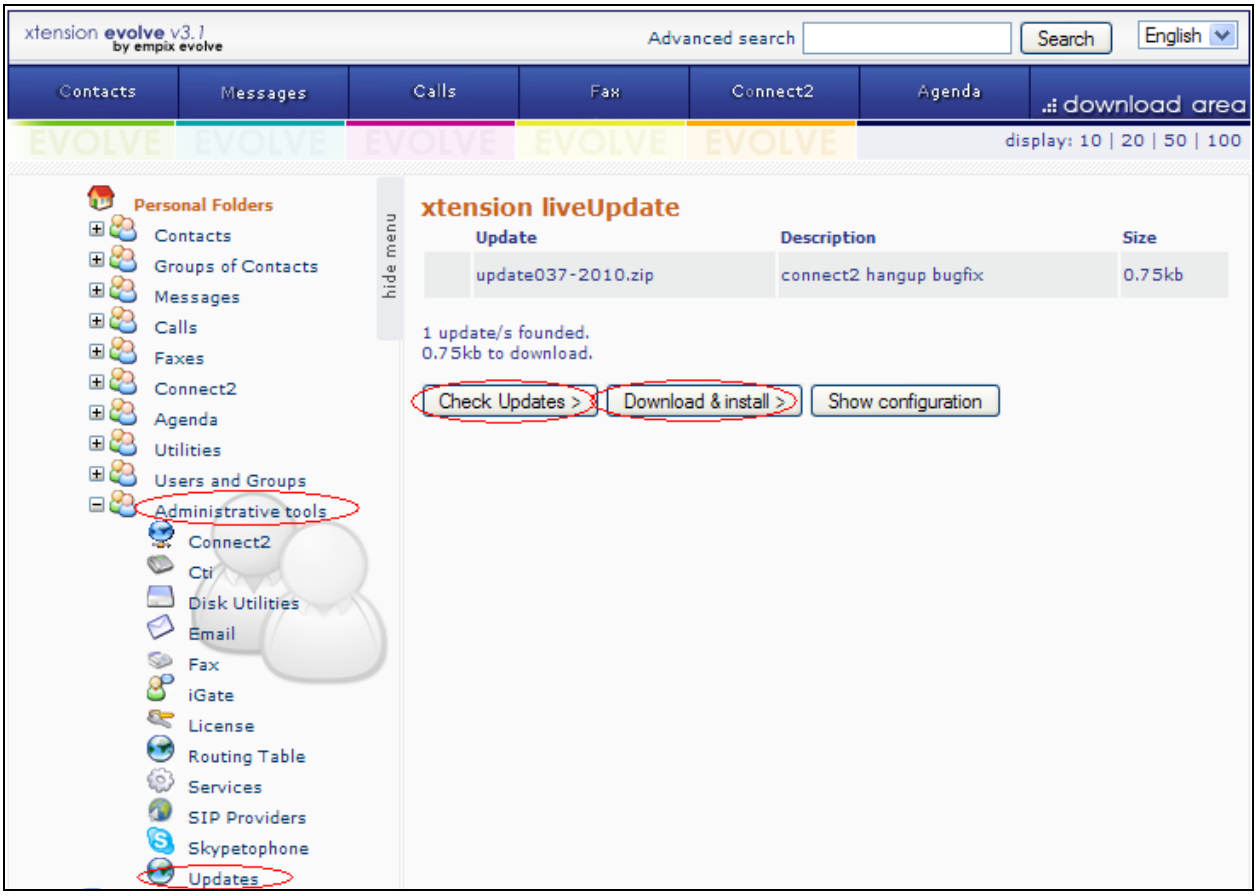

Figure 21: Empix evolve Connect2 Server Update Screen

6.2. Install License

Navigate to **Administrative tools > License** and enter all the appropriate identification information. If a permanent license is available, enter the license code into the **Serial Number** field and click the **Activate** button. If no license is available, a thirty-day trial license can be obtained without charge by clicking the **Request try'n buy** button. Refer to **Figure 22** below.

