



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Technicolor TB30 SIP Phones to interoperate with Avaya IP Office - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Technicolor TB30 SIP Phones to interoperate with Avaya IP Office. The Technicolor TB30 is a VoIP phone that can be used in both large and small enterprises.

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 Technicolor TB30 SIP Phones to interoperate with Avaya IP Office. The Technicolor TB30 is a VoIP phone that can be used in both large and small enterprises. It features full duplex and high definition (HD) sound to deliver acoustic performance. In the compliance testing, the Technicolor TB30 was set up as a SIP extension on IP Office and underwent testing of various call scenarios with other Avaya phones.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing evaluated the ability of Technicolor TB30 SIP Phone to interoperate with Avaya IP Office to place and receive various types of calls and to verify that good audio quality was sent and received. The calls included intra-switch calls between Technicolor TB30 phones and Avaya phones on the Avaya IP Office and calls to/from the PSTN. Testing of call functions such as call hold/unhold, transfer, conference, call forwarding, call park/unpark, call pickup, DTMF transmission and turning on/off the Message Waiting Indicator (MWI) were also performed between the Technicolor TB30 and various Avaya phones on the Avaya IP Office. The shuffling of the audio stream and the information displayed on the Technicolor TB30 phone were also verified during testing.

The serviceability testing focused on verifying the ability of the Technicolor TB30 to recover from disconnection and reconnection of the Technicolor TB30 phone and rebooting of the Avaya IP Office.

1.2. Support

For technical support on TB30 SIP Phones, contact Technicolor's technical support at:

- Telephone - Obtain the country specific hotline from here:
<http://www.thomsonbroadbandpartner.com//telephony-solutions/support/contact-us.php>
- E-mail - Submit a request for assistance from here:
<http://www.thomsonbroadbandpartner.com/telephony-solutions/thomson-telecom/contact-us.php>

2. Reference Configuration

Figure 1 illustrates a test configuration that was used to compliance test the interoperability of Technicolor TB30 SIP Phones and Avaya IP Office. The configuration consists of an Avaya IP Office 500 and a server running Avaya IP Office Manager and Voicemail Pro connected to the Avaya C364T-PWR Converged Stackable Switch with Layer 3 routing function. The IP Office has connections to the following: Avaya 9640 IP Telephone, Avaya 2420 Digital Telephone, Technicolor TB30 SIP Phones and an ISDN-PRI trunk to the PSTN. The phones connected to

the system will be used to generate intra-switch calls and outbound/inbound calls to/from the PSTN.

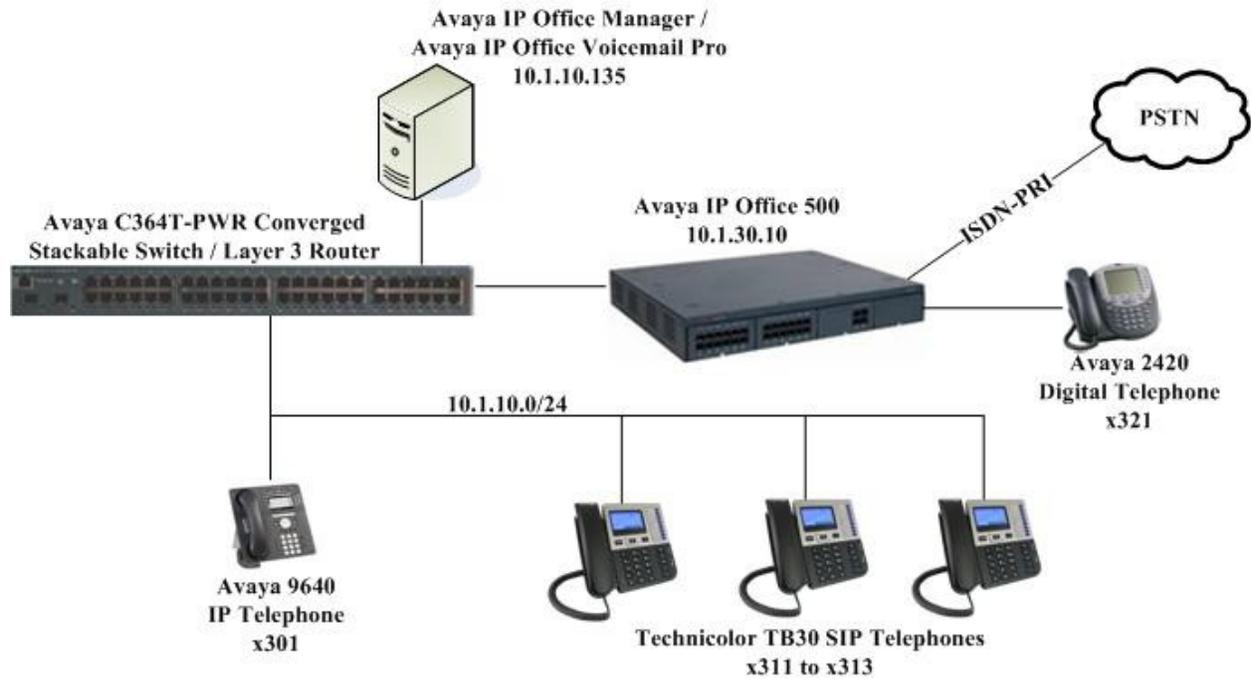


Figure 1: Test Configuration

3. Equipment and Software Validated

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

Equipment	Software
Avaya IP Office 500	6.0 (18)
Avaya IP Office Manager	8.0 (18)
Avaya IP Office Voicemail Pro	6.0 (44)
Avaya 9640 IP Telephone	3.1.1 (H.323)
Avaya 2420 Digital Telephone	6.0
Avaya C364T-PWR Converged Stackable Switch	4.5.18
Technicolor TB30 SIP Phones	H/W Version: V4 Boot Version: V0.01.1 DSP Version: V2.30.1 APP Version: V1.72.0

