



**Avaya Solution & Interoperability Test Lab**

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## **Application Notes for Dialogic™ Brooktrout™ SR140 SDK 6.4.0 Fax Software with Avaya IP Office 7.0 – Issue 1.0**

### **Abstract**

These Application Notes describe the compliance testing of Dialogic™ Brooktrout™ SR140 Fax Software and with Avaya IP Office. Dialogic Brooktrout SR140 Fax Software is a host base Fax over IP engine that sends and receives fax.

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 purpose of this document is to explain the integration of Avaya IP Office (IPO) with Dialogic™ Brooktrout™ SR140 Fax Software (SR140). The SR140 registers to IPO as a SIP end point and is able to send and receive fax to both local and remote systems.

## 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.

- SR140 can successfully register to IPO as SIP endpoint.
- SR140 can send and receive fax within the local IPO system.
- SR140 can send and receive fax with the remote Avaya CS1000 system (emulated PSTN).
- SR140 can send and receive multiple pages of fax.
- SR140 can send and receive fax when ECM value is enabled and disabled.

### 2.2. Test Results

All tests produced the expected result.

### 2.3. Support

Technical support for the SR140 can be obtained by contacting Dialogic at:

- URL – <http://www.dialogic.com/support/cims.aspx>
- Phone – 973-993-1443

### 3. Reference Configuration

Figure 1 illustrates the configuration which was used for testing.

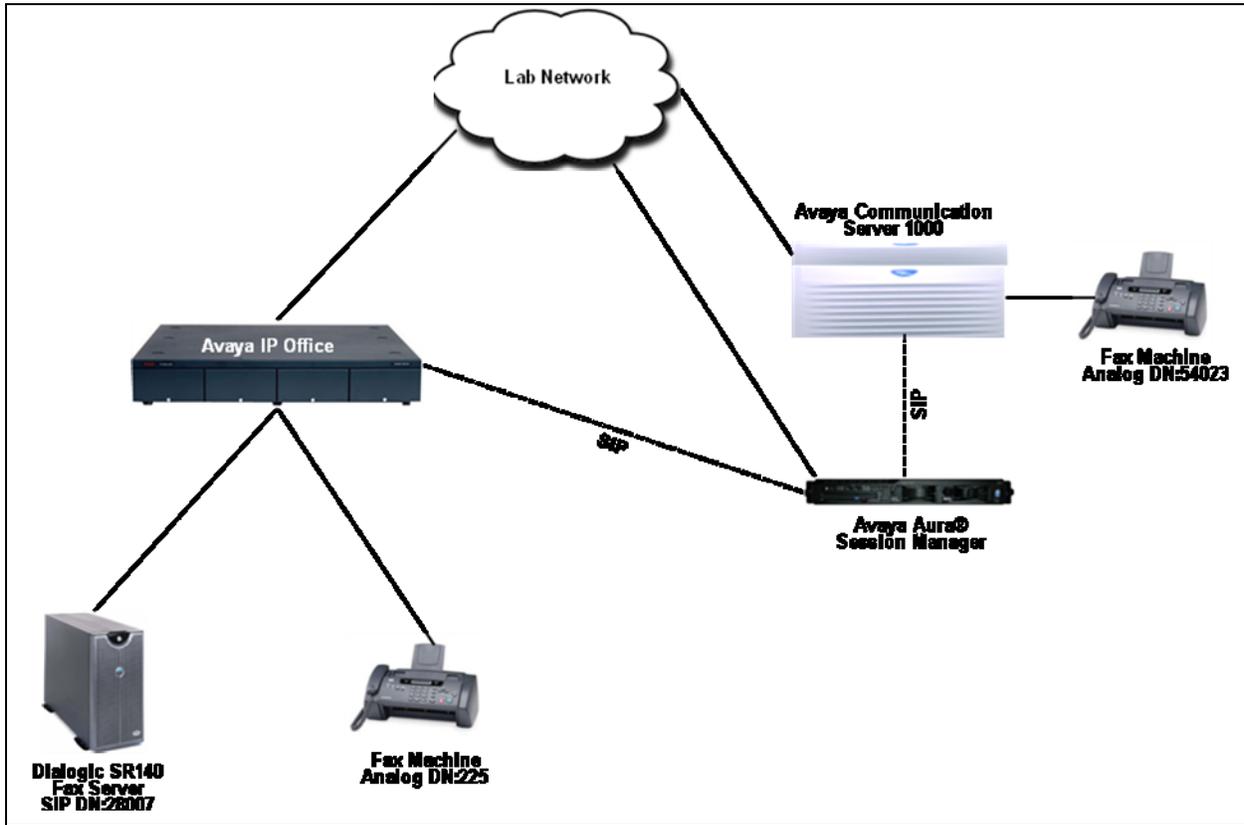


Figure 1: SR140-IPO Lab Configuration

### 4. Equipment and Software Validated

Software Component	Version
Avaya IP Office 500 Control Unit	7.0
Avaya IP Office Manager	9.0
Avaya Communication Server 1000	7.5
Avaya Aura® Session Manager	6.1
Dialogic Brooktrout Fax Server OS	Windows XP SP2
Dialogic™ Brooktrout™ SR140	SDK 6.4.0

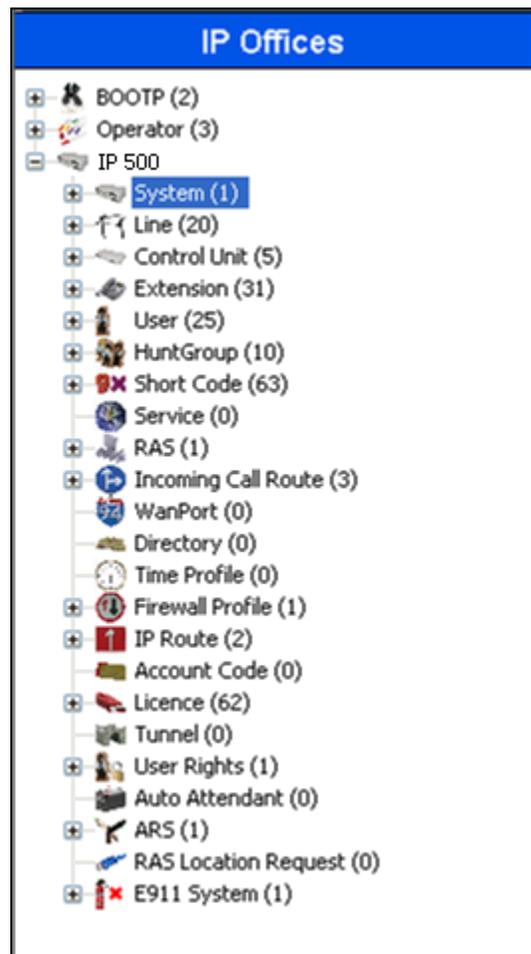
Note that T.38 is only supported on IP Office 500 hardware. It requires IP Office to be equipped with VCM 32 or VCM 64 voice compression modules. One VCM channel is used for each fax call.

Also IP Office Admin Suite is installed on a separate PC connected via local LAN. It is used to configure the Avaya IP Office 500 control unit.

## 5. Configure IP Office

The configuration and verification operations illustrated in this section were performed using the Avaya IP Office Manager program from the system it is installed on. 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.

Assumption is made that Avaya CS1000 can communicate to IPO via Session Manager using SIP. This is required for emulated PSTN testing. For complete information on IPO and CS1000 installation and configuration refer to **Section 9[1]**.



**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:

- System Configuration.
- Extension Configuration.
- User Configuration.