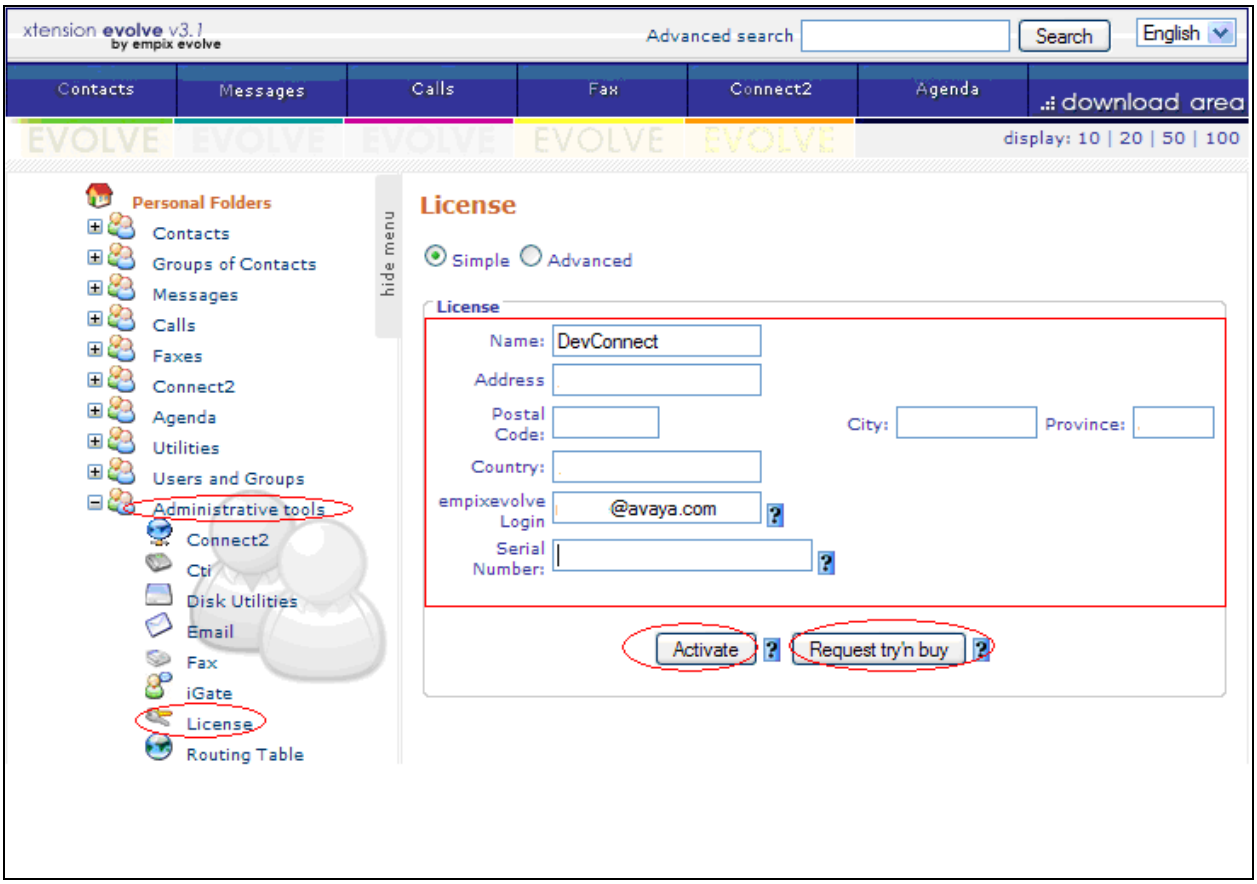

Figure 22: License Activation Screen

6.3. Configure Routing Table

Navigate to **Administrative tools > Routing Table** (not shown) and enter the parameters shown in the following table. Refer to **Figure 23** below.

Parameter	Usage
connect2	Enter the leading digit which is used to route connect calls.
faxserver skypetophone SIP gateway Recorder	If any of these services are used, this field should be set appropriately. If the service is not used, a digit should be entered which does not correspond to any numbers in the IP Office dialing plan, as none of these fields can be left blank.
Digits number	Enter the number of digits to be used for Empix evolve Connect2 Server extensions.

