Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Yealink T-18 SIP Phones to interoperate with Avaya IP Office - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Yealink T-18 SIP phone to interoperate with Avaya IP Office.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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1. Introduction

These Application Notes describe the configuration steps required for Yealink T-18 SIP phone to interoperate with Avaya IP Office.

The Yealink T-18 is a simple SIP phone which provides many basic features such as call hold, transfer, conference, call waiting etc. It also provides voicemail.

In the compliance testing, the Yealink T-18 was set up as a SIP extension on Avaya IP Office and underwent testing of various call scenarios with other Yealink phones and Avaya phones as specified in **Table 1.**

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing evaluated the ability of Yealink T-18 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 Yealink phones and Avaya phones on the Avaya IP Office and calls to/from the PSTN. Testing of call functions such as call hold, transfer, conference, call forwarding etc was also performed between the Yealink T-18 and various Avaya phones on the Avaya IP Office.

The serviceability testing focused on verifying the ability of the Yealink T-18 SIP phone to recover from disconnection and reconnection of the Yealink phone and of the Avaya IP Office from the network.

1.2. Support

Technical support from Yealink can be obtained through the following:

- Phone: + 44-161-763-2023
- E-mail: support@yealink.co.uk
- Web: http://www.yealink.com.uk

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2. Reference Configuration

Figure 1 illustrates a sample configuration that was used to compliance test the interoperability of Yealink SIP Phones and IP Office. The configuration consists of an IP Office 500 connected to a Layer 2 switch to which the Yealink T-18 phone is connected. This system has connections to the following: Avaya 1600 Series IP Phones, Avaya Digital Phones and a PRI trunk to the PSTN. The phones connected to the system will be used to generate call traffic to the IP Office. These phones will be used to generate intra-switch calls and outbound/inbound calls to/from the PSTN.

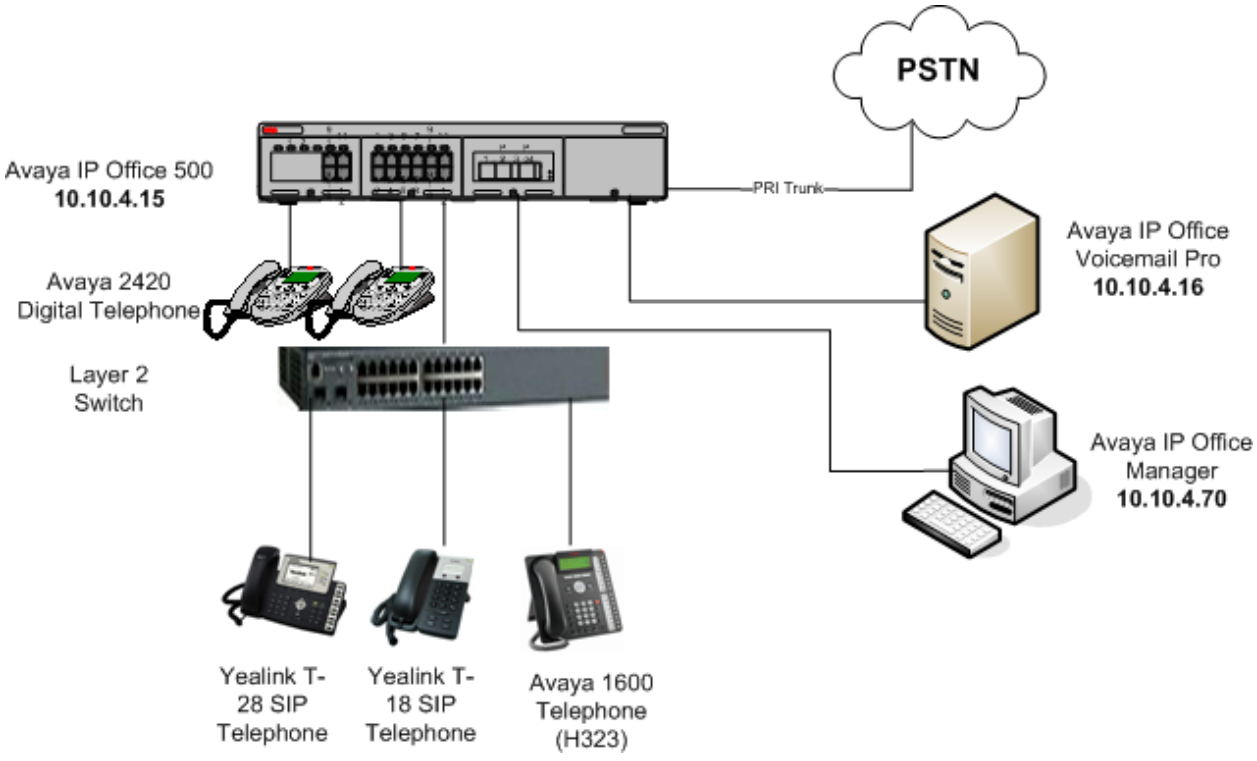

Figure 1: Network Configuration of Yealink SIP Phones with Avaya IP Office

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3. Equipment and Software Validated

