

Avaya Solution & Interoperability Test Lab

Application Notes for Empix evolve Fax Server with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the compliance testing of Empix evolve Fax Server with Avaya IP Office. Empix evolve Fax Server allows PC clients to send and receive Fax messages, each client with its own Fax number.

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

Empix evolve Fax Server allows PC clients to send and receive Fax messages via IP Office, each client with its own Fax number. Each client is allocated a separate telephone number for receiving Fax messages. Documents can be sent as Fax messages from PC clients. A print driver is included with the product which produces a Fax message for each print operation.

1.1. Interoperability Compliance Testing

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

- Verify Fax Server can send short as well as long Fax messages.
- Verify Fax Server can receive short as well as long Fax messages.
- Verify that the Fax print driver can generate Fax messages from documents.
- Verify that Fax Server restarts automatically after the server is restarted.
- Verify that Fax Server recovers from interruptions to its LAN interface.

1.2. Support

Support is available from Empix at:

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

2. Reference Configuration

The following diagram illustrates the configuration which was used for testing.

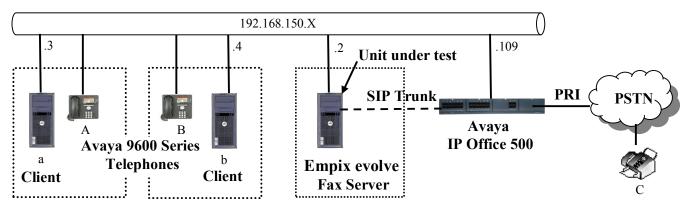


Figure 1: Empix evolve Fax Server Configuration

The following table shows the terminal types and extensions assigned to each of the telephone terminals used for these tests.

Telephone	Client	Ext	Fax	PSTN Fax Number	Endpoint
			Ext		
A	a	201	701	069 11111111 701	Avaya 9640
В	b	202	702	069 11111111 702	Avaya 9640
С				069 22222222	Fax

Table 1: Extensions Used for Testing

3. Equipment and Software Validated

Software Component	Version
Avaya IP Office	6 (8)
Avaya 9600 IP Telephones	S3.110B
MS XP Professional (Evolve Server platform OS)	SP2
Empix evolve Fax Server	XTENSION EVOLVE 3.1
Empix evolve rax server	BUILD 20100802.013

Table 2: Version Numbers of Equipment and Software

4. 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. When one of these icons is selected, the corresponding system component can be configured.

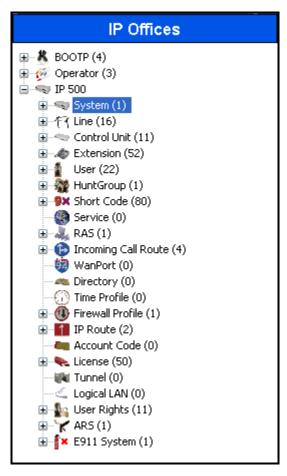


Figure 2: IPO Manager Component Tree

4.1. Licensing

IP Telephones included in the configuration each consume an **Avaya IP Endpoint** license, as described in reference [2].

One IP Office **SIP Trunk Channels** license instance is required for each active Fax call which is handled by IP Office.

4.2. System

Select the "System" icon shown in **Figure 2** and enter the parameters shown in the following table. Select the tab(s) shown in the "Item" column to configure the parameters for that tab.