Table 9: Routing Table Configuration Parameters

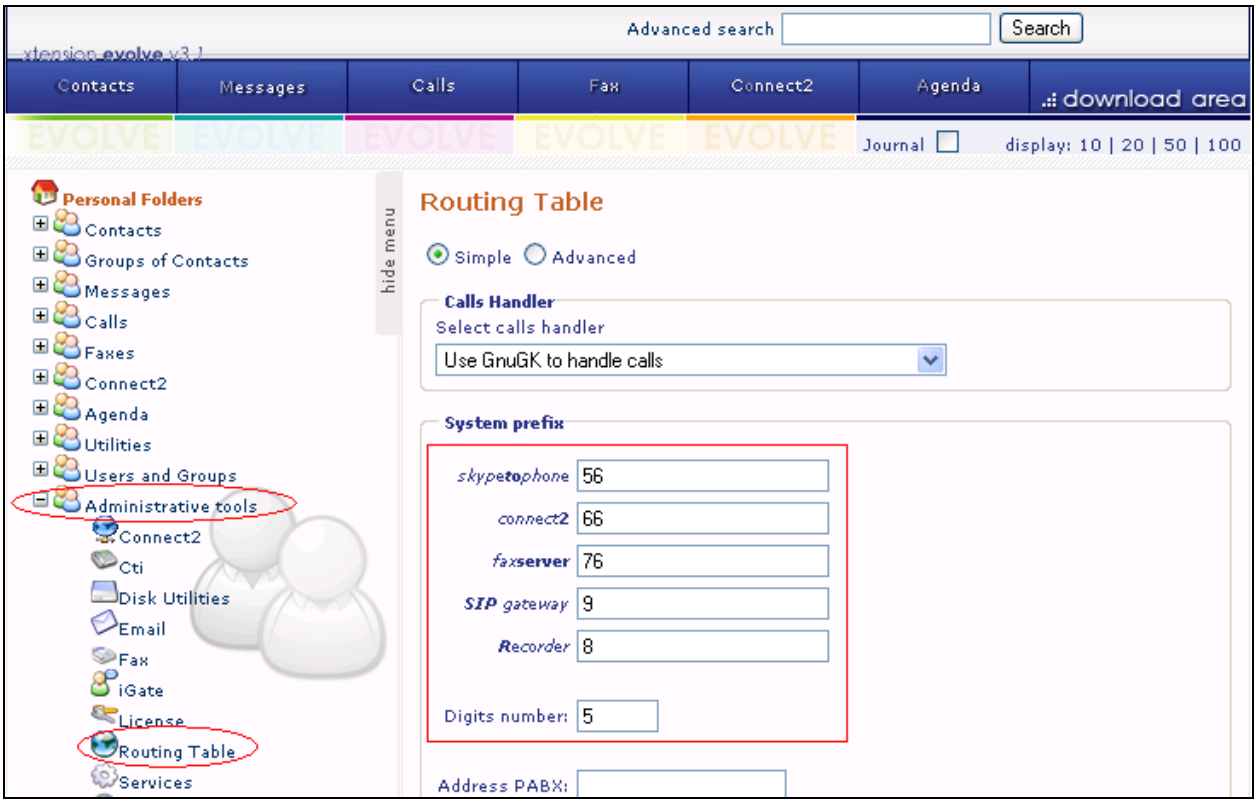

Figure 23: Xtension evolve Routing Table

6.4. Configure System Parameters

Navigate to **Administrative tools > Connect2** and enter the parameters shown in **Table 10**. Refer to **Figure 24** below.

Parameter	Usage
Country code	Enter the country dialing code preceded by a "+" character.
Operator	Enter the number of the extension to which calls are to be routed if a user is unable to answer.