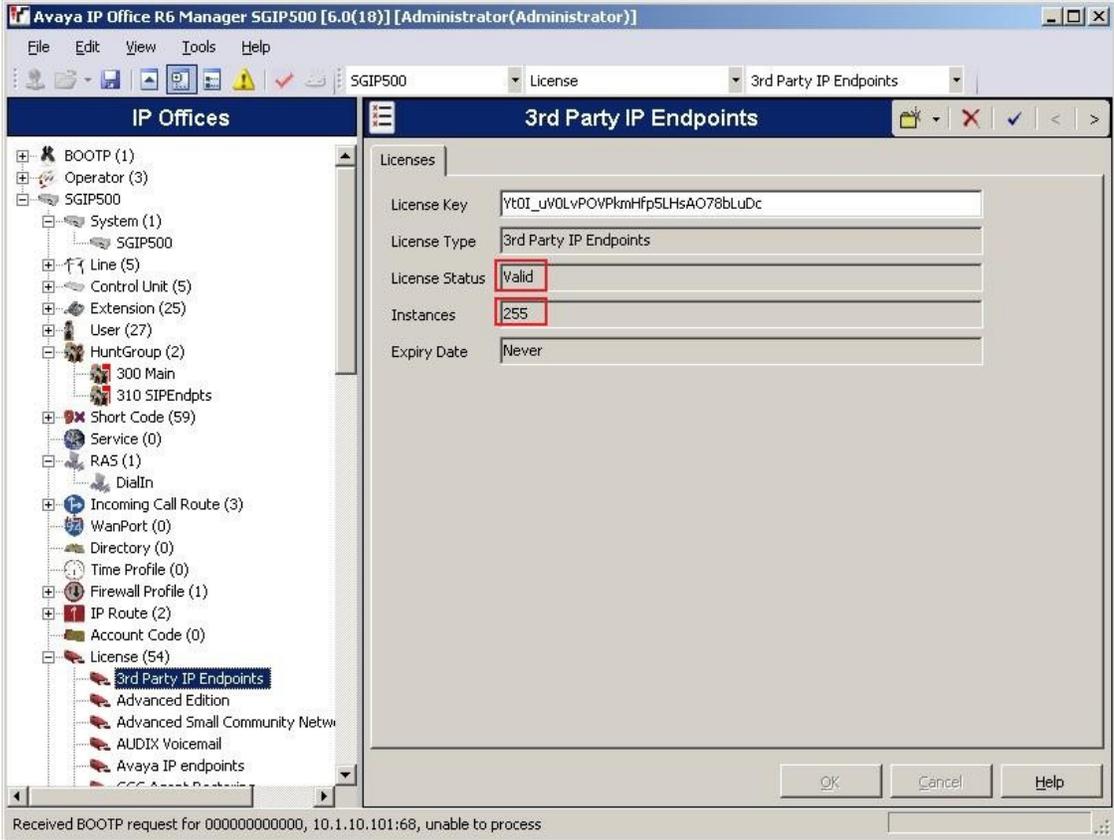
4. Configure Avaya IP Office

The configuration changes in this section for IP Office are performed through the IP Office Manager. Except where stated, the parameters in all steps are the default settings and are supplied for reference. For all other provisioning information such as provisioning of the trunks, call coverage, extensions, and voicemail, please refer to the Avaya IP Office product documentation in **Section 9**.

The procedures fall into the following areas:

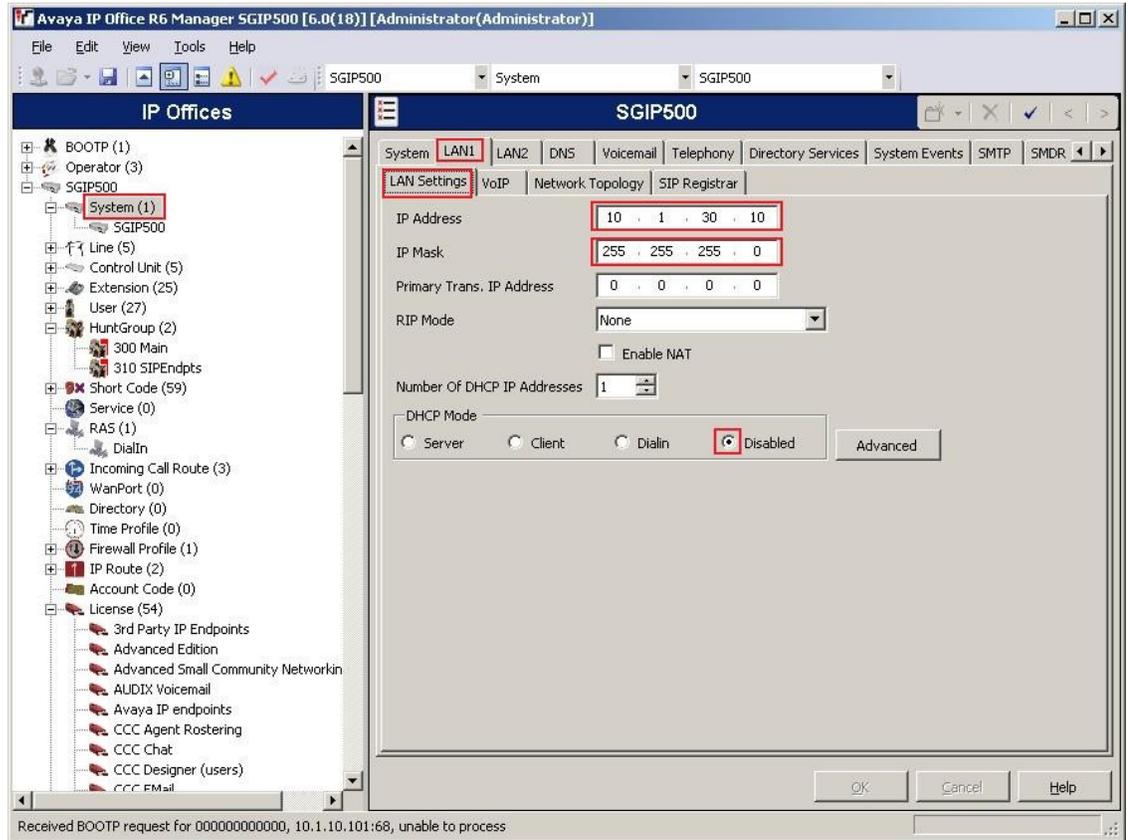
- Verify Avaya IP Office Licensing
- Setting LAN Parameters
- Administer SIP Registrar
- Add SIP Extensions
- Add Users
- Configure Short Code for Voicemail
- Save Configuration

4.1. Verify Avaya IP Office Licensing

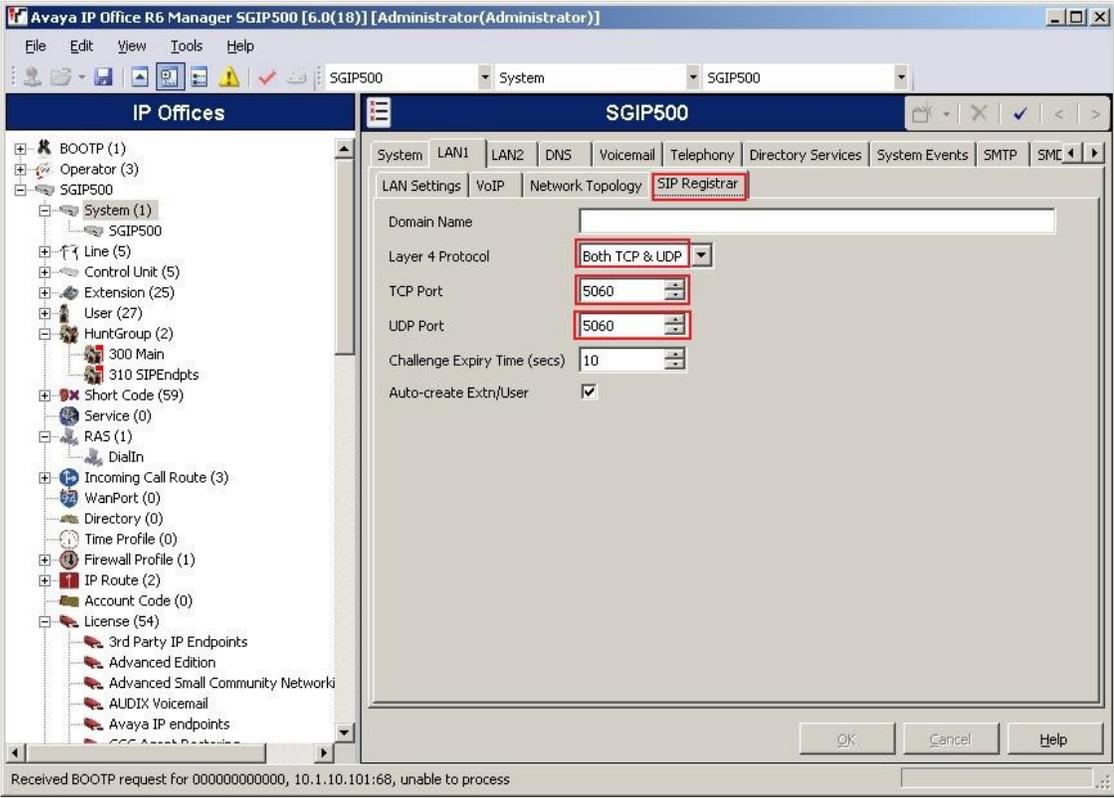
Step	Description
1.	Log into the Avaya IP Office Manager PC and select Start > All Programs > IP Office > Manager to launch the Avaya IP Office Manager application. Select File > Open Configuration to search for IP Offices in the network. Select the appropriate Avaya IP Office and click OK (not shown). Log into the Avaya IP Office Manager application using the appropriate credentials.
2.	<p>The main IP Office Manager window appears. From the configuration tree in the left pane, select License > 3rd Party IP Endpoints to display the 3rd Party IP Endpoints screen in the right pane. Verify that the License Status is Valid and the value for Instances is sufficient for the number of SIP endpoints to be deployed.</p> 

4.2. Setting LAN Parameters

Step	Description
1.	<p>From the configuration tree in the left pane, select System. Access the tab LAN1 > LAN Settings to display the LAN Settings screen in the right pane.</p> <ul style="list-style-type: none"> • Set the IP Address, which is the address of the IP Office. • Set the IP Mask based on the network setup. • Set the DHCP Mode based on the network requirement. In this case, the Disabled option is chosen since DHCP was not used. • Other fields can be left blank or at the default settings.