## 5.1. Licensing

Avaya IP Telephones and SIP telephones included in the configuration each consume an **Avaya IP Endpoint** and **3rd Party IP Endpoint** license respectively. For complete information on Licensing refer to documents referred in **Section 9[1]**.

## 5.2. System Configuration

Select the **System** icon shown in **Figure 2** and enter the **IP Address** and **IP Mask** of the IPO as shown in **Figure 3** below. Click on **OK** to continue.

The screenshot shows the 'LAN Settings' tab for 'LAN1'. The IP Address is 10.10.10.1 and the IP Mask is 255.255.255.240. The Primary Trans. IP Address is 0.0.0.0. The RIP Mode is set to 'RIP 2 Broadcast (RIP 1 Compatibil)'. The 'Enable NAT' checkbox is unchecked. The Number Of DHCP IP Addresses is 1. The DHCP Mode is set to 'Disabled' (radio button selected). The 'Advanced' button is visible. The 'OK' button is circled in red.

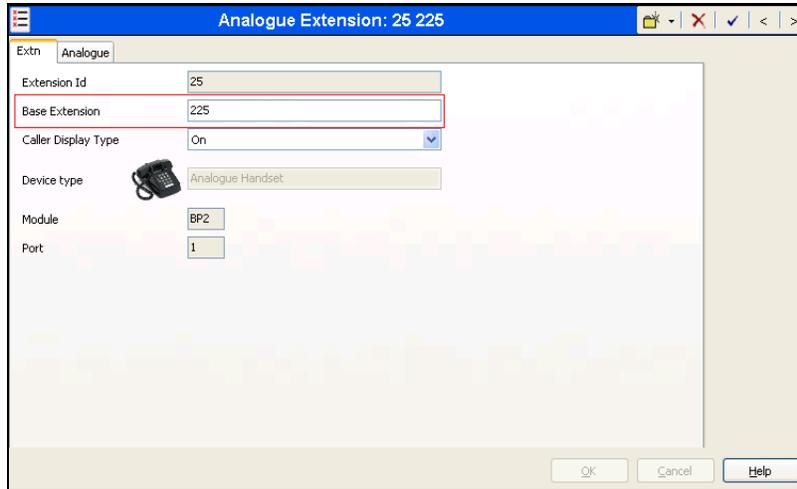
IP Address	10 . 10 . 10 . 1
IP Mask	255 . 255 . 255 . 240
Primary Trans. IP Address	0 . 0 . 0 . 0
RIP Mode	RIP 2 Broadcast (RIP 1 Compatibil)
Enable NAT	<input type="checkbox"/>
Number Of DHCP IP Addresses	1
DHCP Mode	<input type="radio"/> Server <input type="radio"/> Client <input type="radio"/> Dialin <input checked="" type="radio"/> Disabled

**Figure 3: System Parameters: LAN1**

### 5.3. Extension Configuration

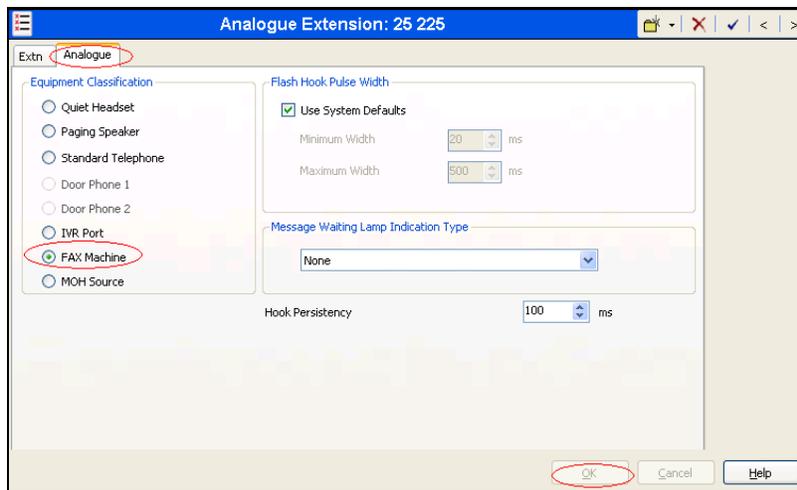
This section explains the steps to add an extension. During compliance testing two extensions were added. One analogue extension was added to serve the fax machine and another SIP extension was added to serve the SR140.

An analogue extension can be selected from the **Extension** icon seen in **Figure 2**. During compliance testing an **Extension ID** of **25** was selected and the **Base Extension** was populated with **225**. The rest of the fields are left at default as shown in **Figure 4** below.



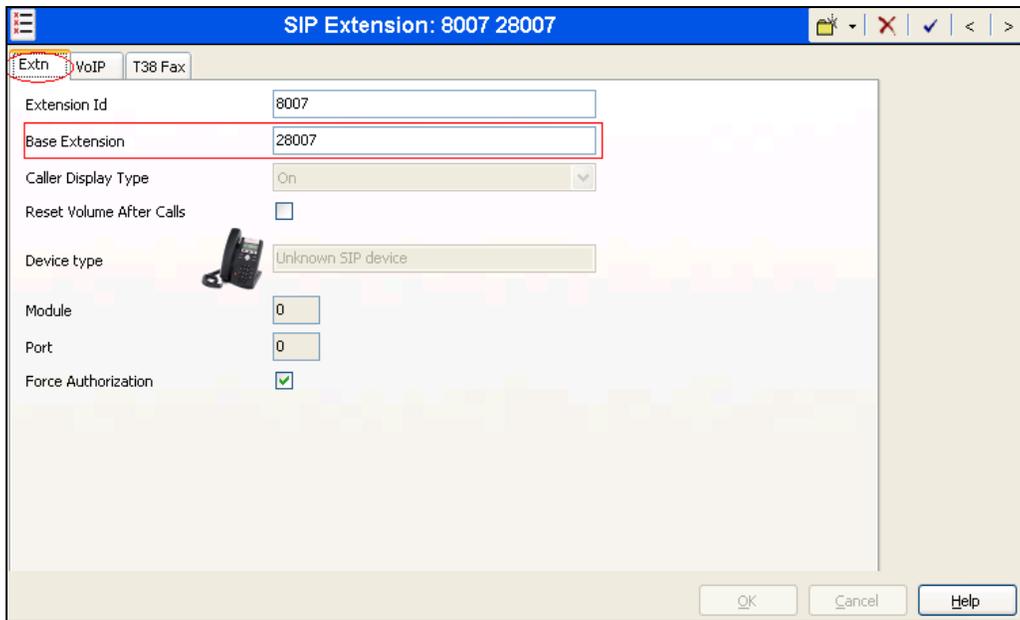
**Figure 4: Configuring an Analogue Extension**

To configure this analogue extension as a fax port, select the **FAX Machine** radio button under the **Analogue** tab as shown in **Figure 5** below. Click on **OK** to complete the configuration.