Table 10: Empix evolve Connect2 Server Configuration Parameters

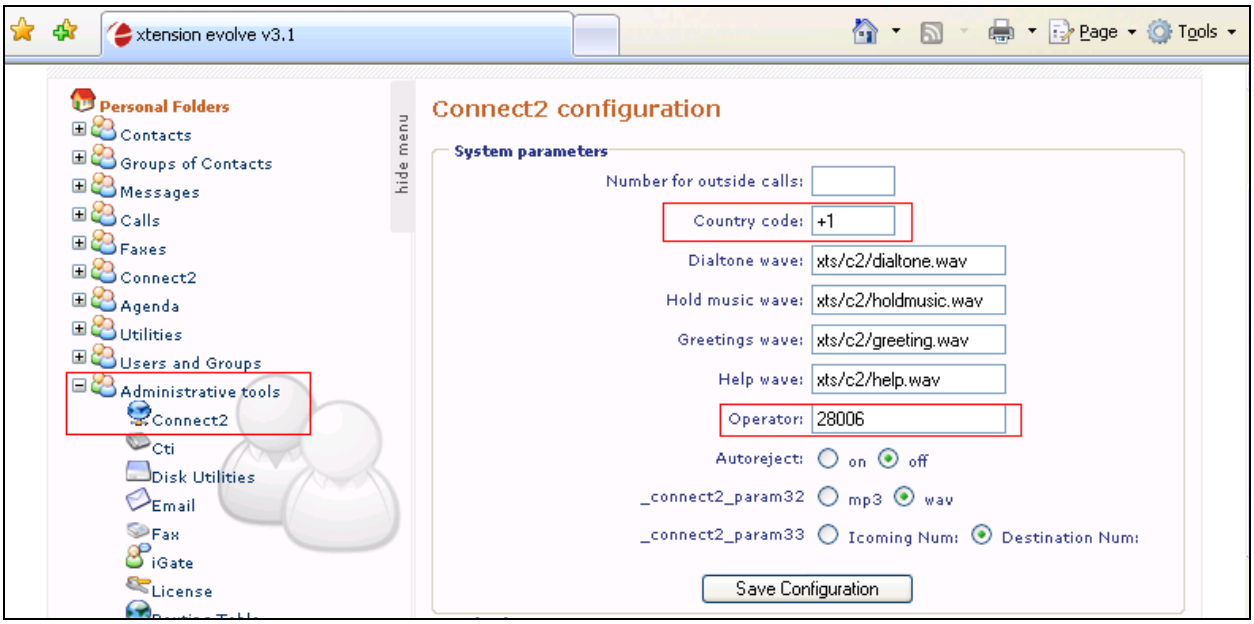

Figure 24: Empix evolve Connect2 Server Configuration Screen

6.5. Configure iGate

Navigate to **Administrative tools > iGate** and enter the parameters as shown in **Table 11**. Refer to **Figure 25**.

Parameter	Usage
Gateway	Enter the IP address of IP Office, and click the **SIP** radio button.
Interface	Enter "***:**" followed by the port number used to receive SIP messages. This should match the **Send Port** value configured for **Figure 11**.