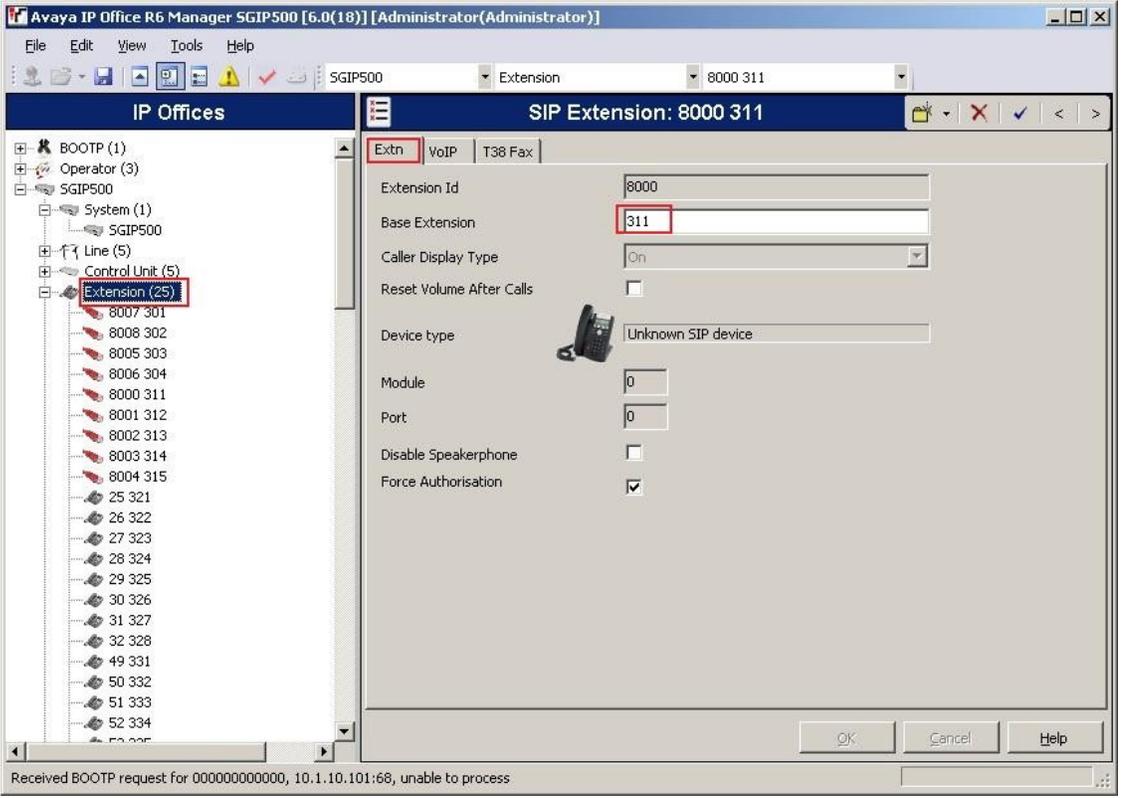


4.3. Administer SIP Registrar

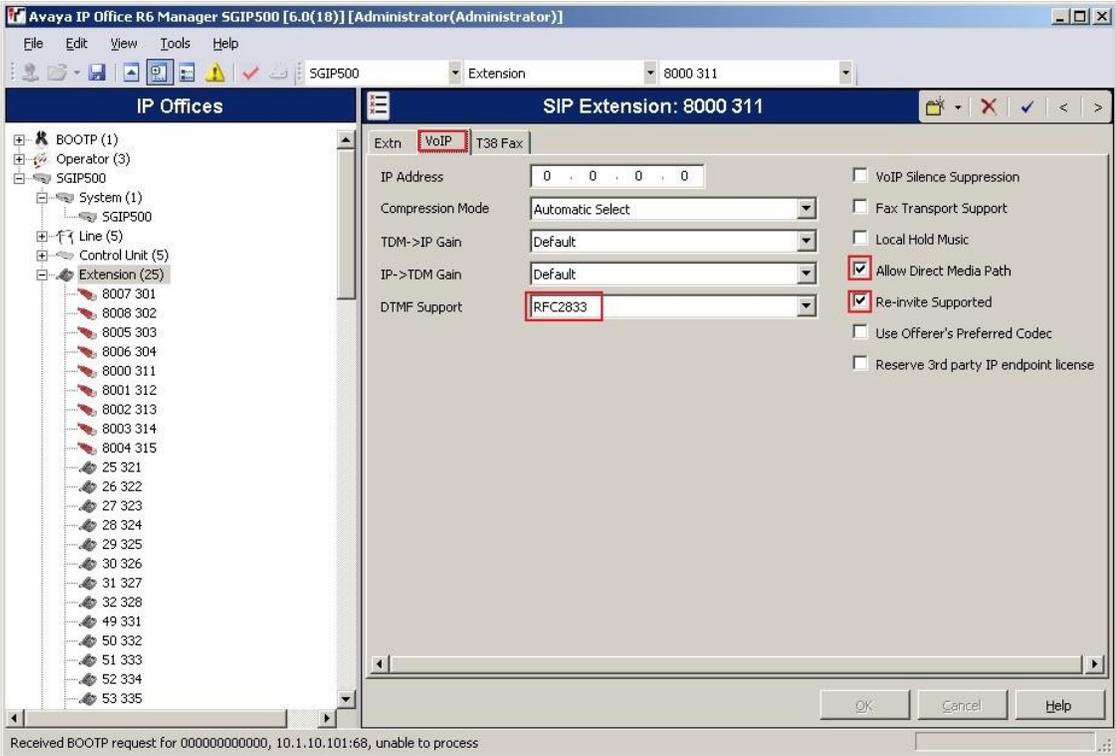
Step	Description
1.	<p>Select SIP Registrar sub-tab in the right pane and enter the following values:</p> <ul style="list-style-type: none">• Domain Name: Enter a valid Domain Name. In this case, it was left blank as registration is done using the LAN IP address.• Layer 4 Protocol: Select Both TCP & UDP.• TCP Port: Set to 5060 (default).• UDP Port: Set to 5060 (default). 