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

Table 3: System Configuration Parameters

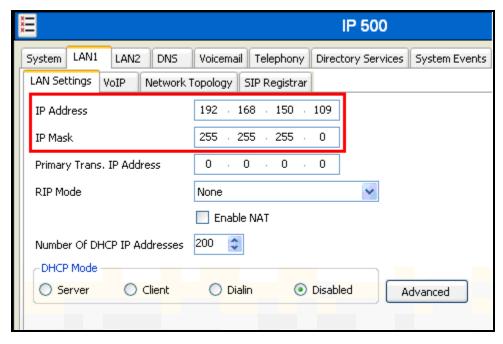


Figure 3: System Parameters: LAN1

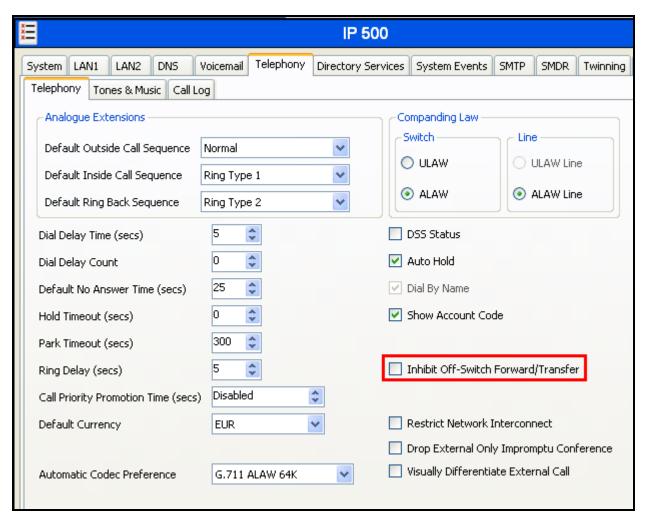


Figure 4: System Parameters: Telephony

4.3. Extensions

Right-click the "Extensions" icon shown in **Figure 2** and select "New H.323 Extension" to create an extension for each of the telephones A and B shown in **Table 1**. Set the "Base Extension" parameter to the extension to be assigned, and accept the default values for the remaining parameters.

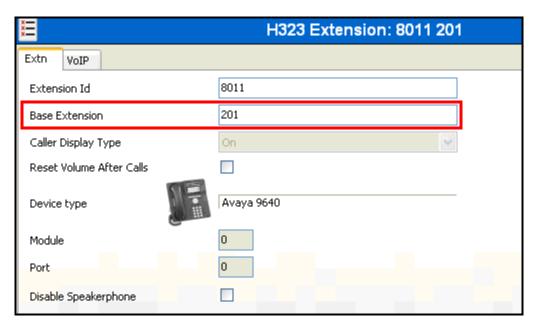


Figure 5: Extension Screen

4.4. Create Users

Right-click the "Users" icon shown in **Figure 2** and select "New" to create a user for each of the telephones A-C shown in **Table 1** using the parameters shown in the following table.

Parameter	Usage
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 4: User Configuration Parameters

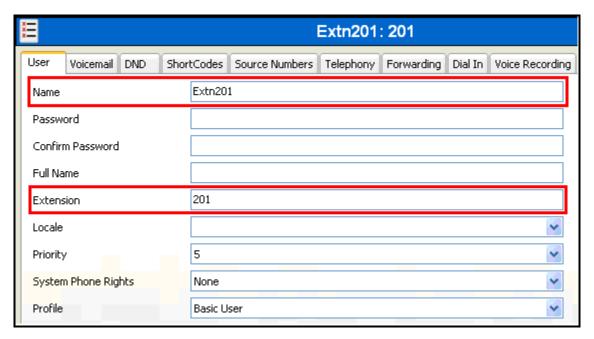


Figure 6: User Screen

4.5. Create SIP Line

This section contains a description of the configuration of the SIP trunk between IP Office and Fax Server. Right-click the "Line" icon shown in **Figure 2**, select "New SIP Line", and enter the parameters shown in the following table.

Tab	Parameter	Usage
	ITSP Domain Name	Enter the IP address of Empix evolve Fax Server.
	ITSP IP Address	Enter the IP address of Empix evolve Fax Server.
SIP Line	Use Network Topology Info	Select "None" from the drop-down menu.
	Send Port	Enter an available port number which matches the port number used for the "Interface" port in Figure 22 .
	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.
SIP URI	Incoming Group	Enter an available group number. This value must match the group number used in Figure 12 and Figure 15 .
	Outgoing Group	Use the same value as was used for "Incoming Group".
	Max Calls per Channel	This value must be sufficient to supply one channel each for the maximum number of simultaneous Fax Server calls, plus one channel each for the maximum number of simultaneous call diversions or call transfers for Fax Server calls.
WID	Compression Mode	Click the "Advanced" button then check the "G.711" box, and uncheck the others.
VoIP	Fax Transport Support	Check this box.
	Re-invite Support	Check this box.