Table 2: iGate Configuration Parameters

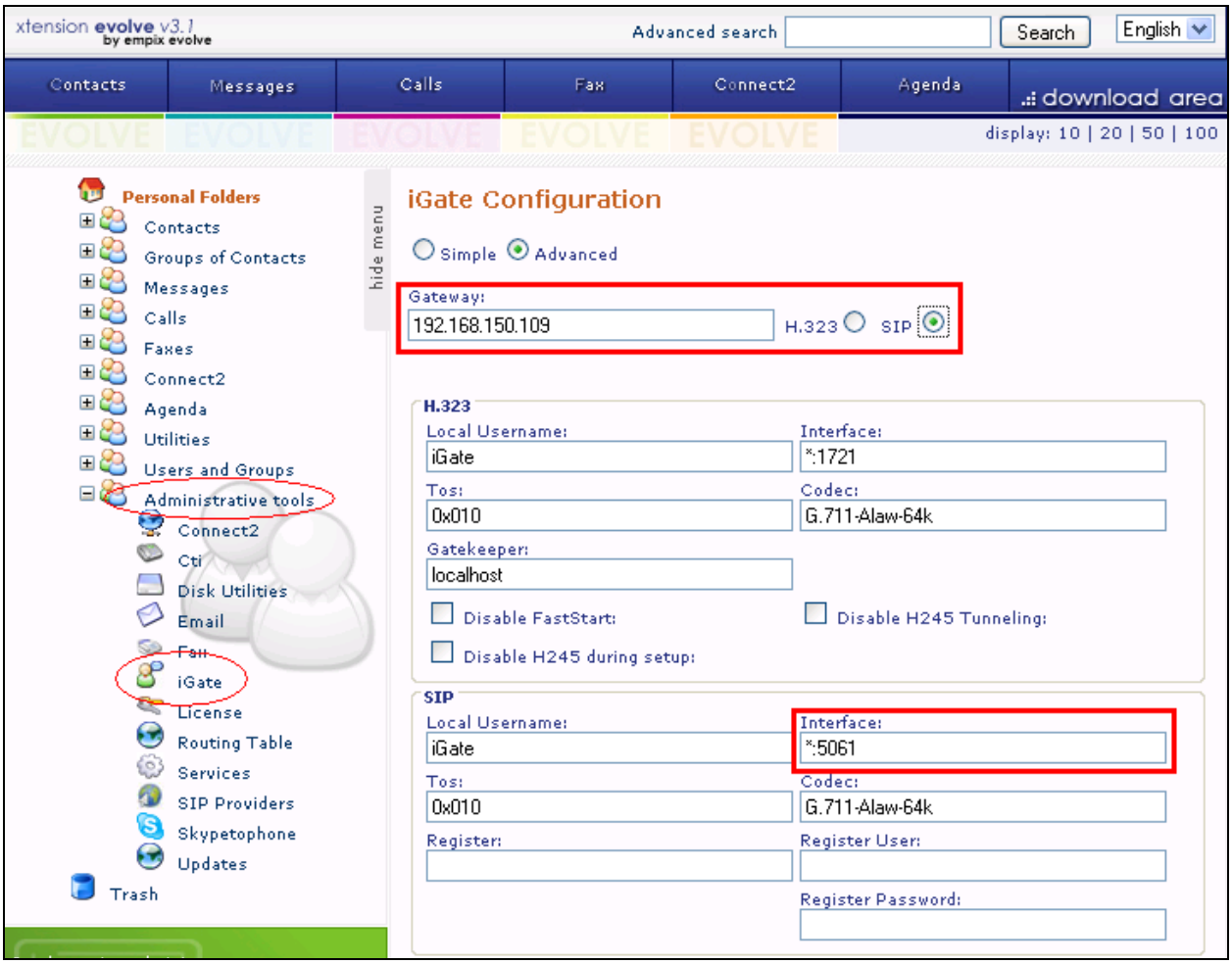

Figure 8: iGate Configuration Screen

6.6. Add Users

Perform the procedures described in this section for each of the client endpoints that were created in **Section 5.4**. Navigate to **Users and Groups > New User**, select the **Simple** radio button and enter the parameters shown in **Table 13**. Refer to **Figure 24**.

Parameter	Usage
Username / Password	Enter authorization credentials to be used by the user.
Name	Enter the first name of the user.