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

Equipment	Software Version
Avaya IP Office IP500	6.0 (8)
Avaya 16xx IP Phones (H.323) - 1616	 1.22
Avaya 24xx Digital Phones - 2420	 -
Yealink T-18 SIP Phones	18.0.23.1

Table 1: Hardware and Software Version Numbers

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4. Configure the Avaya IP Office

All the configuration changes in this section for IP Office are performed through the IP Office Manager. For more information on configuring IP Office, refer to the Avaya product documentation, **Section 9**, Reference **[1]**.

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

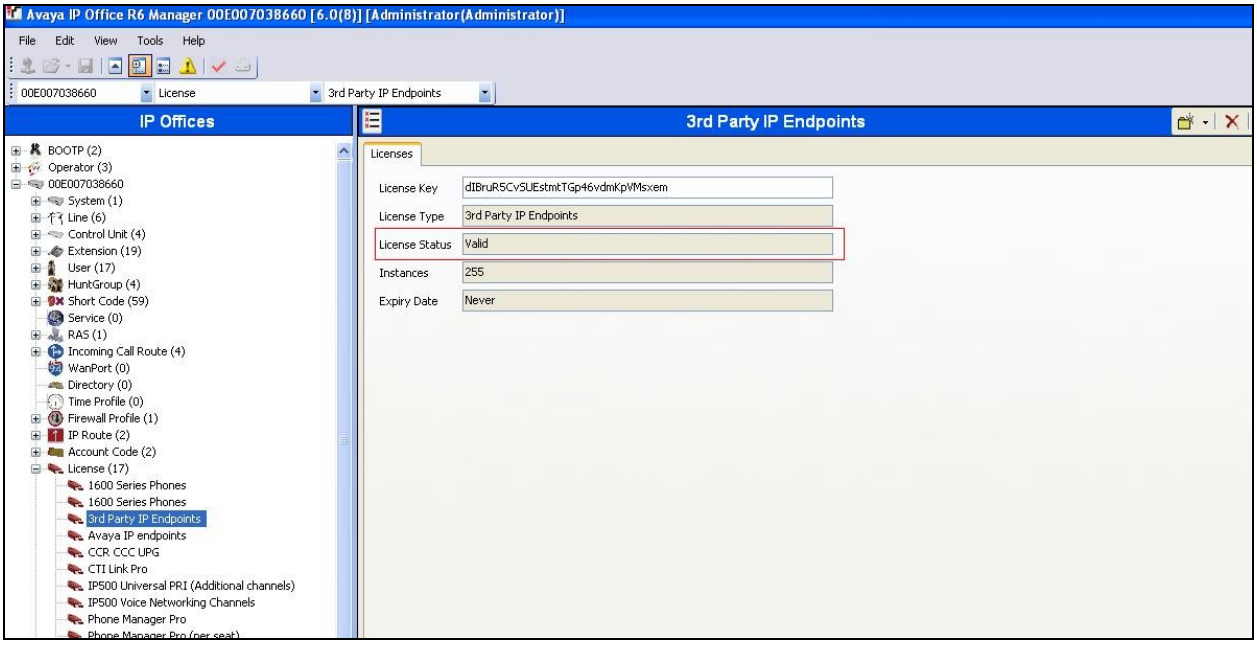
- Verify IP Office Licensing
- Setting LAN Parameters
- Administer SIP Registrar
- Add SIP Extensions
- Configure SIP User
- Add Shortcode for Voicemail
- Save Configuration

The configuration of the PRI interface to the PSTN is outside the scope of these Application Notes.

4.1. Verify IP Office Licensing

From a PC running the Avaya IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the Manager application. Select the IP Office system, and log in with the appropriate credentials. The **Avaya IP Office R6 Manager** screen is displayed.

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**.