Table 5: SIP Line Configuration Parameters



Figure 7: SIP Line Configuration Screen

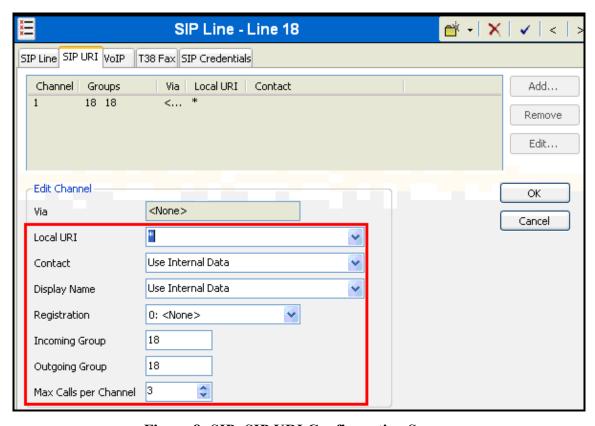


Figure 8: SIP: SIP URI Configuration Screen

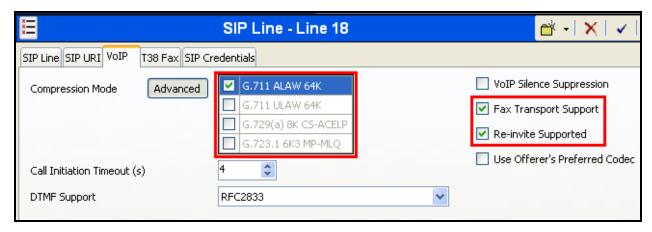


Figure 9: SIP: VoIP Configuration Screen

4.6. Create PRI Line

This section contains a description of the IP Office configuration for use with a PRI interface to the PSTN, which was used for conformance testing. Other types of PSTN trunks can be used as well. Expand the "Line" icon shown in **Figure 2**, select the PRI Line to be configured, and enter the parameters shown in the following table.

Parameter	Usage
Incoming Group ID	Assign the number of an otherwise unused Incoming Group ID.
Prefix	Enter the prefix which is used to initiate a local external call via the PSTN.
National Prefix Enter the prefix which is used to initiate a national external call via PSTN.	
International Prefix	Enter the prefix which is used to initiate an international external call via the PSTN.
Line SubType	Select "ETSI" from the drop-down list, as required for access to the PSTN in Europe.
Outgoing Group ID	Assign the number as was assigned to the Incoming Group ID.

Table 6: Primary Rate Line Configuration Parameters

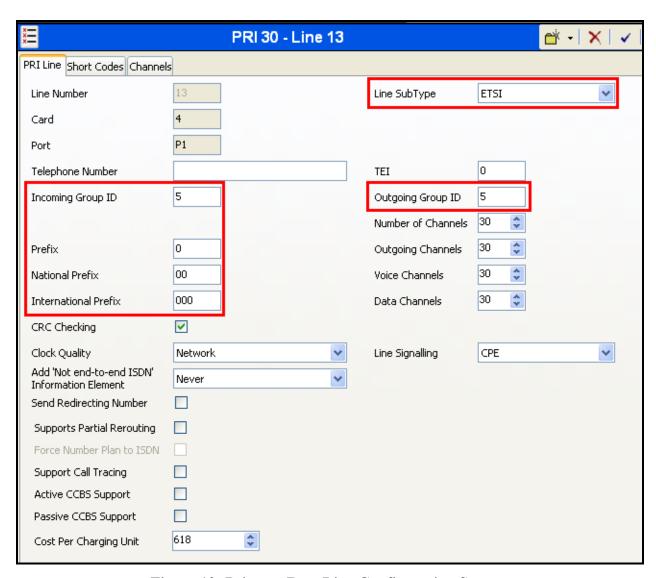


Figure 10: Primary Rate Line Configuration Screen

4.7. Short Codes

Right-click the "Short Code" icon shown in **Figure 2** and click "New" to allocate a short code to provide access to the PSTN via the PRI interface, as shown in the following table.

Usage	Parameter	Usage
	Code	Enter 0N ;
	Feature	Select Dial from the drop-down menu.
PSTN	Telephone	Enter NSi followed by the telephone number of the PSTN
1511	Number	connection, then an E.
	Line Group ID	Enter the group number which was assigned to the PSTN
	Line Group ID	interface in Figure 10.
	Code	Enter the faxserver routing code configured in Figure 21 ,
	Couc	followed by "xx".
	Feature	Select Dial from the drop-down menu.
Fax Server	Telephone	Enter the faxserver routing code configured in Figure 21 ,
Tax Scrvci	Number	followed by "N", followed by "@ <server ip="">, where</server>
	Nullibel	<pre><server ip=""> is the IP address of the faxserver server.</server></pre>
	Line Group ID	Enter the group number which was assigned to the SIP
	Line Group ID	interface in Figure 7.