Table 13: User Info Parameters

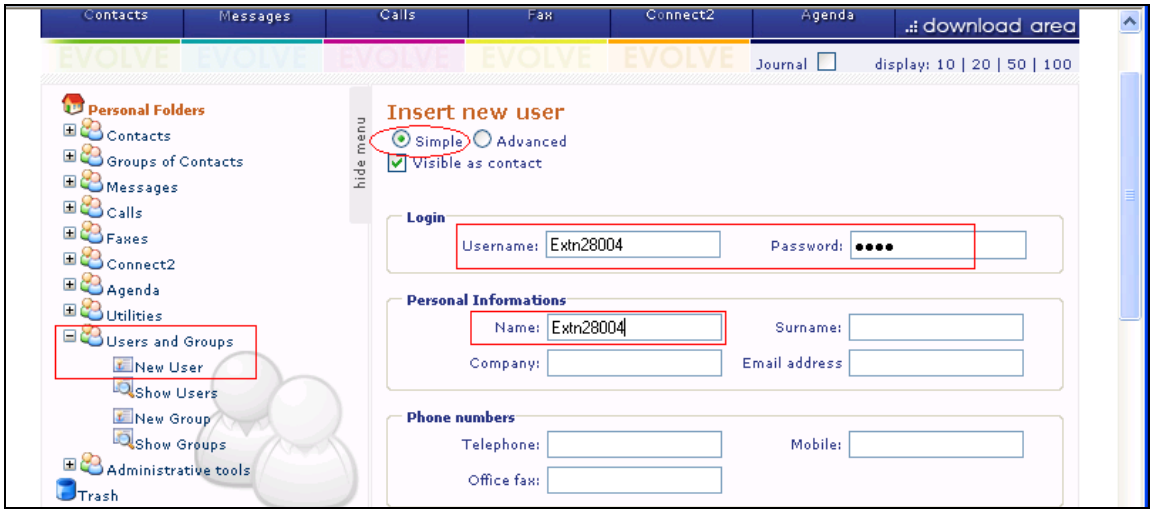

Figure 24: User Info Screen

Under the **Phone numbers** section, enter the **Mobile** number of the user. During compliance testing a DN **54002** on the Avaya CS1000 was emulated for a mobile phone. Refer to **Figure 25** below.

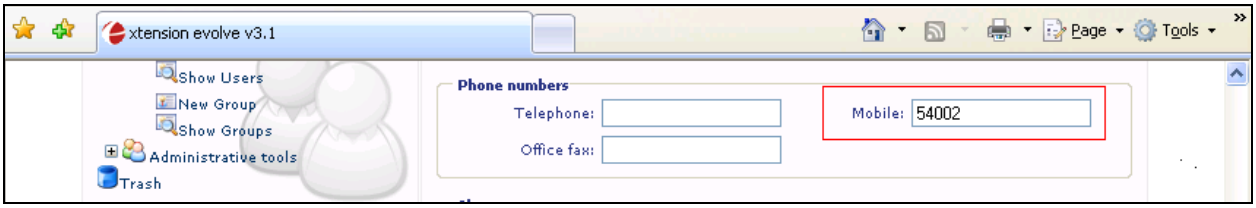

Figure 9: User Phone Numbers Screen

Under the **Cti** section enter the parameters as shown in **Table 14**. Refer to **Figure 26**.

Parameter	Usage
Line ID	Select the IP Office device name for the user from the drop-down menu.
Line numeric id	Enter the user's extension number.

Table 14: User Cti Parameters

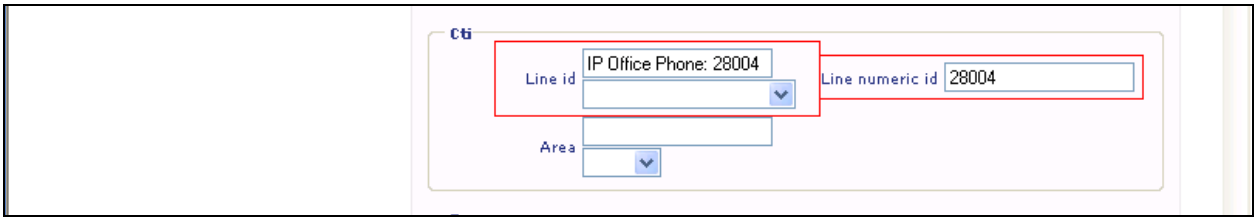

Figure 26: User Cti Screen

Note here that if Presence Server application is not installed on the system then the **Line ID** drop down is not provided. User then just needs to populate the **Line numeric id** field. During compliance testing Presence Server application was installed and therefore the **Line id** drop down option is seen as shown in **Figure 26** above.

Under the **Connect2 configuration** section, enter the parameters shown in **Table 16**. Refer to **Figure 27**.