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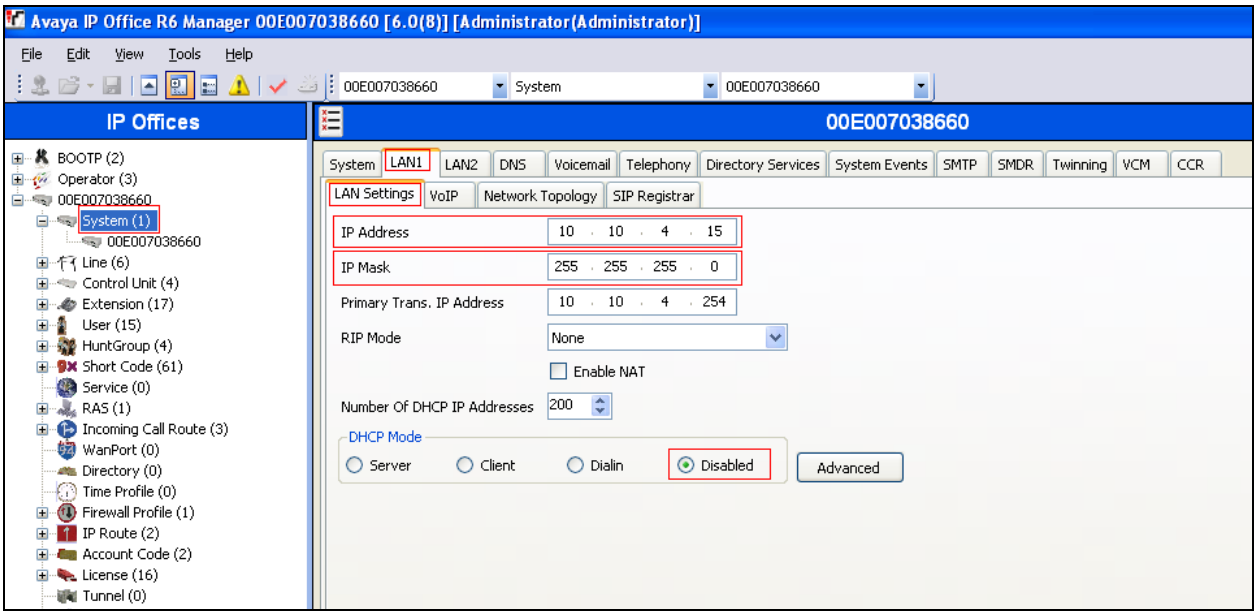
4.2. Setting LAN Parameters

In the Avaya IP Office Manager application, LAN parameters including IP Address, IP Mask, and other profile settings can be set.

- 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.
- 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 your IP Office configuration needs. In this case, the **Disabled** option is chosen since DHCP was not used.
- Other fields can be left blank or at the default settings.



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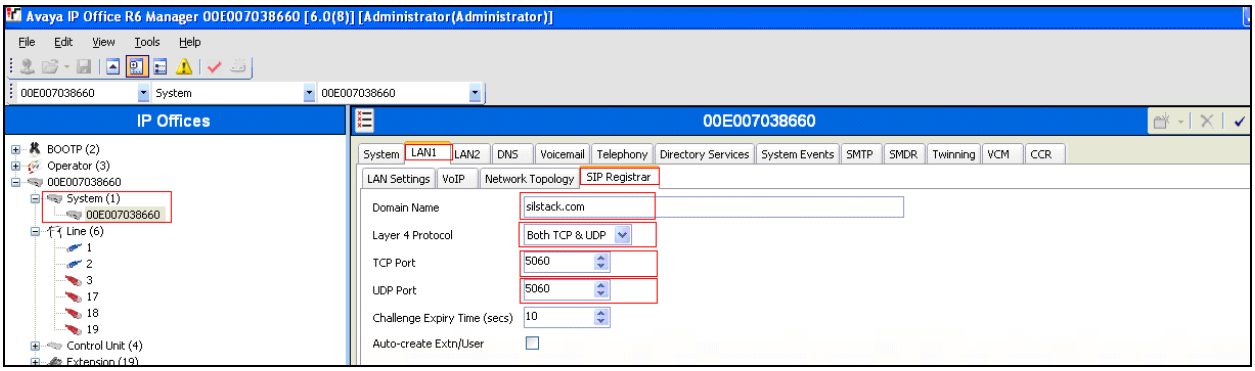
4.3. Administer SIP Registrar