Table 7: Shortcode Configuration Parameters

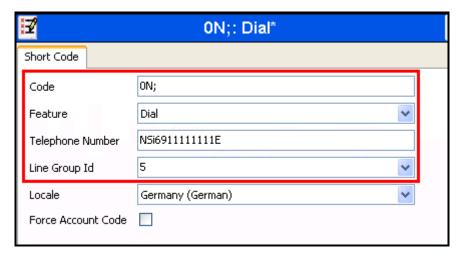


Figure 11: PSTN Access Short Code

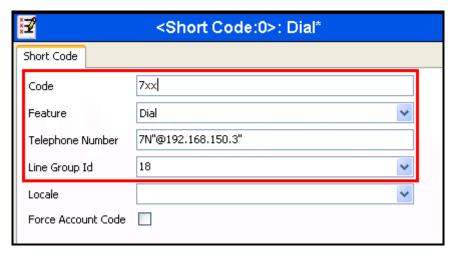


Figure 12: Fax Server Access Short Code

4.8. Incoming Call Route

4.8.1. PSTN Incoming Call Routes

For each of the clients "a" and "b", right-click the "Incoming Call Route" icon shown in **Figure 2** and click "New" to create an Incoming Call Route for routing calls from the PSTN for the local extensions. Assign parameters to this call route as shown in the following table. This routes calls from the PSTN to local extensions to Empix evolve Fax Server.

Tab	Parameter	Usage
	Line Group Id	Enter the Group Id of the PRI line, as shown in Figure
	Line Group iu	10.
Standard		Enter "0" followed by the PSTN number assigned to the
Standard	I	PRI interface, followed by the Fax Server routing code
	Incoming Number	configured in Figure 21 , followed by the last two digits
		of the local extension.
	Destination	Enter the faxserver routing code configured in Figure 21 ,
	Destination	followed by the last two digits of the local extension.
Destinations		If available, the extension of a physical Fax device which
	Fallback Extension	is to be used as a fallback can be input in this field. This
	Talloack Extension	was not included in the reference configuration used for
		testing.

Table 8: Parameters for Incoming Call Routes

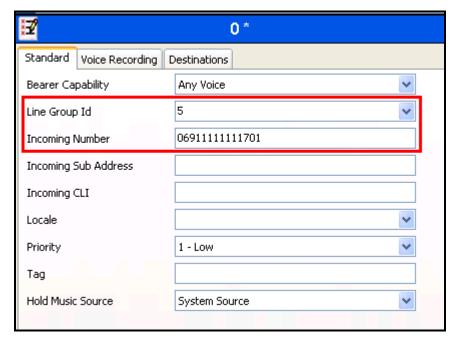


Figure 13: Incoming Call Route - Standard Parameters

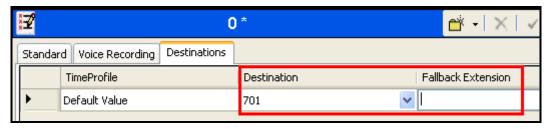


Figure 14: Incoming Call Route - Destinations Screen

4.8.2. SIP Trunk Incoming Call Route

Right-click the "Incoming Call Route" icon shown in **Figure 2** and click "New" to create an Incoming Call Route for routing calls from the SIP trunk to local extensions. Assign parameters to this call route as shown in the following table:

Tab	Parameter	Usage
Standard	Line Group Id	Enter the Group Id of the SIP line.
Standard	Incoming Number	Leave this field blank.
Destinations	Destination	Enter ".".

Table 9: Parameters for Incoming Call Routes

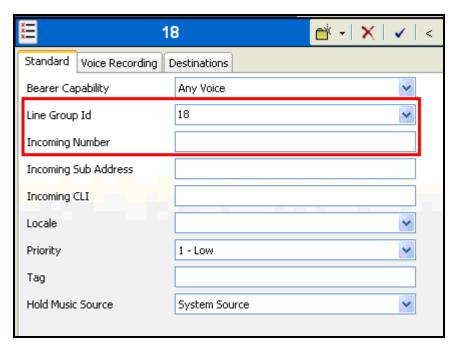


Figure 15: SIP Incoming Call Route - Standard Parameters

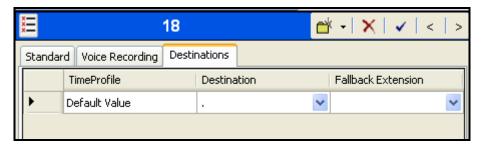


Figure 16: SIP Incoming Call Route - Destinations Screen

5. Configure Fax Server

The Fax Server installation process also installs MySQL and the Apache server. The installation procedure is beyond the scope of this document. However, the installation used for compliance testing was done using the prompted default values.