Parameter	Usage
Connect2 Number	Enter the virtual extension to be assigned to the user. This must match the short code created in **Figure 15.**
Number or id	Add the user's mobile phone number to the list.
Twin calls	Check this box.
Destination 1	Enter the user's mobile phone number.
Destination 2	Enter the user's local extension.
Extension Number	Enter the user's local extension.

Table 3: Empix evolve Connect2 Server User Parameters

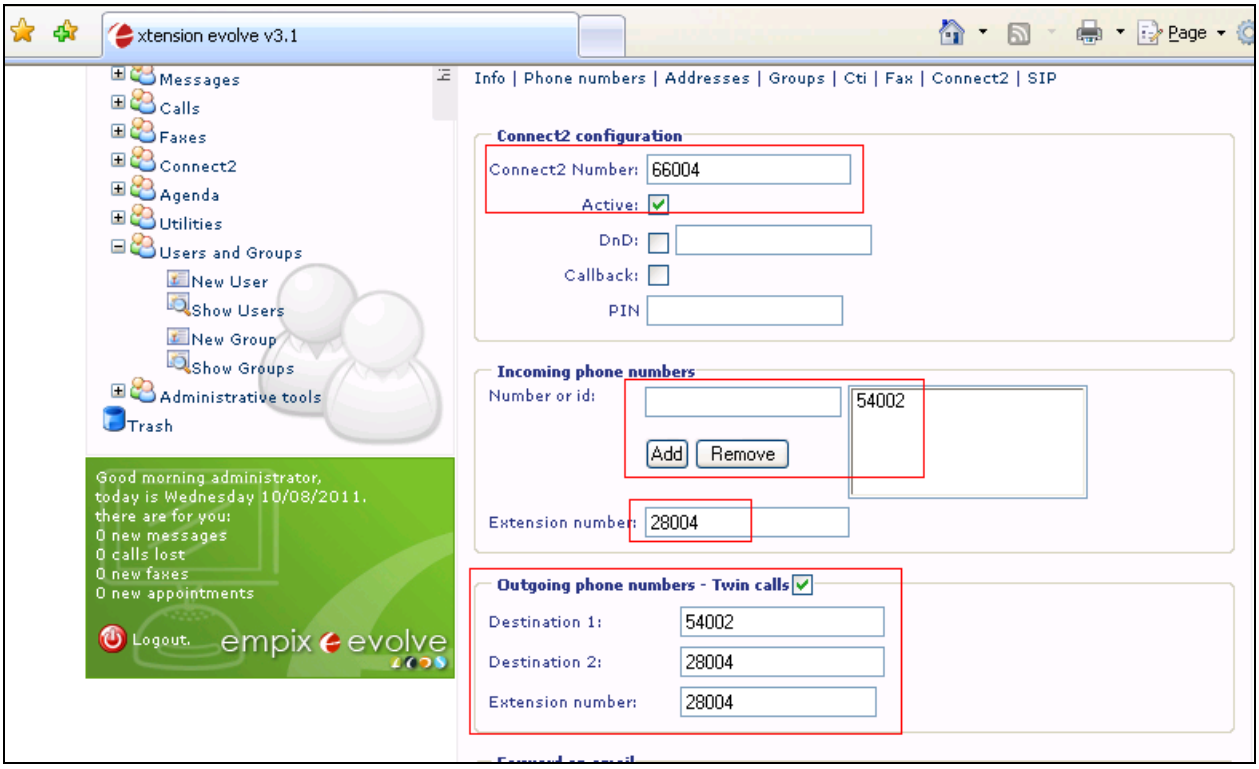

Figure 27: User Connect2 Configuration Screen

6.7. Start Service

Navigate to **Administrative tools > Services**, check the **connect2** box, and click the **Start xtension evolve service** button as shown in **Figure 28** below.