4.4. Add SIP Extensions

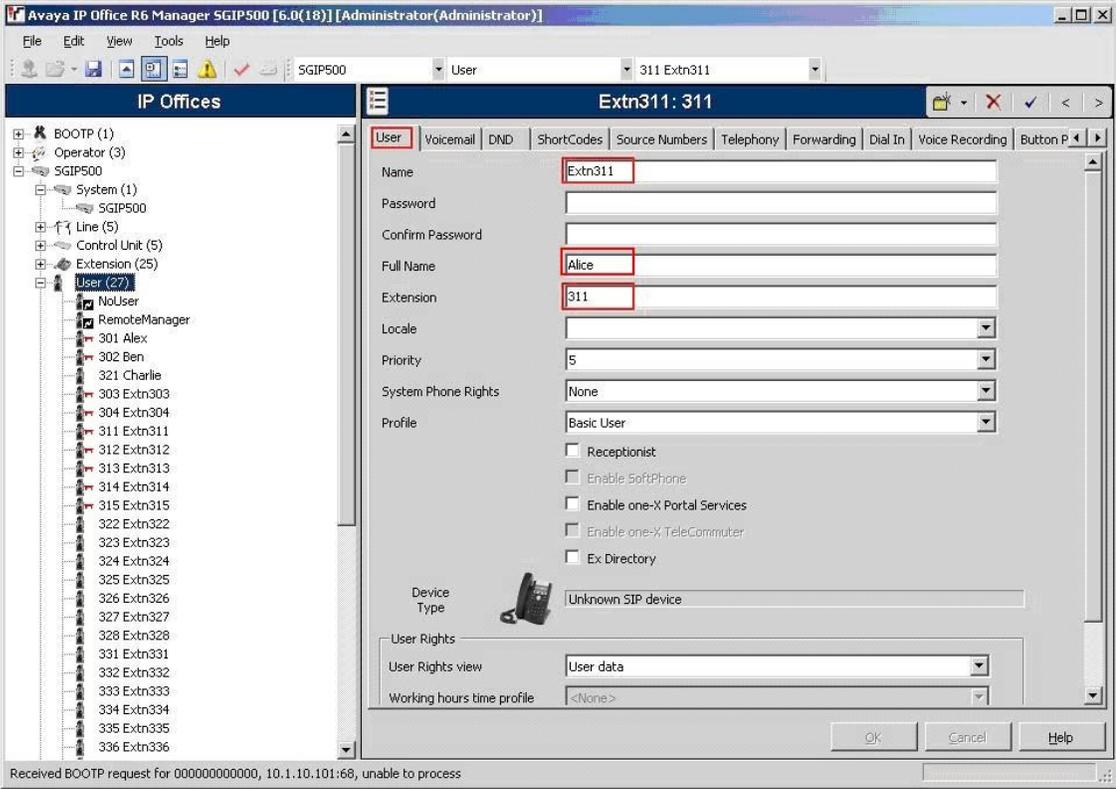
Step	Description
1.	Add a SIP Extension by selecting Extension from the left pane. Right-click and select New > SIP Extension (not shown). In the Extn tab, set the Base Extension to an unused extension, in this case, 311 .

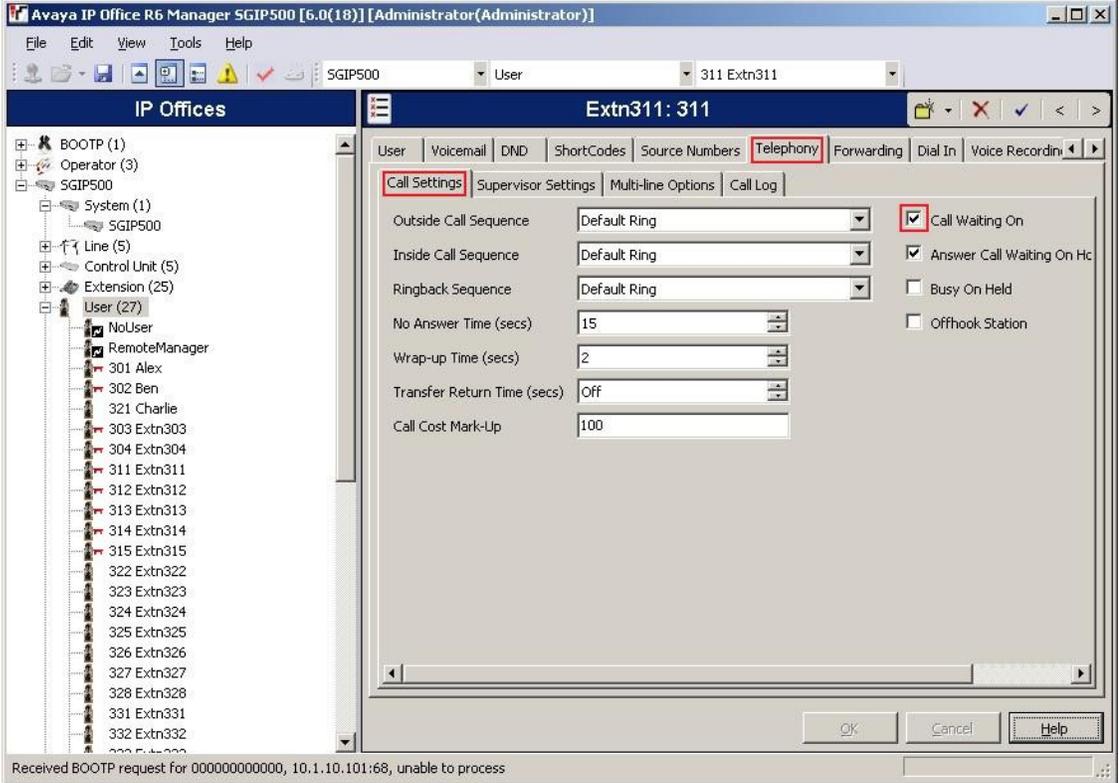


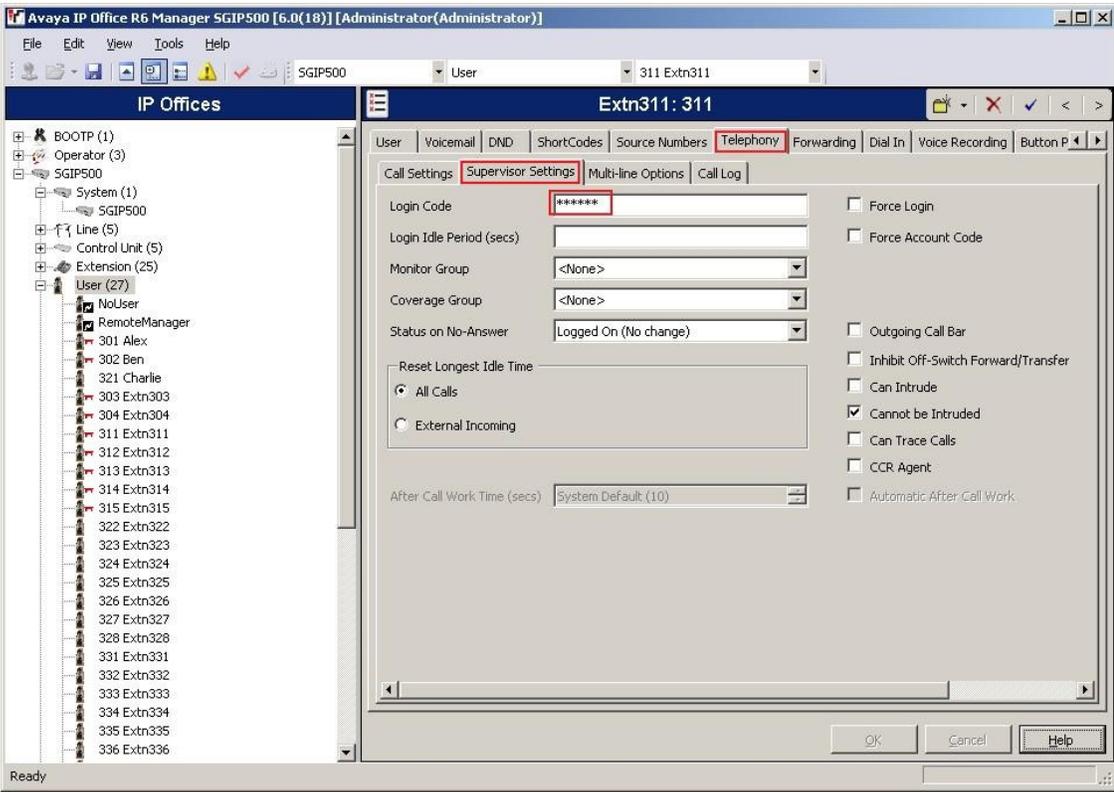
The screenshot displays the Avaya IP Office R6 Manager SGIP500 [6.0(18)] [Administrator/Administrator] interface. The left pane shows a tree structure under 'IP Offices' with 'Extension (25)' selected. The right pane shows the 'SIP Extension: 8000 311' configuration window. The 'Extn' tab is active, showing fields for Extension Id (8000), Base Extension (311), Caller Display Type (On), Reset Volume After Calls (unchecked), Device type (Unknown SIP device), Module (0), Port (0), Disable Speakerphone (unchecked), and Force Authorisation (checked). The status bar at the bottom indicates 'Received BOOTP request for 000000000000, 10.1.10.101:68, unable to process'.