Fax Server uses a Web-based tool for configuration, which can be accessed from the server via http://localhost:20080/login.php. The initial login credentials are for Username "administrator, with Password "1234". These values should be changed subsequently for security reasons.

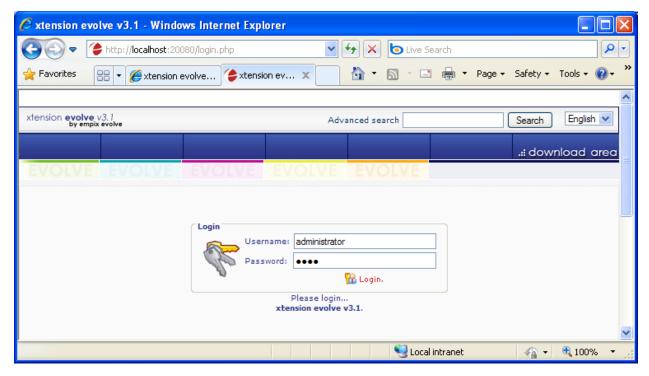


Figure 17: Server Login Screen

5.1. 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.

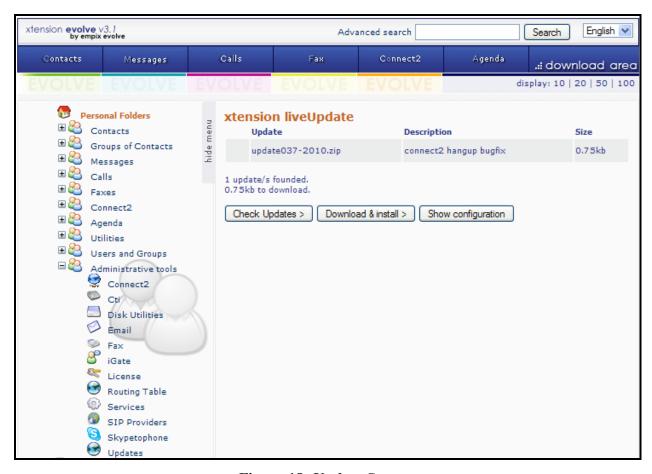


Figure 18: Update Screen

5.2. Install License

Navigate to "Administrative tools" → "License" and enter 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.

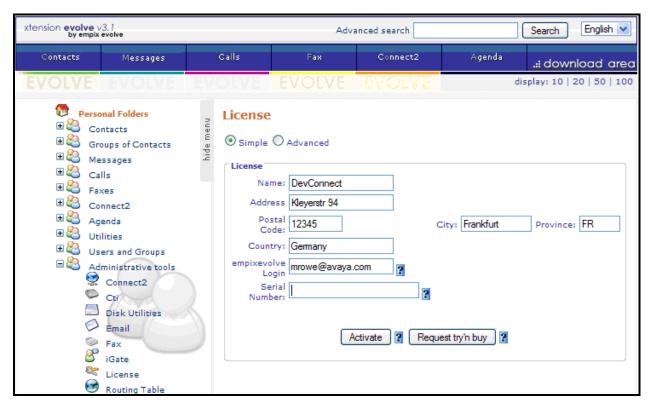


Figure 19: License Activation Screen

Click the "Activate" button to activate the license.

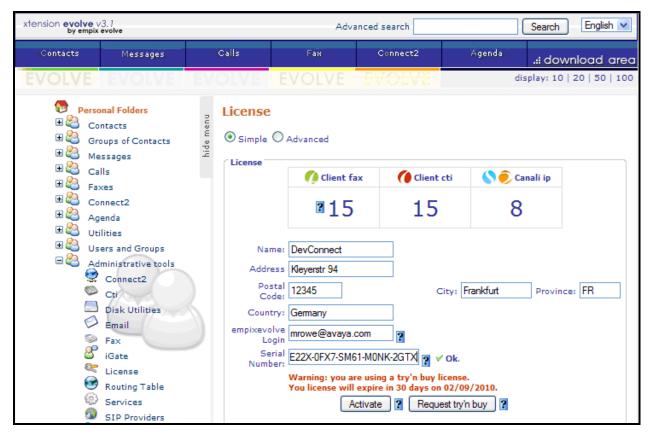


Figure 20: Try'n Buy License Activation Screen

5.3. Configure Call Routing

Navigate to "Administrative tools" → "Routing Table" and enter the parameters shown in the following table.