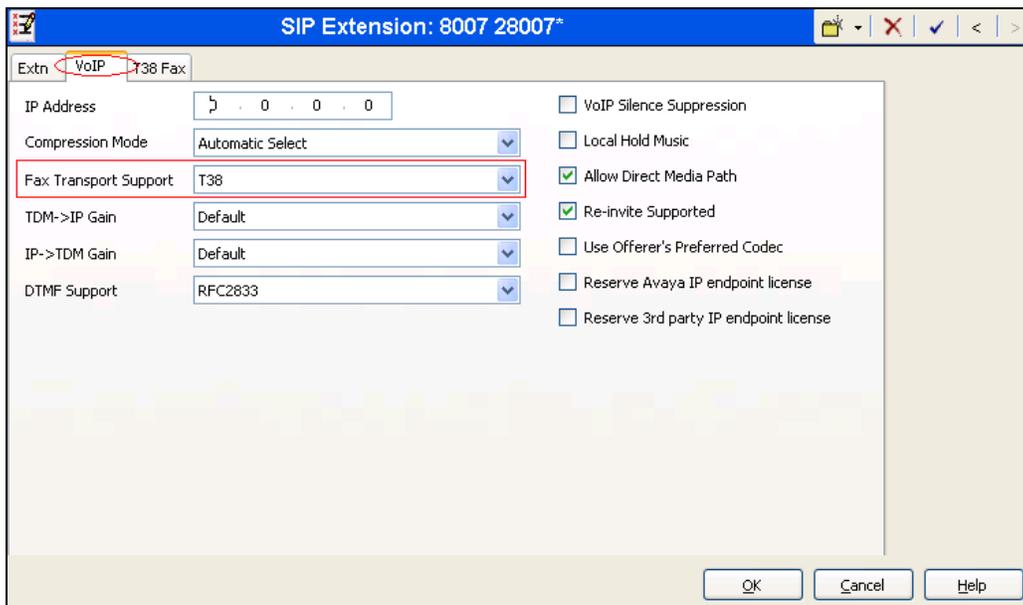
**Figure 5: Configuring an Analogue Extension to be FAX port**

To add a new SIP extension, right-click the **Extension** icon shown in **Figure 2** and select **New > SIP 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 6** below.



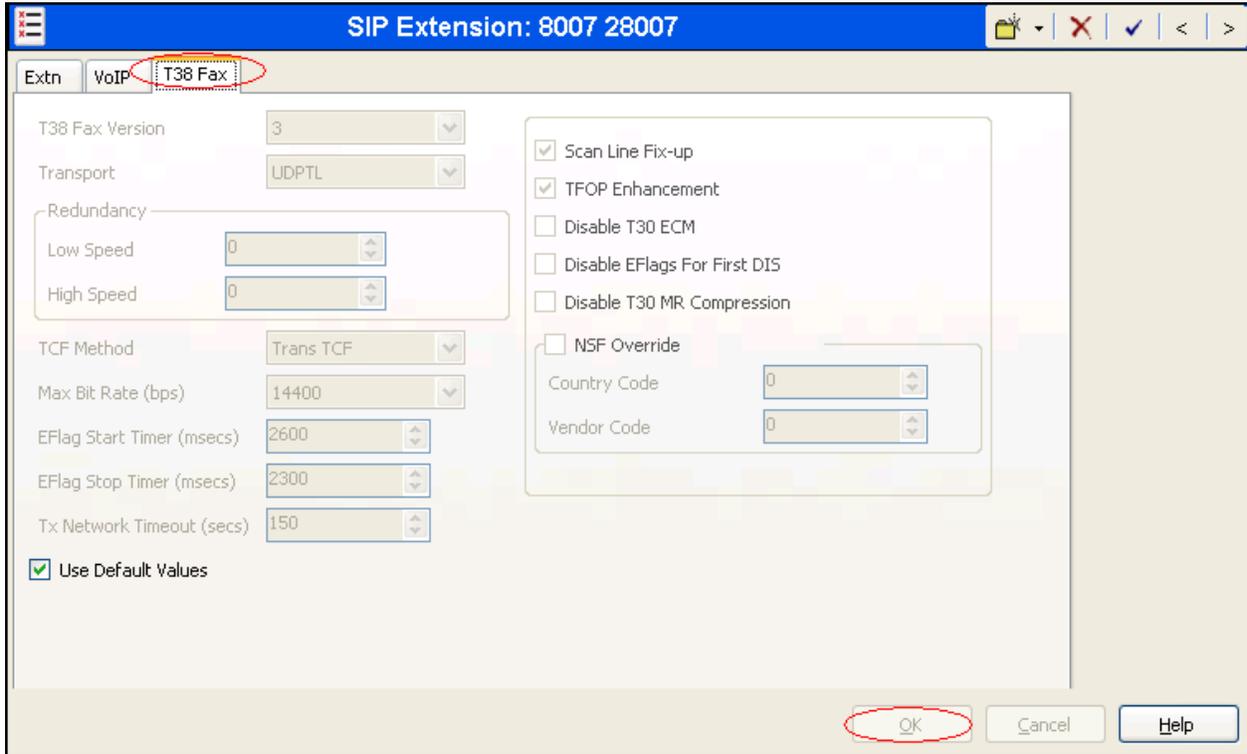
**Figure 6: Adding a SIP Extension**

In the **VoIP** tab select **T38** from the Fax Transport Support drop down menu as shown in **Figure 7** below. The rest of the fields are left at default.



**Figure 7: Adding Fax transport Support to the SIP Extension**

All values in the **T38 Fax** tab are left at default as shown in **Figure 8** below. Click on **OK** to complete the configuration of adding a SIP extension.



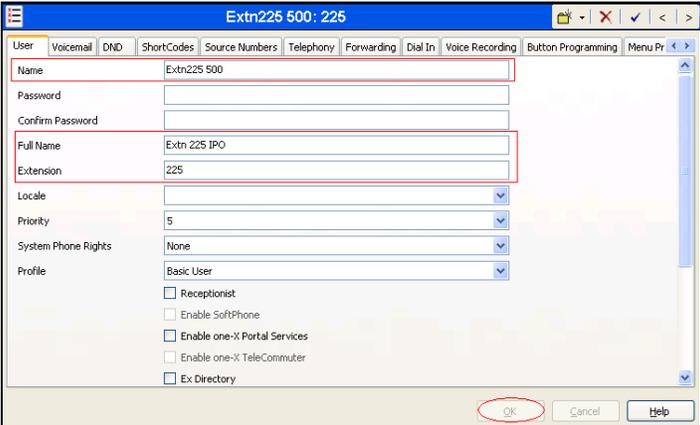
**Figure 8: T38 Fax Tab**

## 5.4. User Configuration

This section explains the steps of assigning the Users to the Extensions created in **Section 5.3**.

Right-click the **User** icon shown in **Figure 2** and select **New** (not shown) to create a user for each of the extension created in **Section 5.3**.

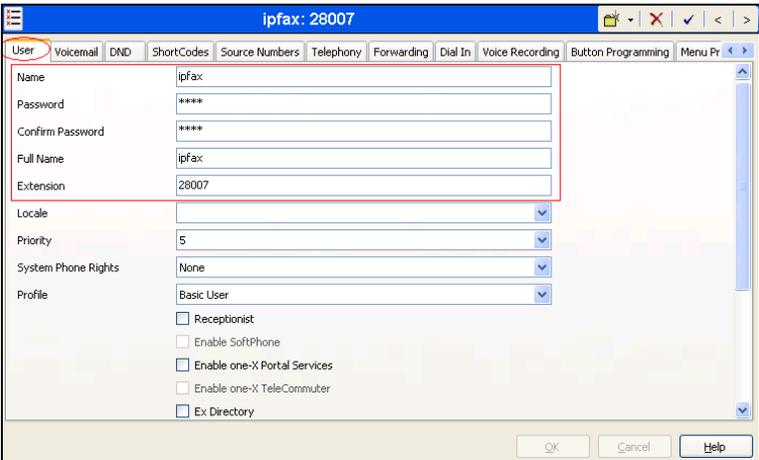
**Figure 9** shows the configuration of the user being assigned to the analogue extension. Populate the **Name** and **Full Name** fields and enter the analogue extension created from **Section 5.3** in the **Extension** field. The rest of the fields are left at default. Click on **OK** to complete the configuration.