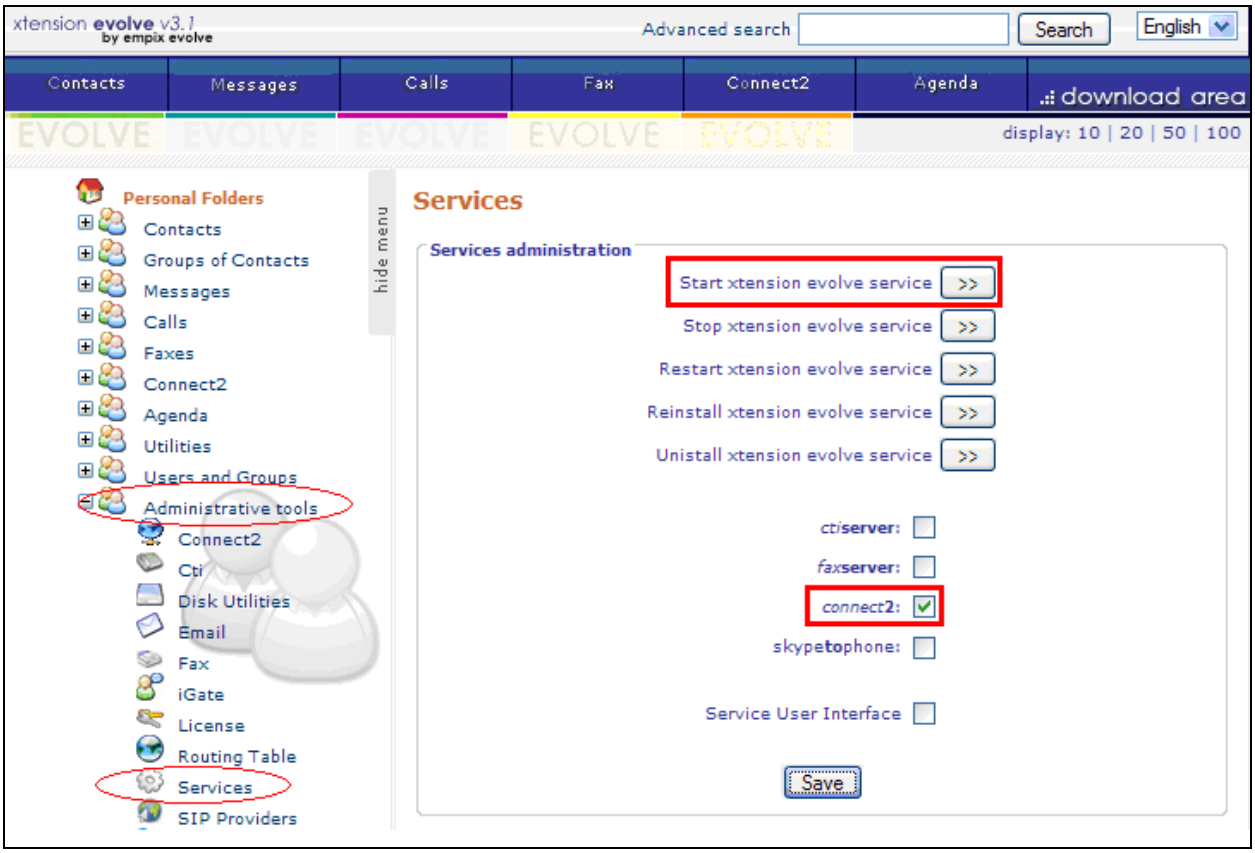

Figure 10: Services Configuration Screen

7. Verification Steps

Use the following steps to verify that evolve Connect2 Server and Avaya IP Office are each configured correctly.

- Click on the "iGate" icon in the Windows shortcut tray in the low right corner of the server display (not shown).
- The xtension iGate status screen is displayed (not shown).
- Make a call from a PSTN endpoint to a local IP Office extension which is "twinned" to cell phone.
- The call progress can be seen on the iGate screen (not shown).

8. Conclusion

All of the executed test cases have passed and met the objectives outlined in **Section 2**. The Empix evolve Connect2 Server application is considered compliant with Avaya IP Office Release 7.0.

9. Additional References

[1] Product documentation for Avaya products may be found at:
https://support.avaya.com/css/Products/

[2] Product documentation for Empix evolve Connect2 Server may be found at:
http://www.empixevolve.com/downloads/

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.