Select **SIP Registrar** sub-tab in the right pane and enter the following values:

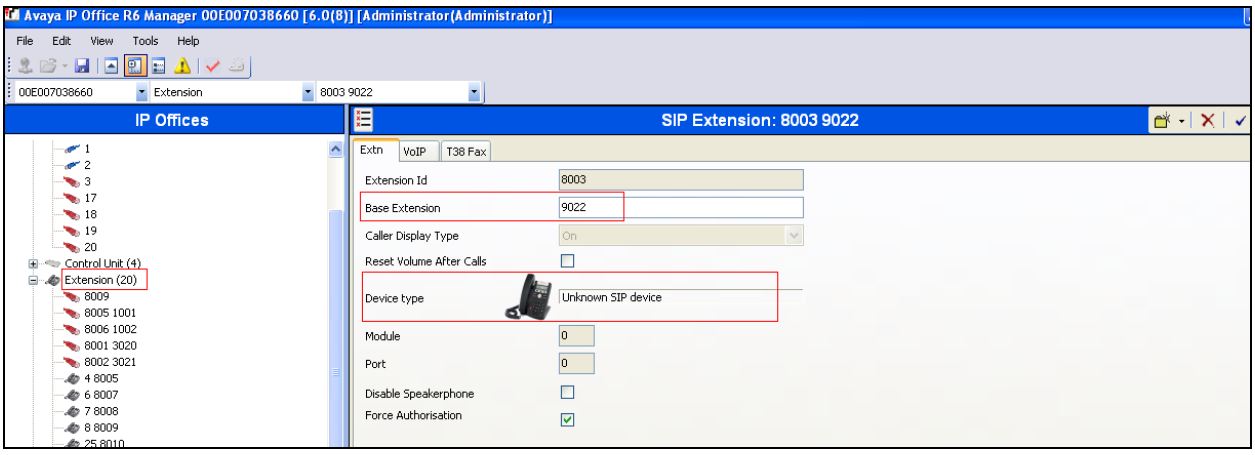
- **Domain Name** Enter a valid Domain Name.
- **Layer 4 Protocol** Select **Both TCP & UDP**.
- **TCP Port** Select **5060**
- **UDP Port** Select **5060**



Click **OK** (not shown).

4.4. Add SIP Extensions

Add a SIP Extension by selecting **Extension** from the left pane. Right-click and choose **New** and **SIP Extension** (not shown). The **Extension Id** is automatically created i.e., **8003** in this case. Set the **Base Extension** to **9022**. Note that the **Device type** is **Unknown SIP device**. Click **OK** at bottom of screen (not shown).