Field	Value
Name	Extn225 500
Password	
Confirm Password	
Full Name	Extn 225 IPO
Extension	225
Locale	
Priority	5
System Phone Rights	None
Profile	Basic User
Receptionist	<input type="checkbox"/>
Enable SoftPhone	<input type="checkbox"/>
Enable one-X Portal Services	<input type="checkbox"/>
Enable one-X TeleCommuter	<input type="checkbox"/>
Ex Directory	<input type="checkbox"/>

**Figure 9: Assigning User to Analogue Extension**

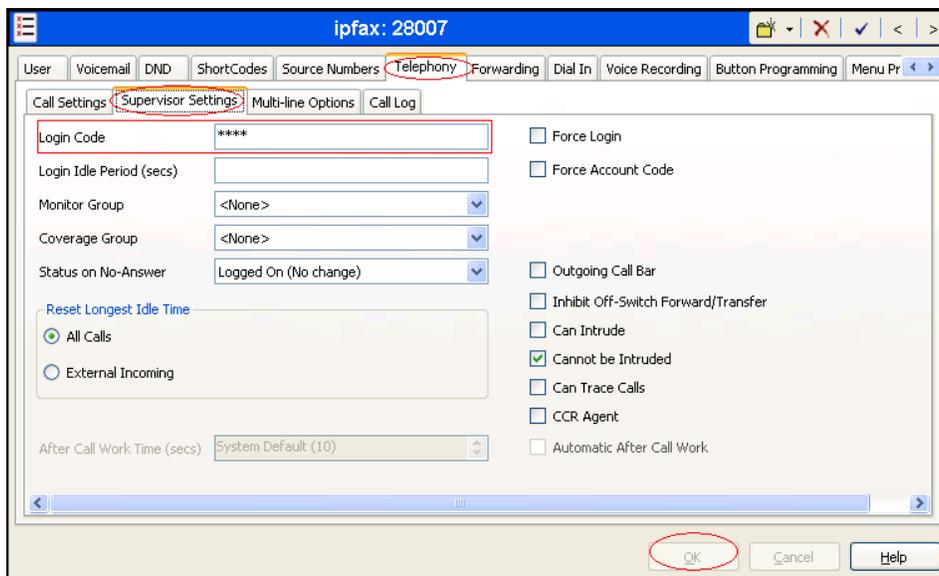
**Figure 10** shows the configuration of the user being assigned to the SIP extension. Populate the **Name**, **Password**, **Confirm Password** and **Full Name** fields. Enter the SIP extension created from **Section 5.3** in the **Extension** field. The rest of the fields are left at default.



Field	Value
Name	ipFax
Password	****
Confirm Password	****
Full Name	ipFax
Extension	28007
Locale	
Priority	5
System Phone Rights	None
Profile	Basic User
Receptionist	<input type="checkbox"/>
Enable SoftPhone	<input type="checkbox"/>
Enable one-X Portal Services	<input type="checkbox"/>
Enable one-X TeleCommuter	<input type="checkbox"/>
Ex Directory	<input type="checkbox"/>

**Figure 10: Assigning User to SIP Extension**

Re-type the password from **Figure 10** in the **Login Code** field under the **Telephony > Supervisor Settings** tab as shown in **Figure 11** below. Leave the rest of the fields at default values and click on **OK** to complete the configuration.



**Figure 11: Login Code configuration**

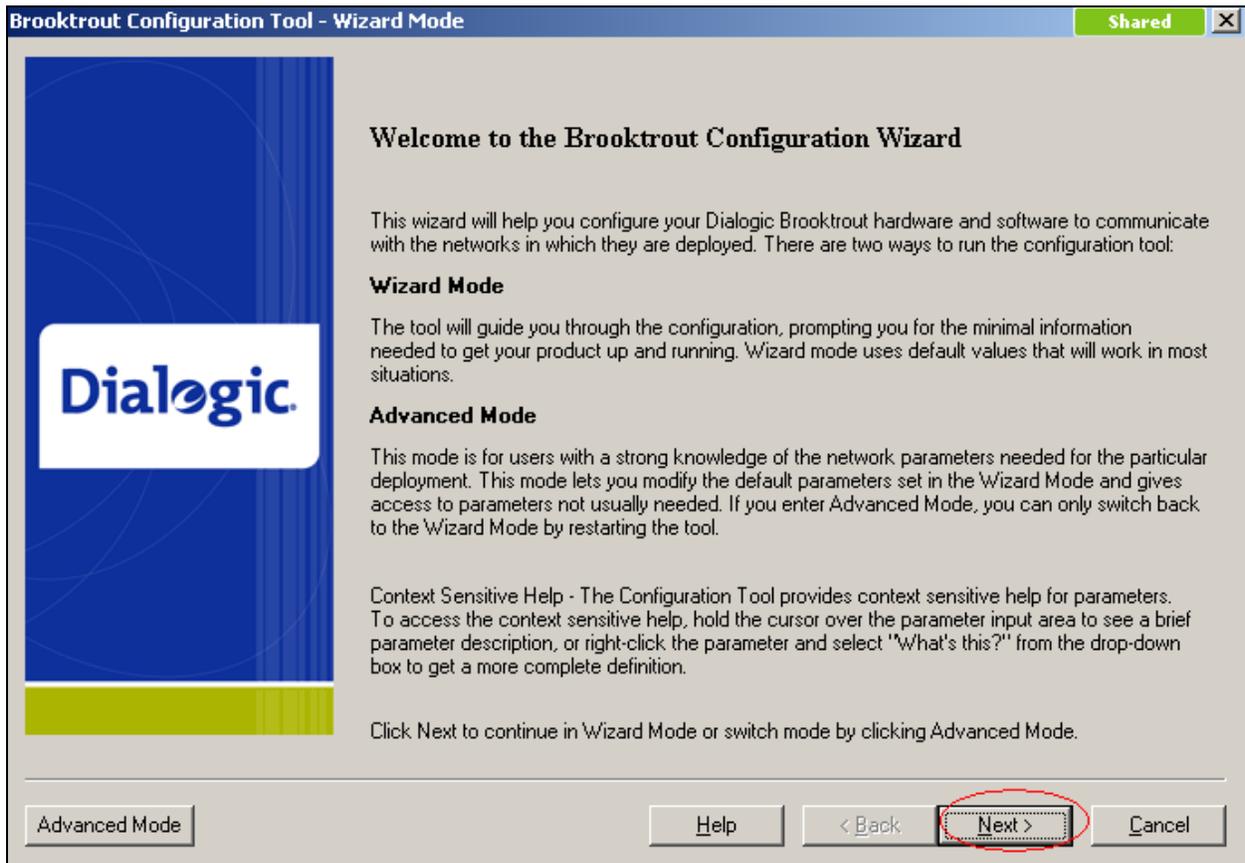
The above SIP user assigned during compliance testing will be later used by the SR140 to register to IPO.

## 6. Configure Dialogic Brooktrout Fax Server

The section explains the steps to configure the SR140 so that it can register to IPO as a SIP client and then be able to send and receive fax. Assumption is made that the Dialogic Brooktrout Fax Software SDK v6.4.0 is installed successfully with the *fdtool.exe* and the correct licenses are installed.

### 6.1. Brooktrout Configuration

On the server where the SDK is successfully installed, navigate to **Start > All Programs > Brooktrout Configuration** (not shown). **Figure 12** below shows the main configuration screen. Click on **Next** to proceed.



**Figure 12: Brooktrout Configuration Tool**

Figure 13 shows the hardware configuration. Click on Next to proceed.