Step	Description
2.	<p>Select the VoIP tab. Verify that Allow Direct Media Path and Re-invite Supported are checked. Select RFC2833 for DTMF Support.</p> 
3.	Repeat Steps 1 and 2 to add more SIP extensions. In this testing, extensions 311 to 313 are added.

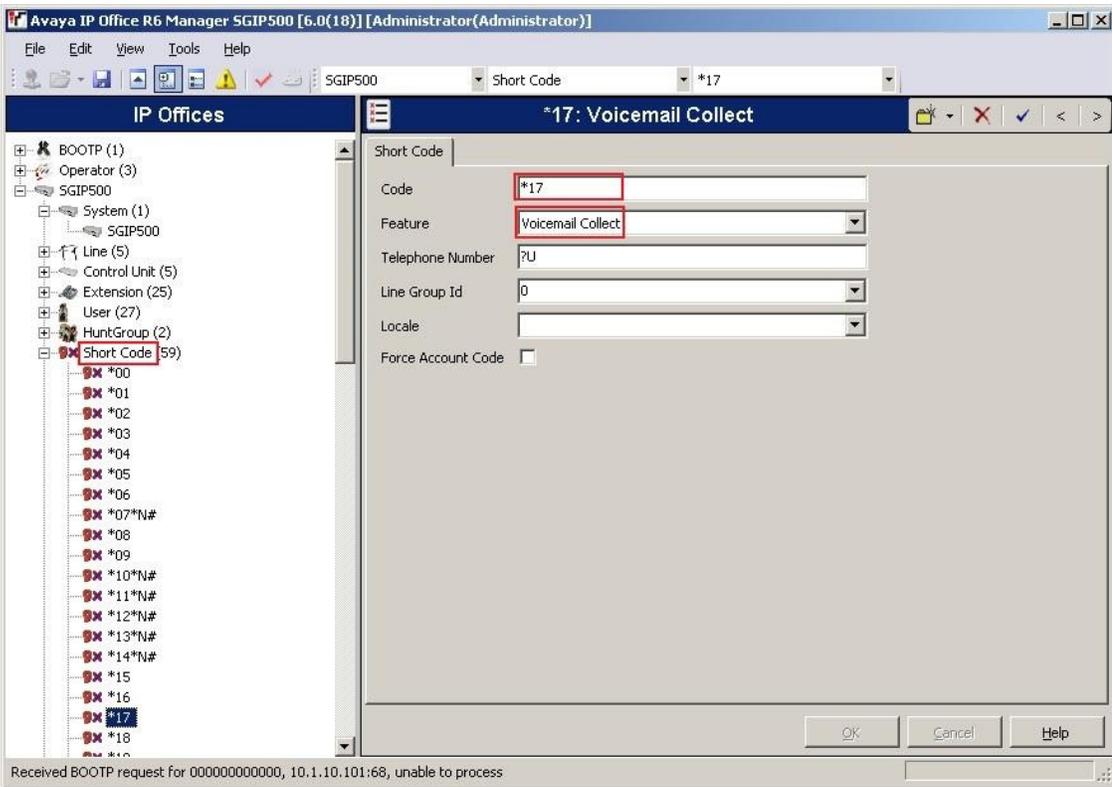
4.5. Add Users

Step	Description
1.	<p>Add a User by right-click User from the left pane and select New (not shown). For the Name field, enter the extension that was created in Section 4.4 and precede it with Extn, for example, Extn311. For the Full Name field, enter the descriptive name for the user, for example, Alice. Enter the extension created in Section 4.4 for Extension.</p> 

Step	Description
2.	<p>Select the Telephony > Call Settings tab. Check the Call Waiting On field.</p>  <p>Received BOOTP request for 000000000000, 10.1.10.101:68, unable to process</p>

Step	Description
3.	<p>Select the Telephony > Supervisor Settings tab. Enter a Login Code, e.g. 111222 was used for compliance testing. The Login Code is used to configure the Technicolor TB30 SIP Phone in Section 5.2 Step 3 to log into the IP Office.</p> 
4.	Repeat Steps 1 and 3 to add more users. In this testing, Ext311 to Ext313 are added.

4.6. Configure Short Code for Voicemail

Step	Description
5.	<p>Expand Short Code from the left pane. Verify that a Short Code is defined to access the voicemail, in the case, *17. This value is referenced by Technicolor TB30 in Section 5.4. Other Short Codes for features such as call park and call forwarding are configured in the same way.</p>  <p>The screenshot shows the Avaya IP Office R6 Manager SGIP500 [6.0(18)] [Administrator/Administrator] interface. The left pane displays a tree structure of IP Offices, including BOOTP (1), Operator (3), SGIP500, System (1), SGIP500, Line (5), Control Unit (5), Extension (25), User (27), HuntGroup (2), and Short Code (59). The Short Code *17 is selected and highlighted. The right pane shows the configuration for Short Code *17: Voicemail Collect. The Code field is set to *17, the Feature is set to Voicemail Collect, the Telephone Number is ?U, the Line Group Id is 0, and the Locale is empty. The Force Account Code checkbox is unchecked. The interface includes a menu bar (File, Edit, View, Tools, Help) and a status bar at the bottom with the message: Received BOOTP request for 000000000000, 10.1.10.101:68, unable to process.</p>

4.7. Save Configuration

Select **File > Save Configuration** to save and send the configuration to the IP Office server.

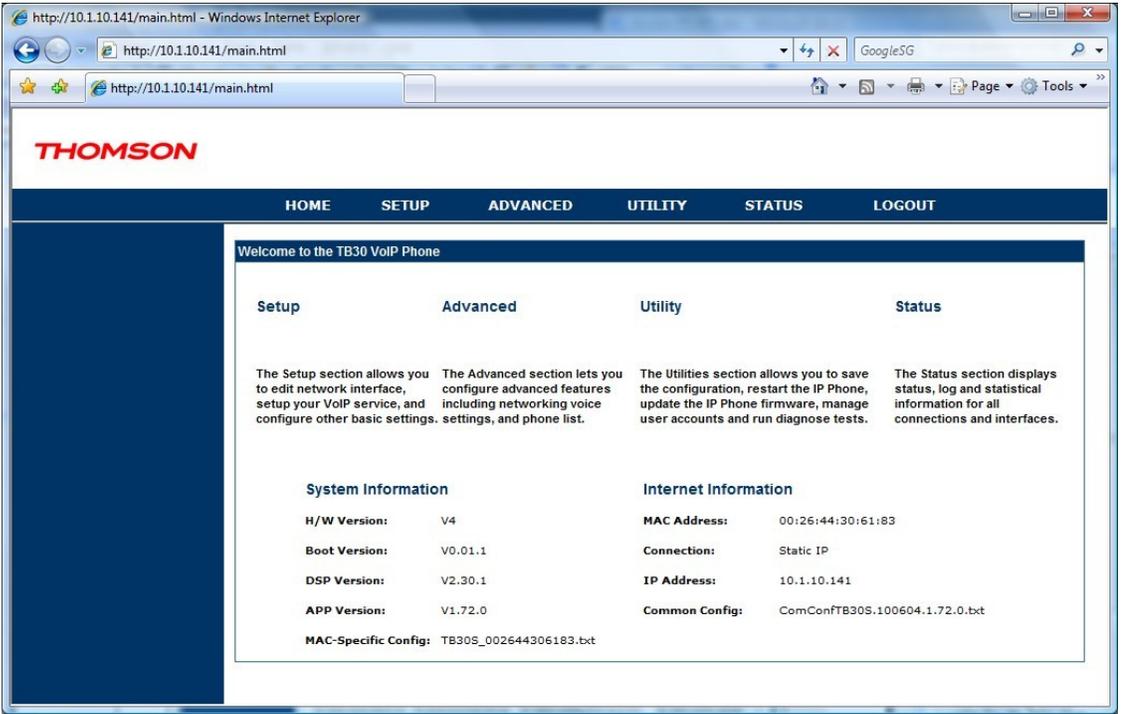
5. Configure Technicolor TB30 SIP Phone

The following steps detail the configuration steps for the Technicolor TB30 SIP Phone using the Web Interface. The steps include the following areas:

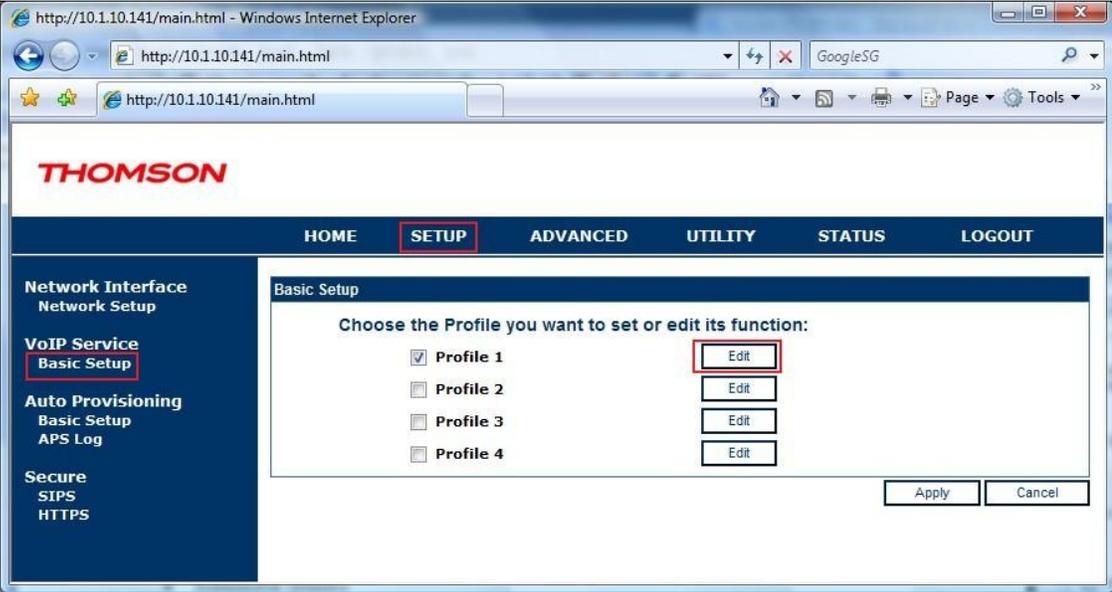
- Launch Web Interface
- Administer SIP Settings
- Administer identity
- Administer function keys

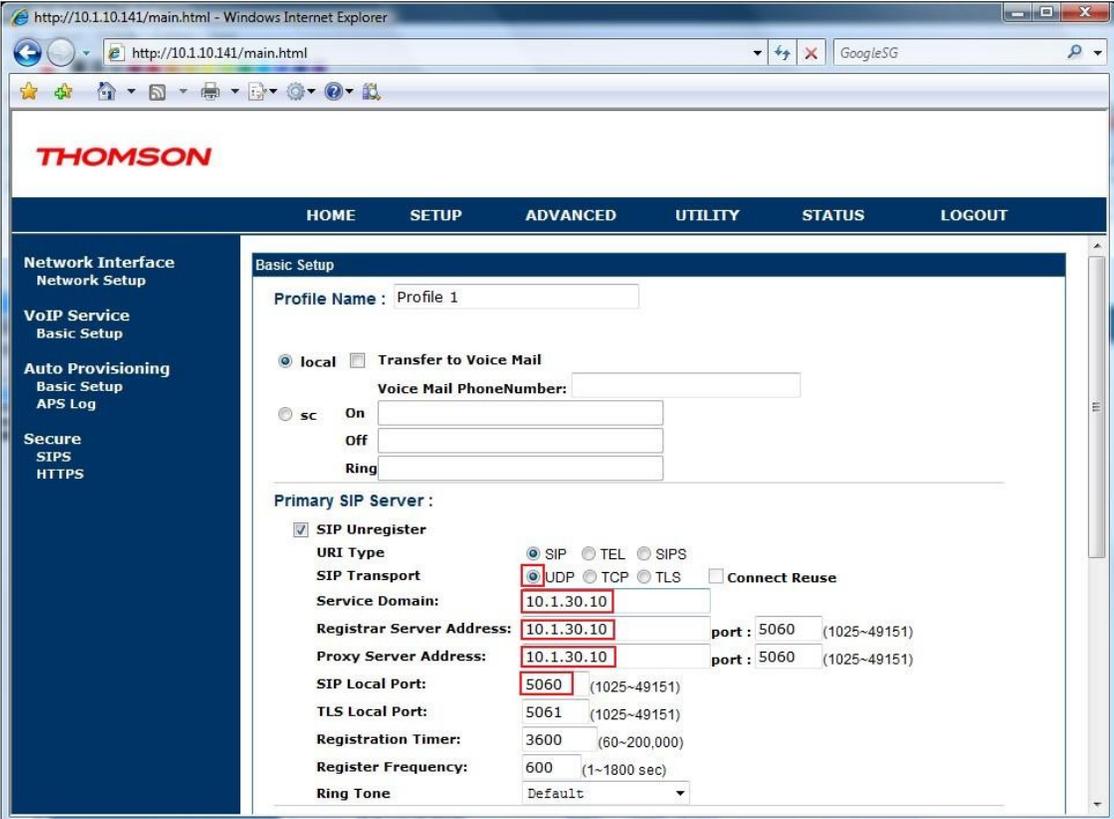
Prior to configuration, follow the procedures in [2] to manually set or obtain the IP address of Technicolor TB30.

5.1. Launch Web Interface

Step	Description
1.	<p>Access the Technicolor TB30 web interface http://<ipaddress>/admin.html in an Internet browser window, where <ipaddress> is the IP address of Technicolor TB30. Log in with the appropriate credentials. The Welcome to the TB30 VoIP Phone screen is shown.</p> 