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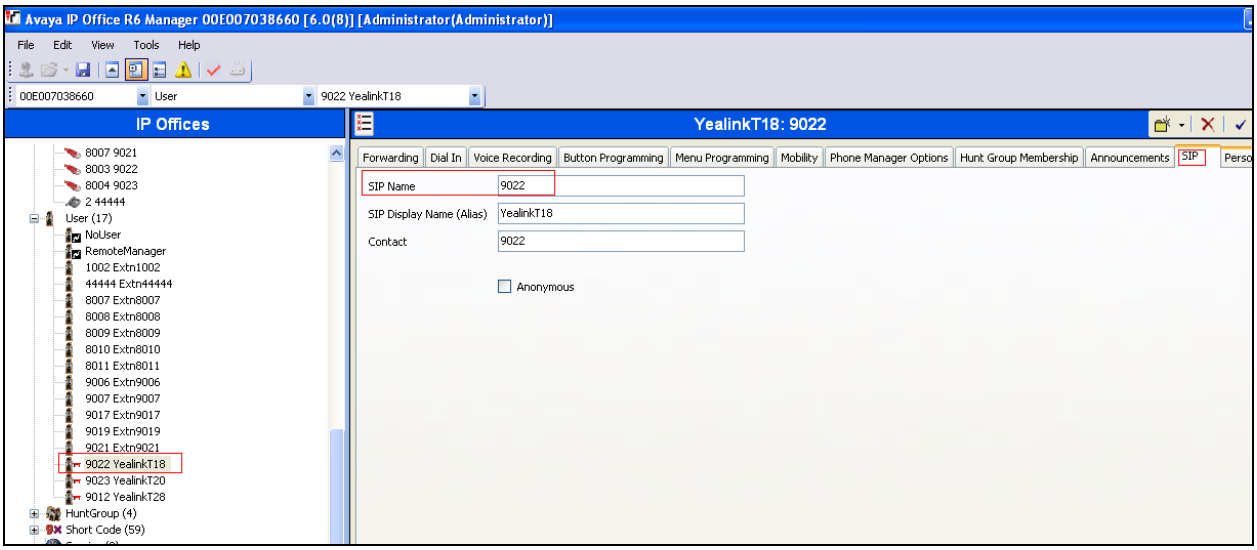
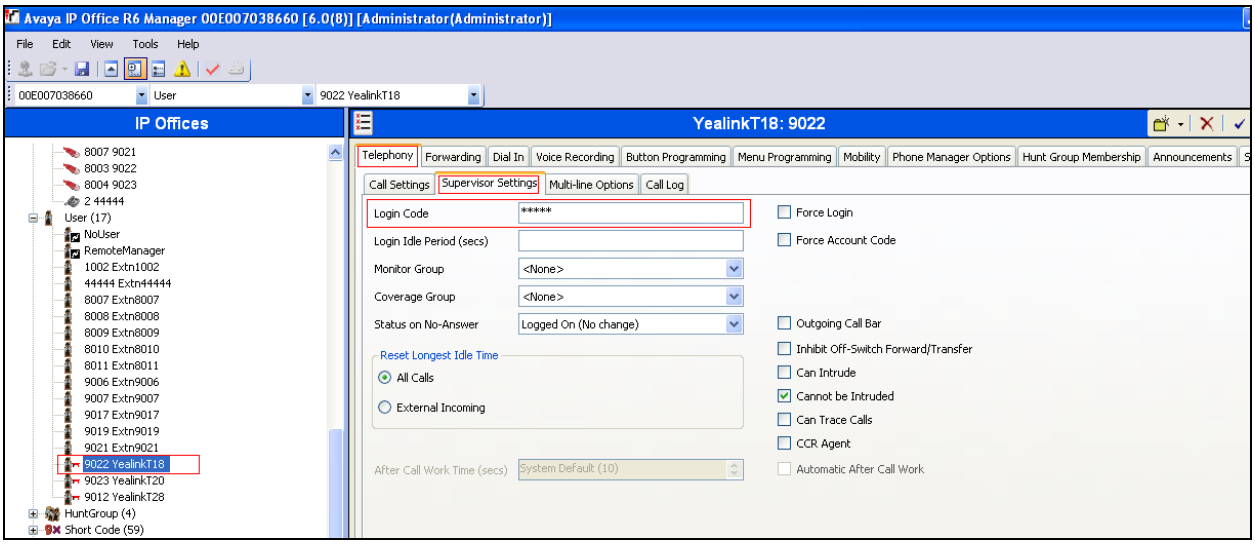
4.5. Configure SIP User

From the left pane, select a **User** and in the right-hand pane, select **SIP** tab. Modify the **SIP Name** to be the same as the user's extension number, in this case, **9022**. Set the **SIP Display Name (Alias)** as **YealinkT18.** The other fields can be left as default. Click **OK** (not shown). Repeat this for all users.



On the **Telephony** tab select the **Supervisor Settings** tab. Set the **Login Code**. This will be required to configure the Yealink T-18 phone as referenced in **Section 5.2**.