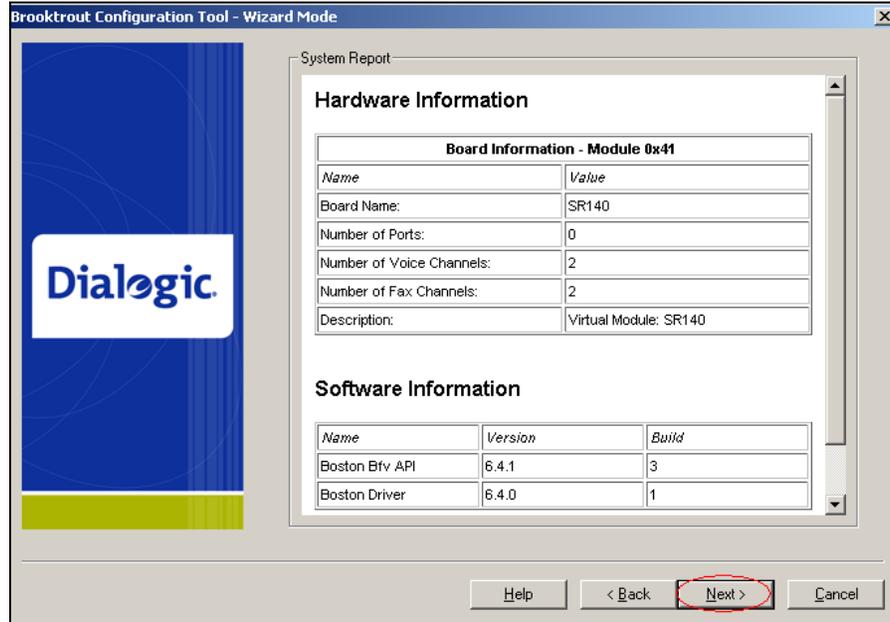


Figure 13: Hardware Information

Figure 14 shows the Protocol Selection screen. Select the SIP radio button and click on Next to continue.

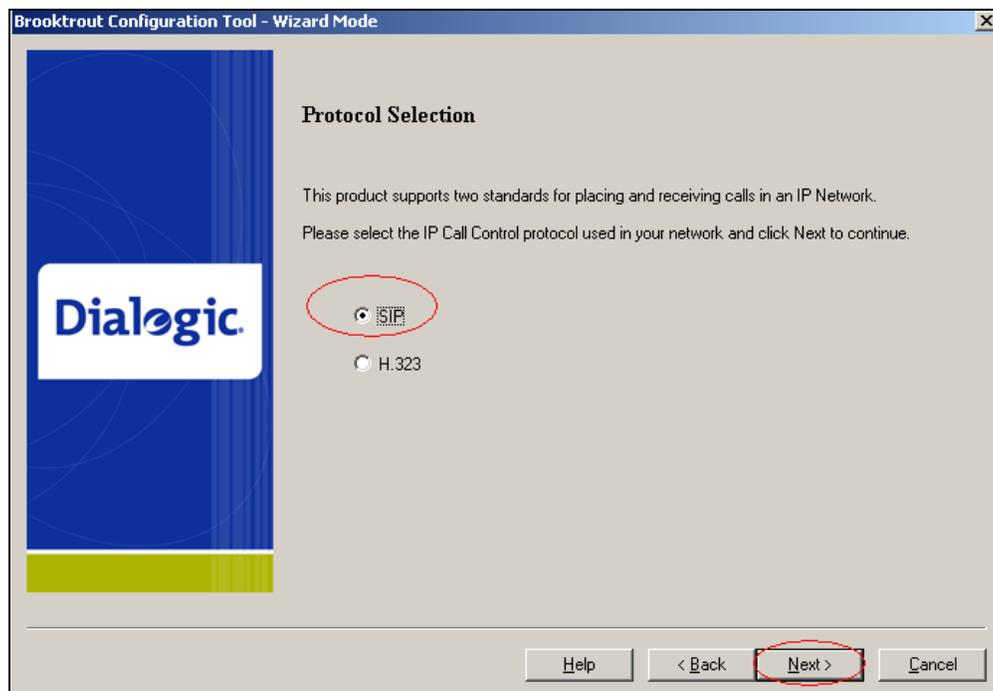
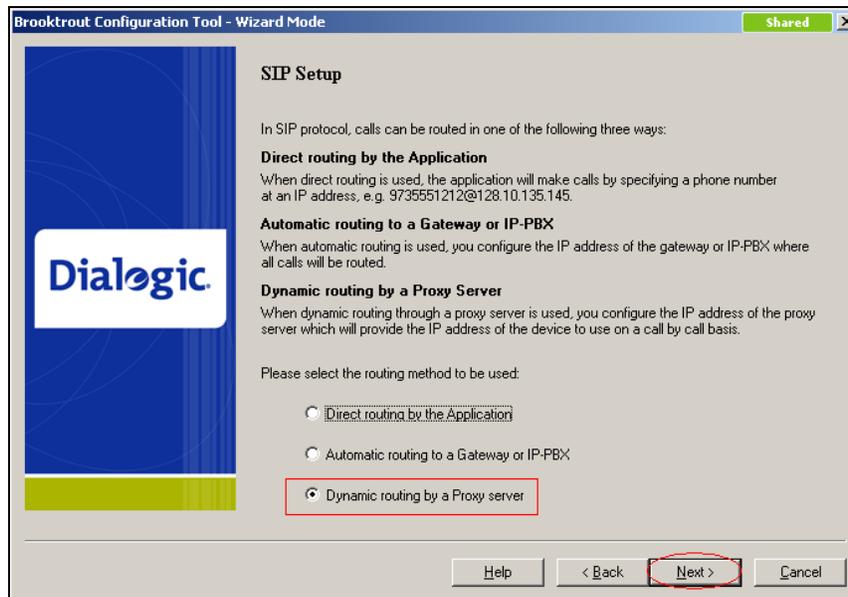


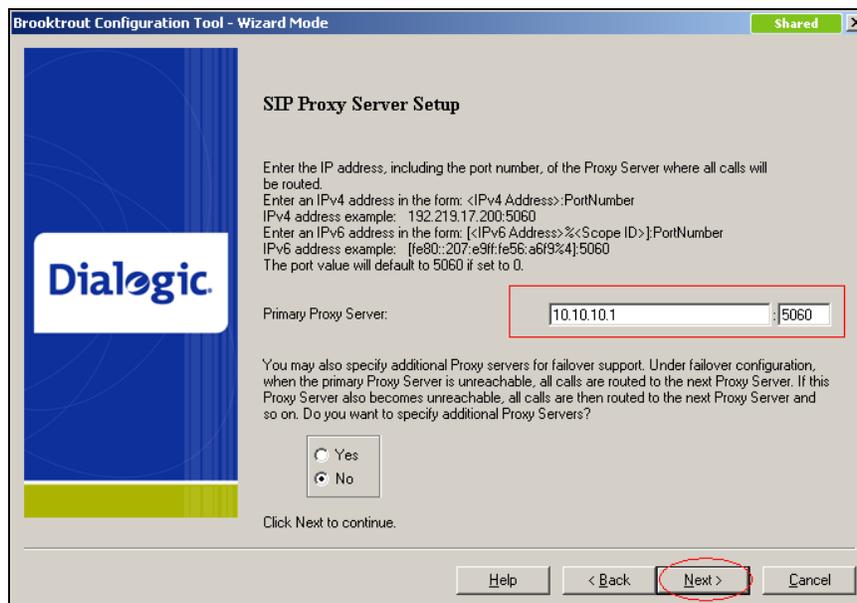
Figure 14: Protocol Selection

Select the ways the calls need to be routed. For SR140 integration with IPO the **Dynamic routing by a Proxy server** radio button was selected as shown in **Figure 15** below. Click on **Next** to proceed.