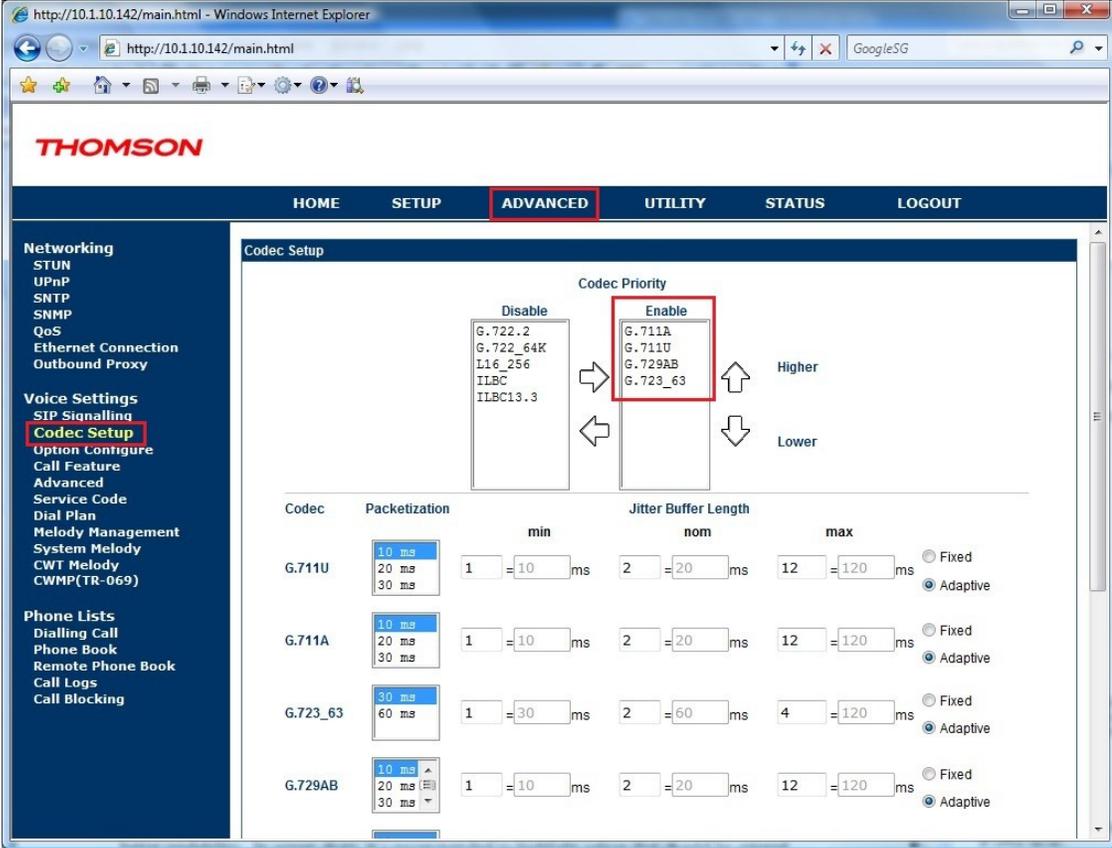
5.2. Administer SIP Settings

Step	Description
1.	<p>Select SETUP from the top menu and click Basic Setup on the left pane. Click the EDIT button associated with the first profile, as shown below.</p> 

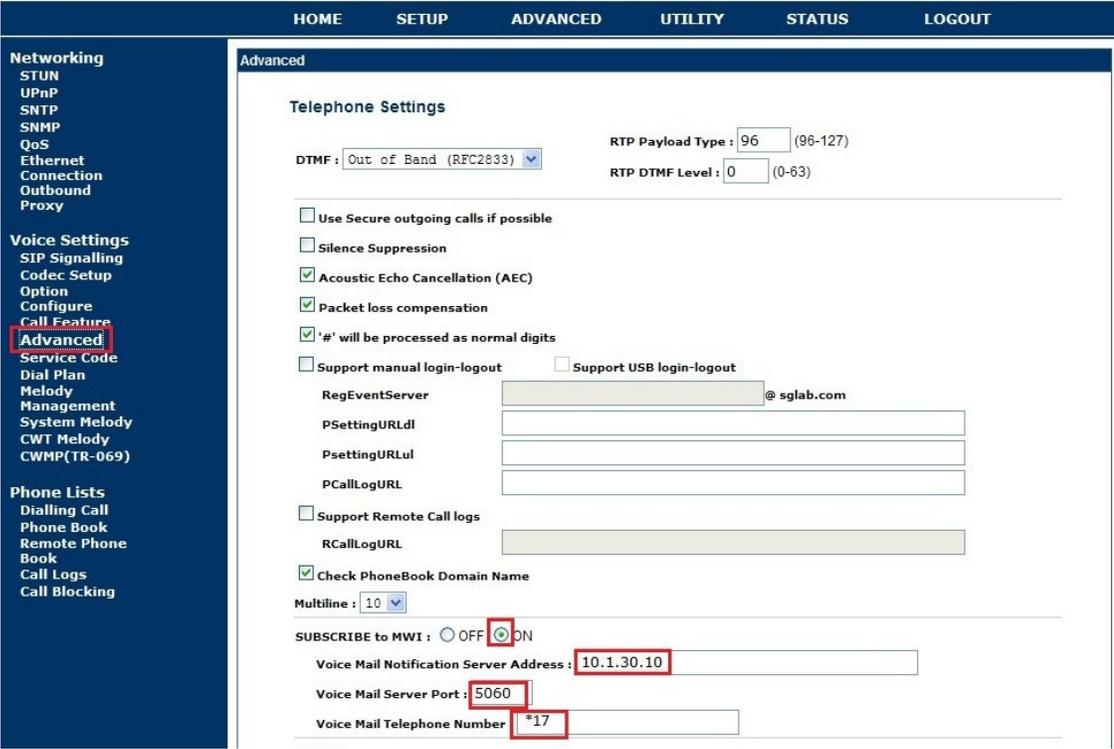
Step	Description
2.	<p>In the Primary SIP Server section, configure the following:</p> <ul style="list-style-type: none"> • SIP Transport: Select UDP or TCP. In this testing, both UDP and TCP are enabled on the IP Office. See Section 4.3. • Service Domain: Enter the IP address of the IP Office server as domain name is not used in this testing. • Registrar Server Address: Enter the IP address of the IP Office server. • Proxy Server Address: Enter the IP address of the IP Office server. <p>Retain the default values for the remaining fields.</p> 

Step	Description
3.	<p data-bbox="300 233 1133 264">Scroll down to the User Accounts section and configure the following:</p> <ul data-bbox="347 306 1284 457" style="list-style-type: none"> <li data-bbox="347 306 1284 338">• Phone Number: The Base Extension value from Section 4.4 Step 1. <li data-bbox="347 344 1073 375">• Phone Name: A desired string for the phone display. <li data-bbox="347 382 1198 413">• Authentication ID: The Name value from Section 4.5 Step 1. <li data-bbox="347 420 1162 451">• Password: The Login Code value from Section 4.5 Step 3.  <p>The screenshot shows a web browser window displaying the Thomson configuration interface. The 'User Accounts' section is expanded, showing four input fields: 'Phone Number' (311), 'Phone Name' (TB30-Phone1), 'Authentication ID' (Extn311), and 'Password' (masked with dots). The interface includes a navigation menu on the left and a top menu with options like HOME, SETUP, ADVANCED, UTILITY, STATUS, and LOGOUT.</p>

5.3. Administer Codecs

Step	Description																																	
1.	<p>Select ADVANCED from the top menu and click Codec Setup from the left pane to configure the codecs. In the Codec Priority section, Enable and prioritize the codecs as per requirement.</p>  <p>The screenshot shows the Thomson Codec Setup web interface. The top navigation bar includes HOME, SETUP, ADVANCED, UTILITY, STATUS, and LOGOUT. The left sidebar lists various settings, with Codec Setup highlighted in red. The main content area is titled 'Codec Setup' and features a 'Codec Priority' section. This section has two boxes: 'Disable' (containing G.722_2, G.722_64K, L16_256, ILBC, and ILBC13_3) and 'Enable' (containing G.711A, G.711U, G.729AB, and G.723_63). Arrows indicate the ability to move codecs between these boxes and adjust their priority (Higher/Lower). Below the priority section is a table of codec settings:</p> <table border="1"> <thead> <tr> <th rowspan="2">Codec</th> <th rowspan="2">Packetization</th> <th colspan="3">Jitter Buffer Length</th> <th rowspan="2"></th> </tr> <tr> <th>min</th> <th>nom</th> <th>max</th> </tr> </thead> <tbody> <tr> <td>G.711U</td> <td>10 ms, 20 ms, 30 ms</td> <td>1 = 10 ms</td> <td>2 = 20 ms</td> <td>12 = 120 ms</td> <td><input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive</td> </tr> <tr> <td>G.711A</td> <td>10 ms, 20 ms, 30 ms</td> <td>1 = 10 ms</td> <td>2 = 20 ms</td> <td>12 = 120 ms</td> <td><input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive</td> </tr> <tr> <td>G.723_63</td> <td>30 ms, 60 ms</td> <td>1 = 30 ms</td> <td>2 = 60 ms</td> <td>4 = 120 ms</td> <td><input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive</td> </tr> <tr> <td>G.729AB</td> <td>10 ms, 20 ms, 30 ms</td> <td>1 = 10 ms</td> <td>2 = 20 ms</td> <td>12 = 120 ms</td> <td><input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive</td> </tr> </tbody> </table>	Codec	Packetization	Jitter Buffer Length				min	nom	max	G.711U	10 ms, 20 ms, 30 ms	1 = 10 ms	2 = 20 ms	12 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive	G.711A	10 ms, 20 ms, 30 ms	1 = 10 ms	2 = 20 ms	12 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive	G.723_63	30 ms, 60 ms	1 = 30 ms	2 = 60 ms	4 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive	G.729AB	10 ms, 20 ms, 30 ms	1 = 10 ms	2 = 20 ms	12 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive
Codec	Packetization			Jitter Buffer Length																														
		min	nom	max																														
G.711U	10 ms, 20 ms, 30 ms	1 = 10 ms	2 = 20 ms	12 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive																													
G.711A	10 ms, 20 ms, 30 ms	1 = 10 ms	2 = 20 ms	12 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive																													
G.723_63	30 ms, 60 ms	1 = 30 ms	2 = 60 ms	4 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive																													
G.729AB	10 ms, 20 ms, 30 ms	1 = 10 ms	2 = 20 ms	12 = 120 ms	<input type="radio"/> Fixed <input checked="" type="radio"/> Adaptive																													