Parameter	Usage
faxserver	Enter the leading digit which is used to route Fax Server calls.
skypetophone connect2 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 Fax extensions.

Table 10: Routing Table Configuration Parameters

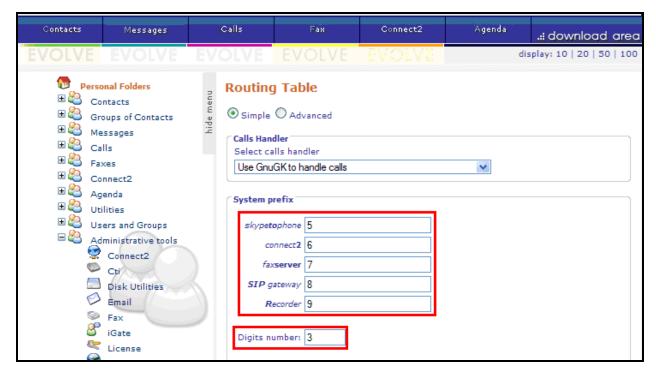


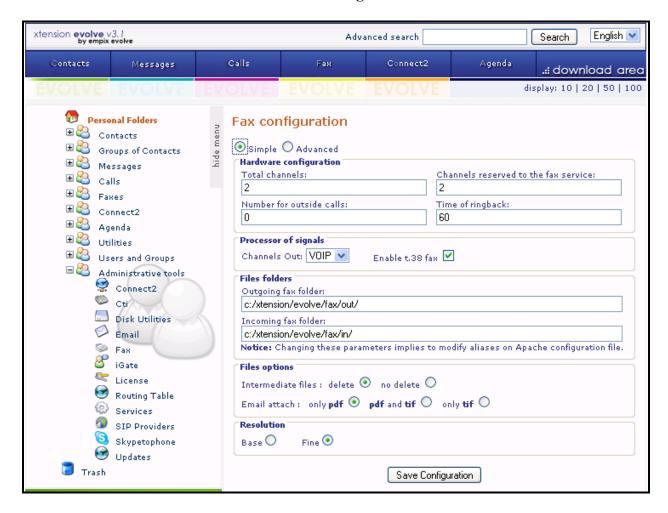
Figure 21: Routing Table

5.4. Configure System Parameters

Navigate to "Administrative tools" → "Fax" and enter the parameters shown in the following table.

Parameter	Usage
Total channels	Enter the maximum number of clients which can use the Fax simultaneously.
Channels reserved	Enter the maximum number of clients which can use the Fax simultaneously.
for fax service	
Channels Out	Select "VOIP" from the drop-down menu.
Enable t.38 fax	Check this box.

Table 11: Fax Server Configuration Parameters



5.5. Configure iGate

Navigate to "Administrative tools" → "iGate" and enter the parameters shown in the following table.

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 7 .

Table 12: iGate Configuration Parameters

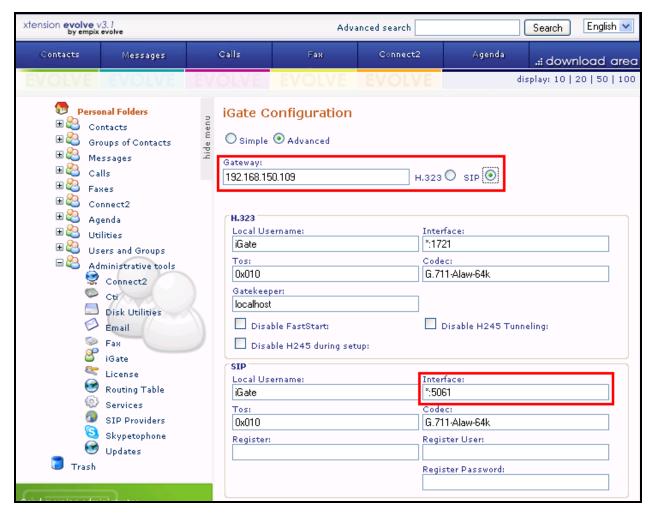


Figure 22: iGate Configuration Screen

5.6. Add Users

Navigate to "Users and Groups" \rightarrow "New User", select the "Advanced" radio button, select the "Info" tab, and enter the parameters shown in the following table. Repeat this for each of the users shown in **Table 1**.