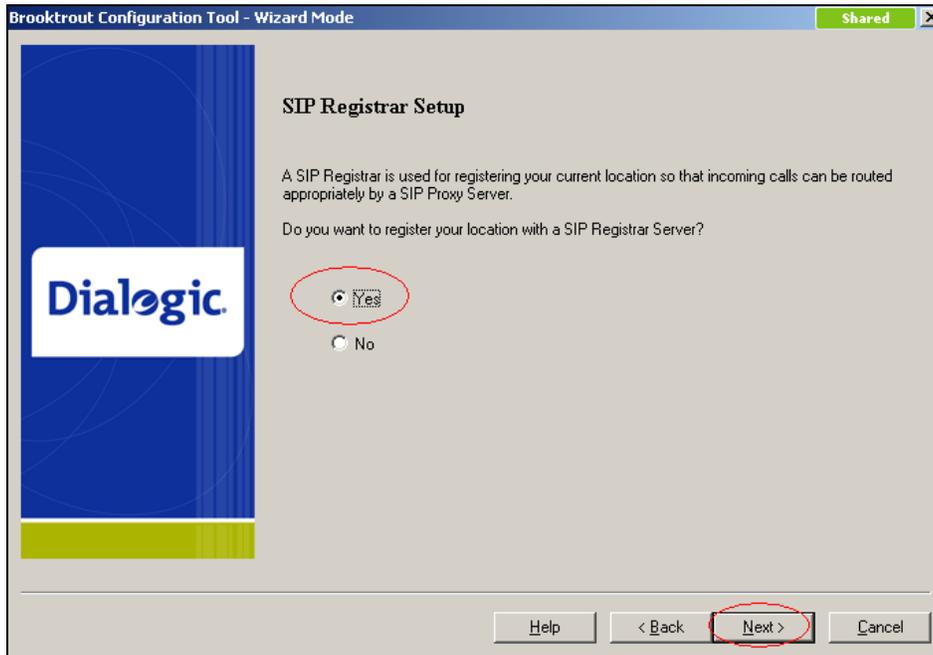
**Figure 15: Call Routing Selection**

Specify the IP address and Port number of the IPO as the **Primary Proxy Server** as shown in **Figure 16** below (during compliance testing the IP address of IPO was 10.10.10.1 and the port number was 5060). Leave the remaining field at default and click on **Next** to continue.



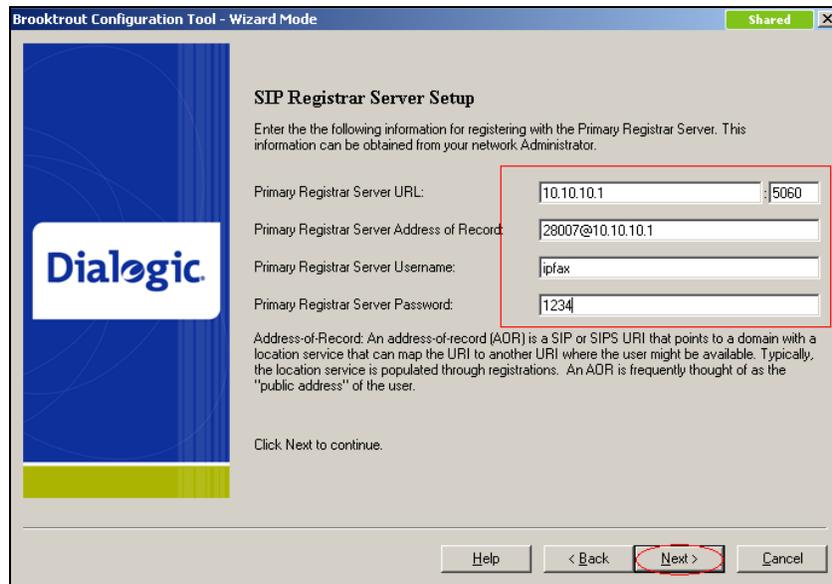
**Figure 16: SIP Proxy Server Setup**

Select the **Yes** radio button to setup SIP Registrar and click on **Next** to continue as shown in **Figure 17** below.



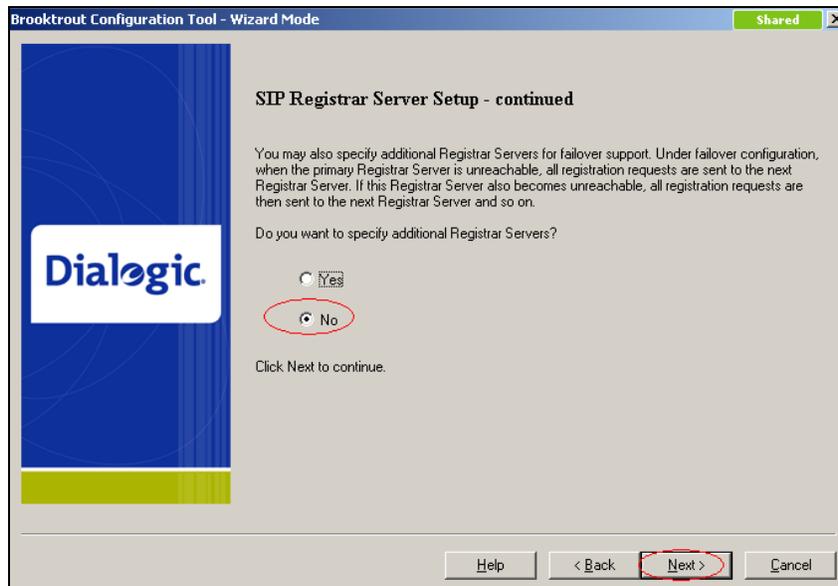
**Figure 17: SIP Registrar Setup**

Populate the fields marked in red with the appropriate values as shown in **Figure 18** below. The IP address and port numbers are for IPO (as shown in Figure 16). The username and password are the same as the values configured in **Section 5.4**. Click on **Next** to continue.



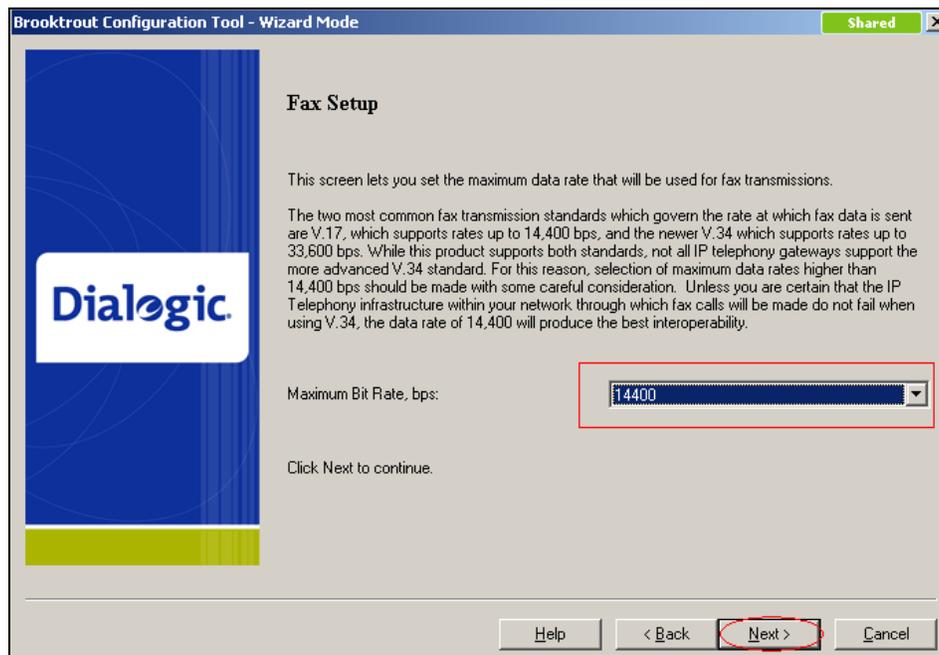
**Figure 18: SIP Registrar Server Setup**

Additional SIP Registrar Servers can be setup. However for compliance testing only one was setup and therefore select **No** in the radio button as shown on **Figure 19** below and click in **Next** to continue.