5.4. Administer Voicemail

Step	Description
1.	<p>Select ADVANCED from the top menu and click Advanced from the left pane. Configure Technicolor TB30 to subscribe to the IP Office for MWI as follows:</p> <ul style="list-style-type: none"> • SUBSCRIBED to MWI: Select ON. • Voice Mail Notification Server Address: IP address of IP Office. • Voice Mail Server Port: Enter 5060 • Voice Mail Telephone Number: Enter the Short Code for voicemail configured in Section 4.6, in this case *17. <p>THOMSON</p>  <p>The screenshot shows the Thomson Advanced configuration interface. The top navigation bar includes HOME, SETUP, ADVANCED, UTILITY, STATUS, and LOGOUT. The left sidebar lists various configuration categories, with Advanced highlighted in red. The main content area is titled 'Advanced' and 'Telephone Settings'. It includes fields for DTMF (Out of Band (RFC2833)), RTP Payload Type (96), and RTP DTMF Level (0). There are several checkboxes for call features, with 'Acoustic Echo Cancellation (AEC)', 'Packet loss compensation', and '#* will be processed as normal digits' checked. The 'SUBSCRIBE to MWI' option is set to ON. The 'Voice Mail Notification Server Address' is 10.1.30.10, 'Voice Mail Server Port' is 5060, and 'Voice Mail Telephone Number' is *17. The 'Advanced' menu item in the left sidebar is highlighted with a red box.</p>

6. General Test Approach and Test Results

The general test approach was to place intra-switch calls, inbound and outbound PSTN trunk calls to and from the Technicolor TB30 SIP phone that is connected to the IP Office. Different call scenarios were used such call hold/unhold, transfer, conference, call forwarding, call park/unpark, call pickup, DTMF transmission and turning on/off the Message Waiting Indicator (MWI). During serviceability testing, the Technicolor TB30 SIP phone recovered successfully from disconnection and re-connection, and also rebooting of the IP Office.

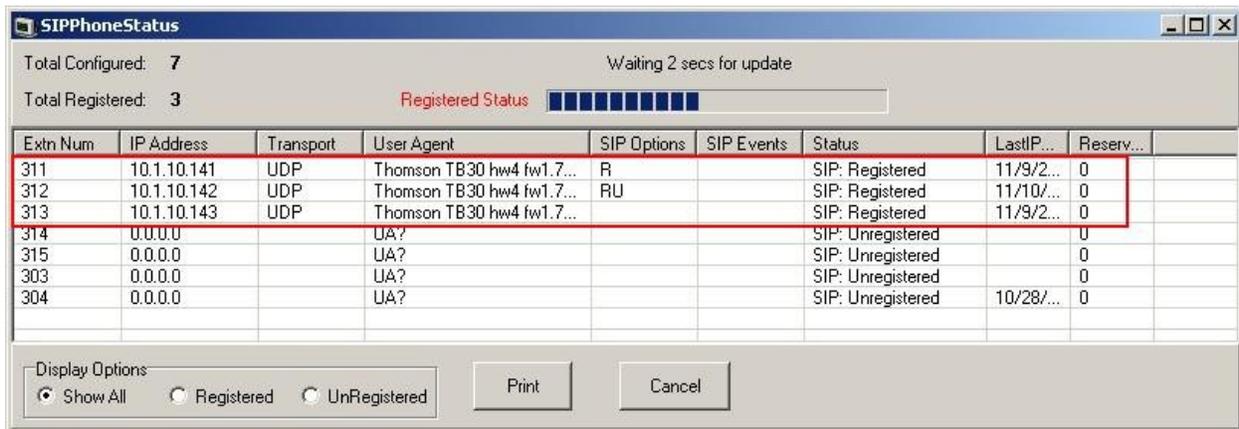
All executed test cases were passed successfully.

7. Verification Steps

This section provides the tests that can be performed to verify correct configuration of the Technicolor/ Avaya solution.

7.1. Verify Avaya IP Office

The following steps ensure that there is communication between IP Office and the Technicolor TB30. From a PC running the Avaya IP Office Manager, select **Start > Programs > IP Office > Monitor** to launch the Monitor application. Choose the **Status** menu and **select SIP Phone Status**. This will display a table of the SIP phones and indicate those registered.



The screenshot shows the SIPPhoneStatus application window. It displays a table with columns: Extn Num, IP Address, Transport, User Agent, SIP Options, SIP Events, Status, LastIP..., and Reserv... The table lists several phones, with three (311, 312, 313) marked as 'SIP: Registered' and others as 'SIP: Unregistered'. A progress bar indicates 'Registered Status' with 3 bars filled. Below the table are 'Display Options' (Show All, Registered, UnRegistered), 'Print', and 'Cancel' buttons.

Extn Num	IP Address	Transport	User Agent	SIP Options	SIP Events	Status	LastIP...	Reserv...
311	10.1.10.141	UDP	Thomson TB30 hw4 fw1.7...	R		SIP: Registered	11/9/2...	0
312	10.1.10.142	UDP	Thomson TB30 hw4 fw1.7...	RU		SIP: Registered	11/10/...	0
313	10.1.10.143	UDP	Thomson TB30 hw4 fw1.7...			SIP: Registered	11/9/2...	0
314	0.0.0.0		UA?			SIP: Unregistered		0
315	0.0.0.0		UA?			SIP: Unregistered		0
303	0.0.0.0		UA?			SIP: Unregistered		0
304	0.0.0.0		UA?			SIP: Unregistered	10/28/...	0

7.2. Verify Technicolor TB30

Ensure that the Technicolor TB30 SIP Phone is registered successfully to Avaya IP Office by checking the phone's LCD display for the icon . Place a call to another phone on the Avaya IP Office to verify basic call operation.

8. Conclusion

These Application Notes describe the configuration steps required for configuring Technicolor TB30 SIP phone to interoperate with Avaya IP Office. All feature and serviceability tests were completed successfully.

9. Additional References

This section references the Avaya and Technicolor product documentation that are relevant to these Application Notes.

The following Avaya product documentation can be found at <http://support.avaya.com>.

[1] *IP Office 6.0 Documentation CD*, February 2010.

The Technicolor documentation can be found at <http://www.technicolorbroadbandpartner.com/>.

[2] *TB30 Administrator Guide*, SIP Stack, Version 1.3, September 2010.

©2010 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

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.