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

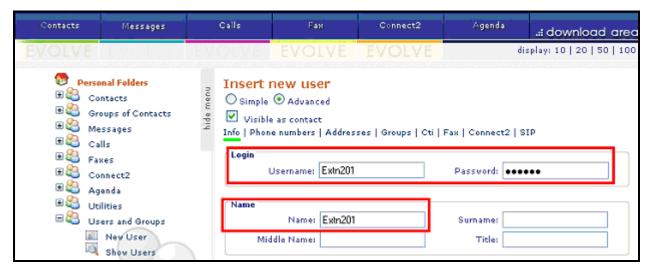


Figure 23: User Info Screen

Select the "Fax" tab, and enter the parameters shown in the following table.

Parameter	Usage
Fax license	Check this box.
Fax configuration	Enter the Fax extension to be associated with this user.

Table 14: User Phone Numbers Parameters



Figure 24: Fax Screen

5.7. Start Service

Navigate to "Administrative tools" → "Services, check the "faxserver" box, and click the "Start xtension evolve service" button.

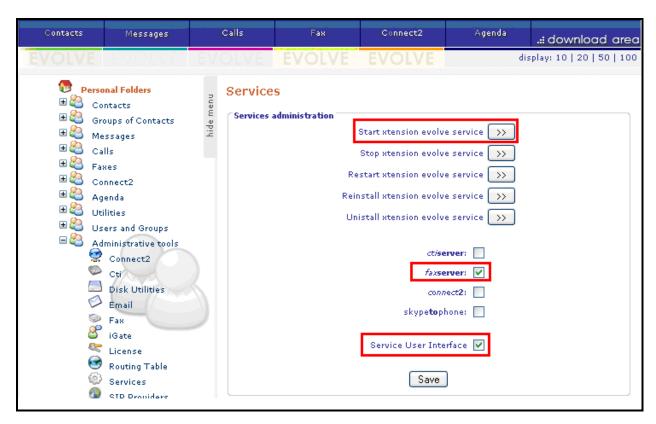


Figure 25: Services Configuration Screen

6. Configure Clients

Fax clients use a Web-based tool for configuration, which can be accessed from the server via http://<server address>:20080/login.php. The login procedure is the same as for the server, shown in **Figure 17**.

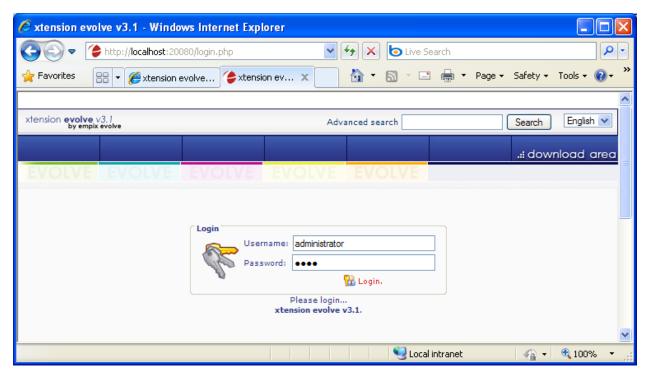


Figure 26: Client Login Screen

Click "Download Area".



Figure 27: Initial Client Screen

Click "Download xtension Fax Printer".

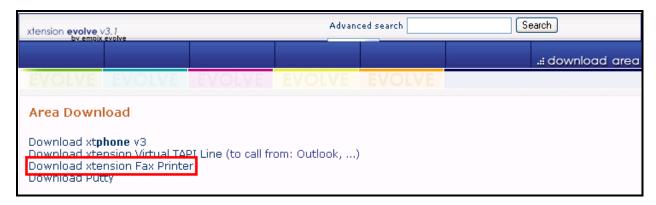


Figure 28: Download Screen

Click "Run".



Figure 29: Fax Setup Screen

Click "OK".



Figure 30: Fax Setup Language Selection

Read the license terms and click "I Agree" if they are acceptable.

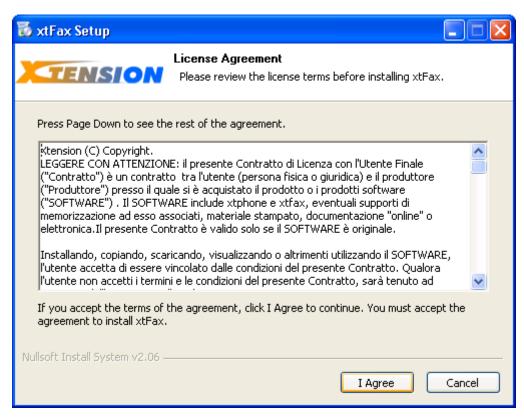


Figure 31: Fax License Terms Acceptance Screen

Click "Next".