**Figure 19: Completing SIP Registrar Server Setup**

**Figure 20** shows the Fax Setup screen. During compliance testing the **Maximum Bit Rate** was left at the default value of **14400**. Click on **Next** to continue.



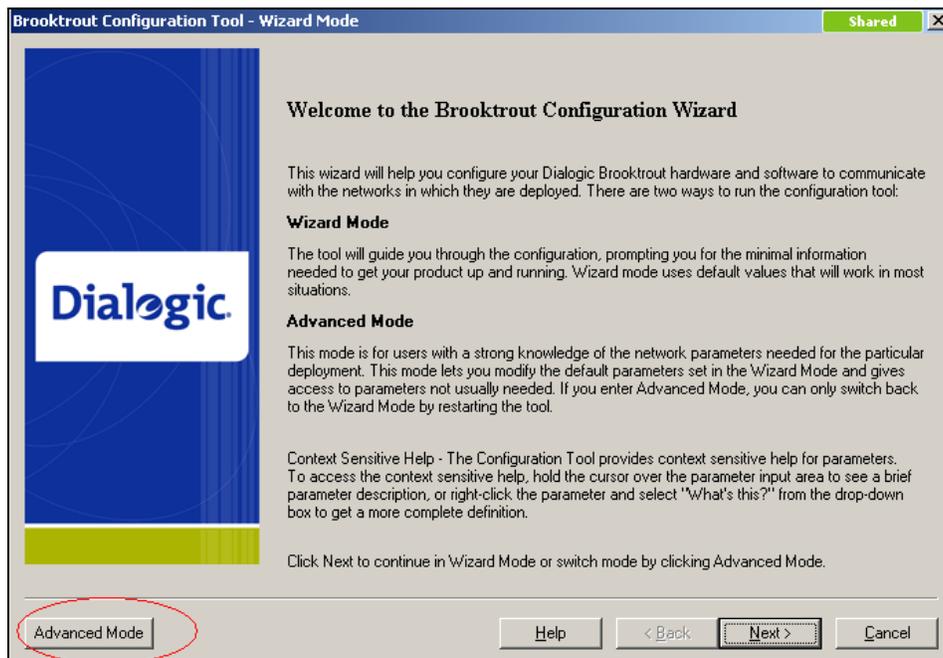
**Figure 20: Fax Setup**

**Figure 21** shows the completion of the Brooktrout Configuration Tool. Click on **Apply** to complete the configuration.



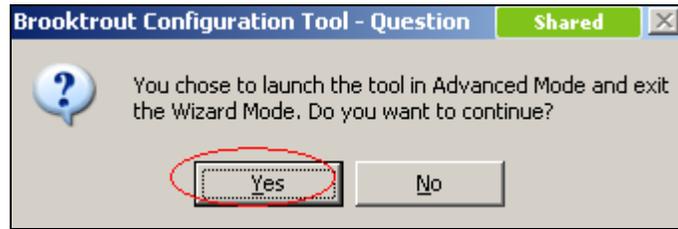
**Figure 21: Configuration Complete**

To configure the **Contact IPv4 Address**, start the Brooktrout Configuration Tool as explained in **Section 6.1** and click on **Advanced Mode** as shown in **Figure 22** below.



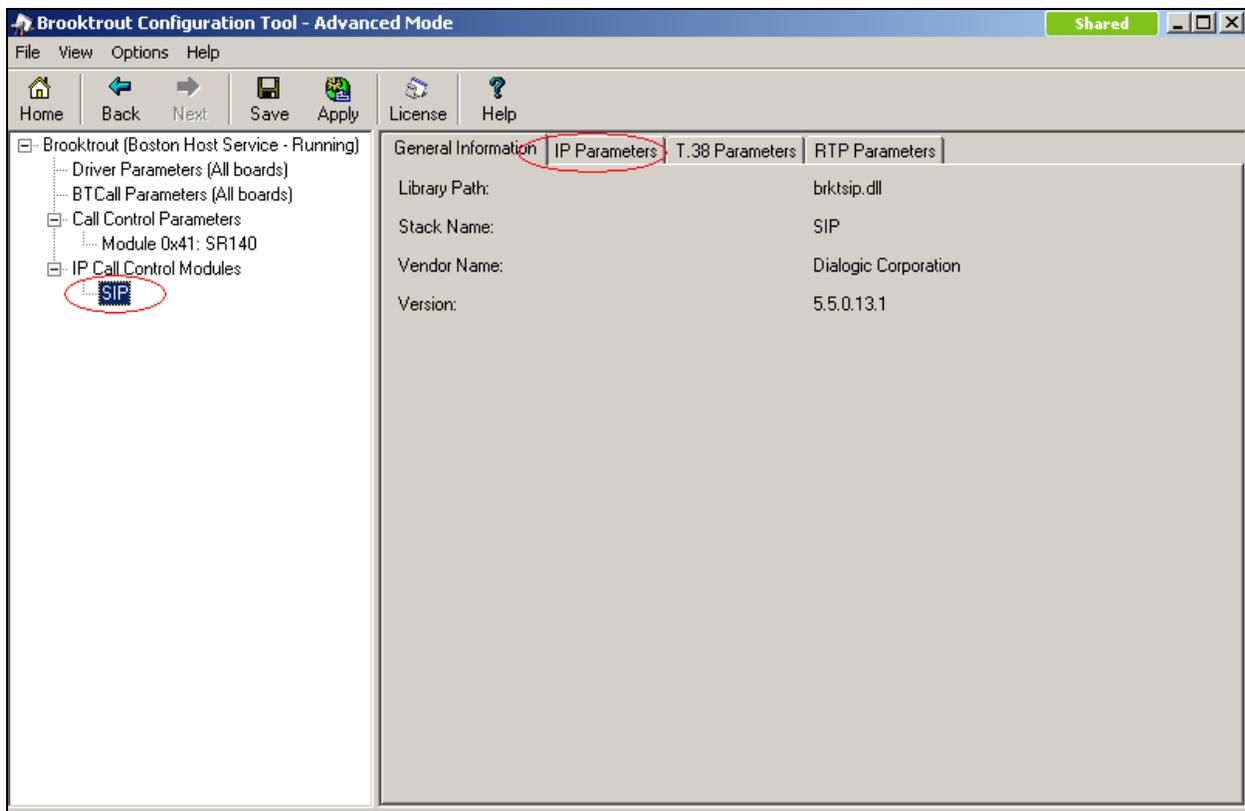
**Figure 22: Accessing Advanced Mode**

**Figure 23** asks user the confirmation to exit Wizard Mode and launch Advanced Mode. Click on **Yes** to launch Advanced Mode.



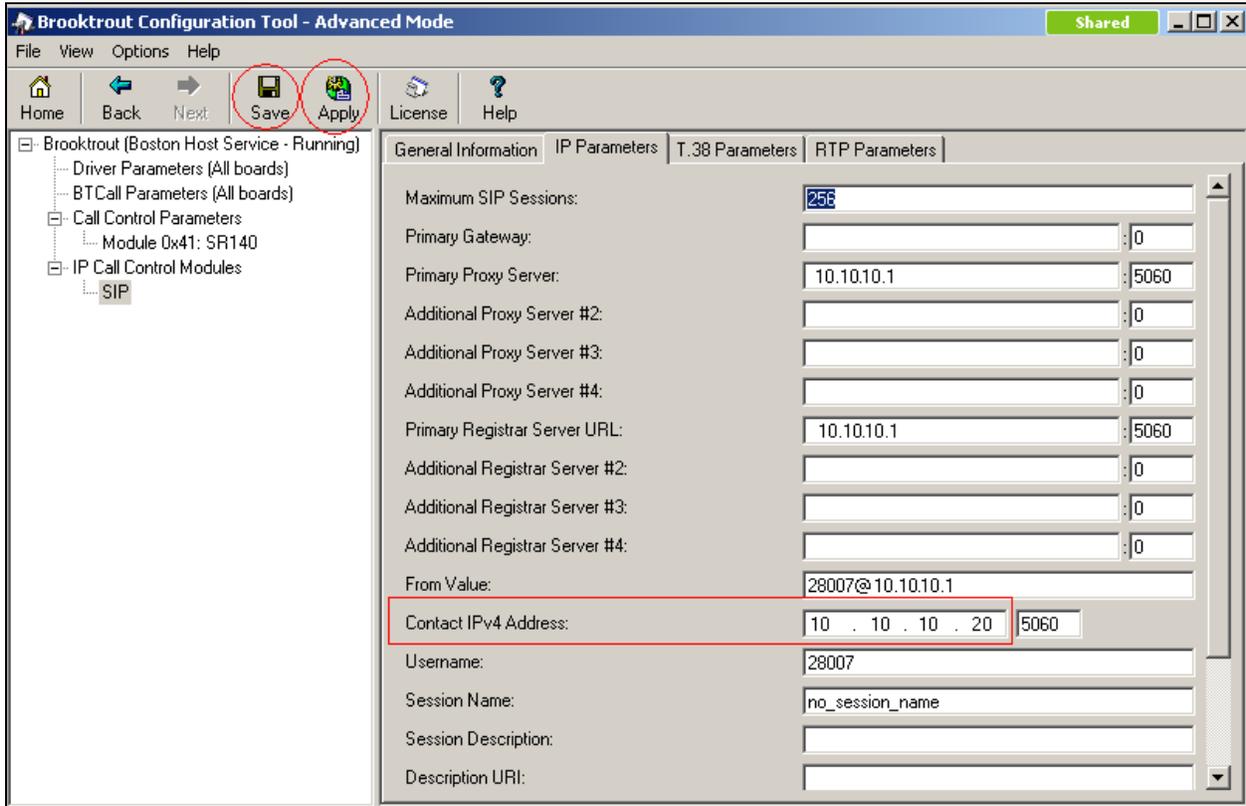
**Figure 23: Confirmation to launch Advanced Mode**

In Advanced Mode select **SIP** and then the **IP Parameters** tab as shown in **Figure 24** below.



**Figure 24: Accessing IP Parameters tab**

Enter the IP Address of the SR140 server in the **Contact IPv4 Address** field as shown in **Figure 25** below. Click on **Save** and **Apply** in that order.

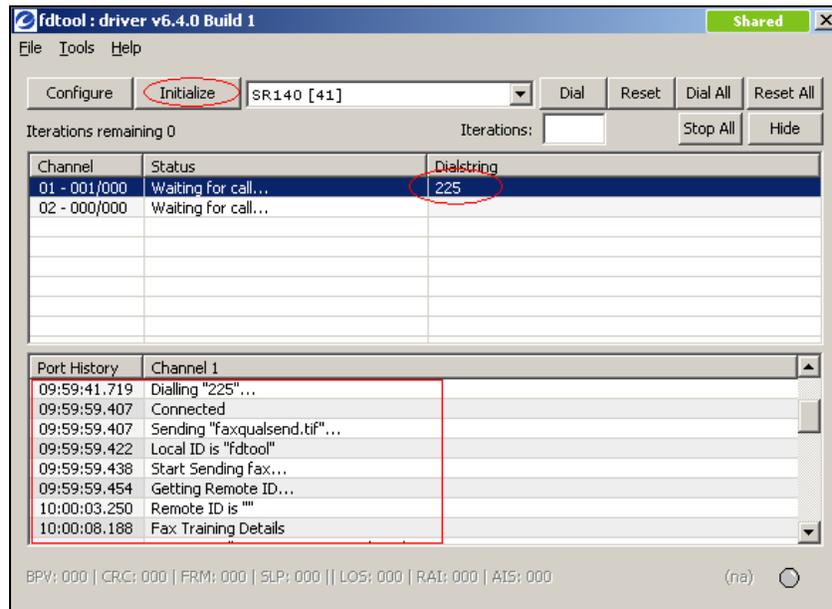


**Figure 25: Configuring Contact IPv4 Address**

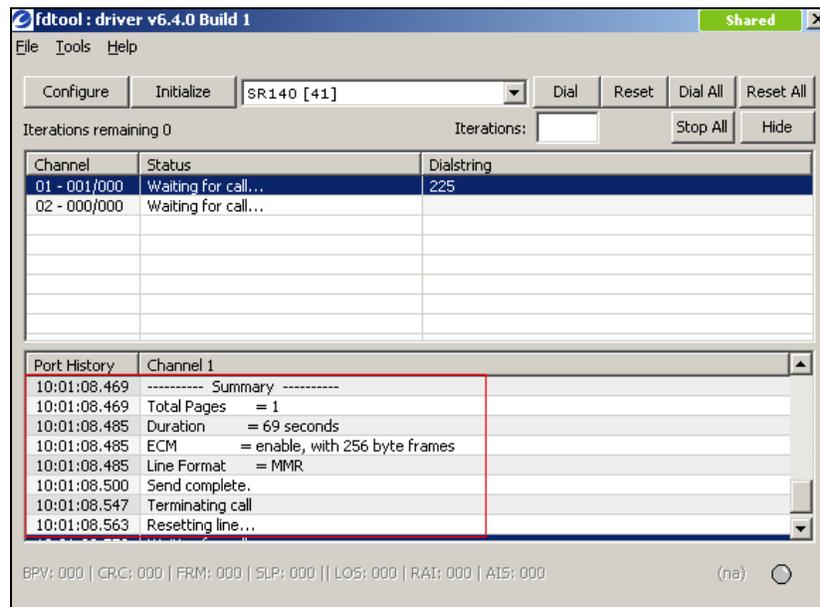
## 6.2. Launching fdtool

*fdtool.exe* file is installed as part of the SR140 SDK 6.4.0. **fdtool** is used to send and receive the fax and to launch it, double-click on the *fdtool.exe* from the path it is installed on.

**Figures 26a** and **26b** shows the main screen of **fdtool** when it has been initialized and a fax has been successfully sent to an extension 225.



**Figure 26a: fdtool**



**Figure 26b: fdtool (cont)**

## 7. Verification Steps

The following tests were conducted to verify the success of the integration:

- Registration of SR140 server to IPO was confirmed through wireshark traces.
- Single and multi-page faxes were sent from the SR140 to a physical fax machine and vice versa.
- ECM value on the SR140 was disabled and faxes were successfully sent.

## 8. Conclusion

All of the executed test cases have passed and met the objectives outlined in **Section 2**. The Dialogic Brooktrout Fax Software v6.4.0 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 Dialogic Brooktrout SR140 may be found at:

[http://www.dialogic.com/products/ip\\_enabled/FoIP/SR\\_140.htm](http://www.dialogic.com/products/ip_enabled/FoIP/SR_140.htm)

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