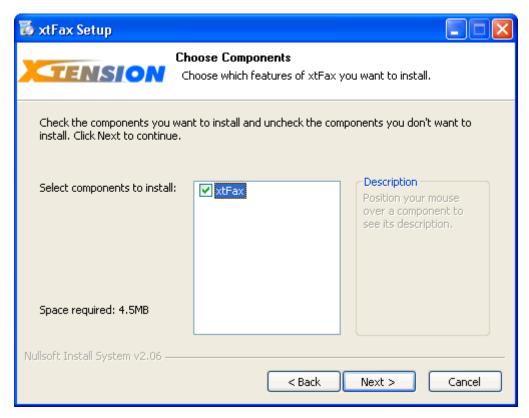


Figure 32: Fax Component Selection Screen

Click "Install".

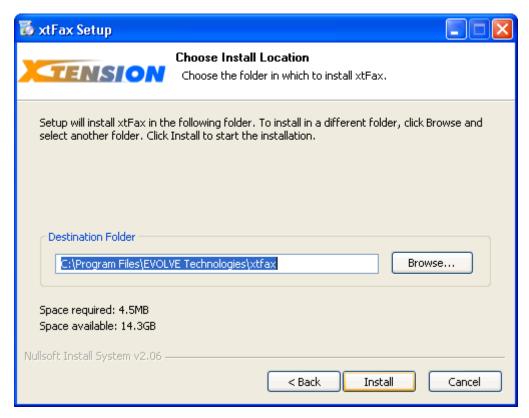


Figure 33: Fax Installation Location Selection Screen

When the User Setup screen appears, enter the parameters shown in the following table and click OK.

Parameter	Usage
User / Password	Enter the user credentials entered in Figure 23 .
Server Address	Enter the IP address of the Fax Server.
Server Port	Enter "20080", port serviced by the Fax Server.

Table 15: User Info Parameters



Figure 34: User Info Screen

Click "Yes".



Figure 35: User Installation Completion Screen

The "Xtension Fax Printer" is now added to the list of print drivers.

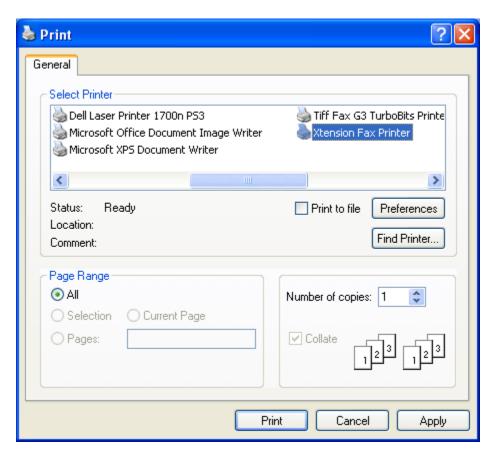


Figure 36: Print Driver Selection Screen

7. General Test Approach and Test Results

All tests were performed manually. Only functional testing was performed: no performance testing was done. All tests produced the expected result.

8. Verification Steps

Start the IP Office Systems Status program and verify that the SIP trunk channels to the Fax Server are in the "Idle" state.

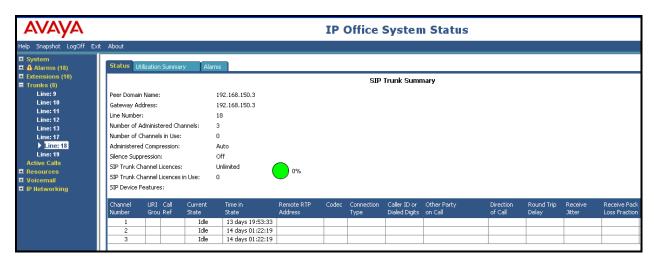


Figure 37: iGate Status Screen

9. Conclusion

These Application Notes describe the compliance testing of the Empix Fax Server with Avaya IP Office. The various features of the Fax Server which involve interaction with telephony were tested. A detailed description of the configuration required for both the Avaya IP Office and the Empix Fax Server is documented within these Application Notes.

10. Additional References

This section references documentation relevant to these Application Notes. The Avaya product documentation is available at http://support.avaya.com.

- [1] Avaya Office 6.0 Manager 8.0, May 2010, Document Number 15-601011
- [2] Avaya IP Office Release 6 H323 IP Telephone Installation, March 2010, 15-601046
- [3] Installing and configuring xtension evolve, July 2010, ver 2.2

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