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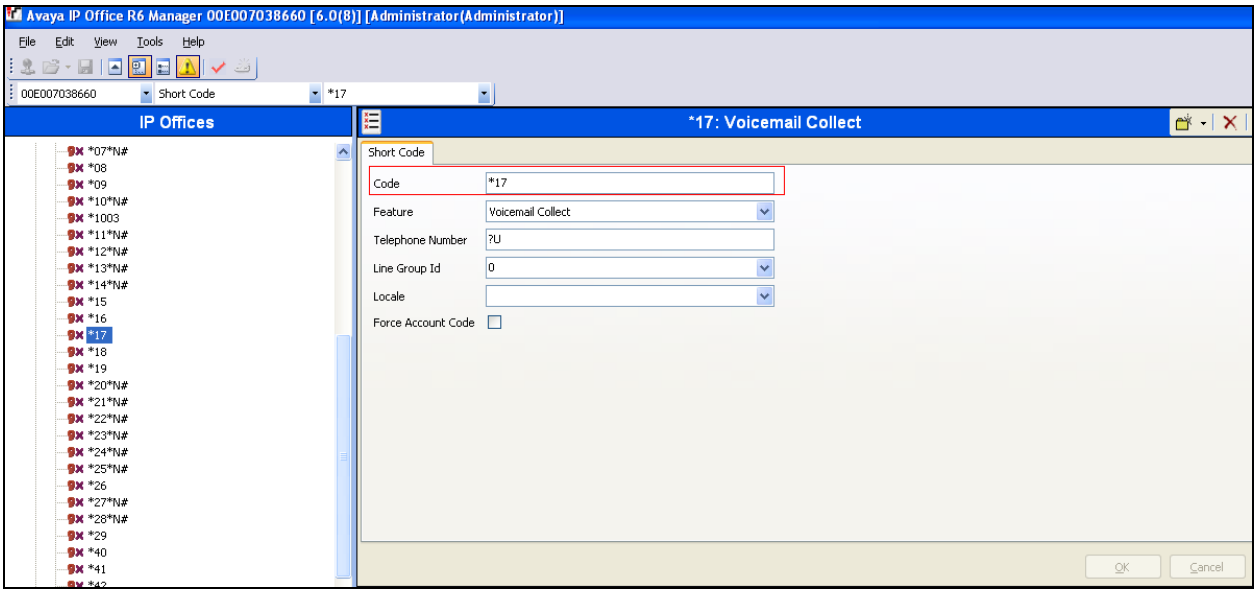
4.6. Add Shortcode for Voicemail

Voicemail is already set up on IPO and ***17** is used as the shortcode as shown in the screen below. This value is referenced by Yealink in **Section 5.2**.



4.7. Save Configuration

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

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5. Configure Yealink SIP Phones

This section provides the procedures to configure Yealink T-18 SIP phone with IP Office.

5.1. Configure SIP Phone Settings

Depending on whether IP Office is using DHCP or Static IP addresses the Yealink T-18 SIP phone must be configured accordingly as follows.

5.1.1. DHCP

Lift the handset and dial ****88#.** After hearing the prompt "Please enter the value after beeping", input **1#** to enable **DHCP** or **0#** to disable DHCP. The following prompt will be heard: "Please hang up and wait for rebooting or continue setting after the tone" to indicate that the configuration is successful. If you input other characters or numbers without using #, e.g., enter 222, the prompt "Invalid setting, please re-enter after the tone" will be heard. This indicates that the configuration has failed.

5.1.2. Static IP

The following values must be set when a Static IP address is used:

5.1.2.1 IP Address

Lift the handset and dial ****80#**. After hearing the prompt "Please enter the value after beeping" enter in the IP address followed by **#** e.g. **10.10.4.26#**. The following prompt "Please hang up and wait for rebooting or continue setting after the tone" indicates that the configuration is successful. If the IP Address entered does not conform to the rules or is entered without #, the following prompt will be heard "Invalid setting, please re-enter after the tone".

5.1.2.2 Subnet Mask

Lift the handset and dial ****81#.** After hearing the prompt "Please enter the value after beeping", enter the Subnet Mask followed by # e.g., **255.255.255.0#.** The following prompt "Please hang up and wait for rebooting or continue setting after the tone" indicates that the configuration is successful. If the input Subnet Mask does not conform to the rules or is entered without #, the following prompt will be heard "Invalid setting, please re-enter after the tone" to indicate that the configuration is failed.

5.1.2.3 Gateway

Lift the handset and dial ****82#.** After hearing the prompt "Please enter the value after beeping", enter the Gateway IP Address followed by # e.g. **10.10.4.1#.** The following prompt "Please hang up and wait for rebooting or continue setting after the tone" indicates that the configuration is successful. If the input Gateway does not conform to the rules or is entered without #, the following prompt will be heard "Invalid setting, please re-enter after the tone" to indicate that the configuration is failed.

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5.1.2.4 DNS1

Lift the handset and dial ****83#.** After hearing the prompt "Please enter the value after beeping", enter the DNS1 IP Address followed by # e.g. **212.23.3.100#.** The following prompt "Please hang up and wait for rebooting or continue setting after the tone" indicates that the configuration is successful. If the input DNS does not conform to the rules or is entered without #, the following prompt will be heard "Invalid setting, please re-enter after the tone" to indicate that the configuration is failed.

5.1.2.5 DNS2

Pick up the handset and dial ****84#.** After hearing the prompt "Please enter the value after beeping", enter the DNS2 IP Address followed by # e.g. **212.23.6.100#.** The following prompt "Please hang up and wait for rebooting or continue setting after the tone" indicates that the configuration is successful. If the input DNS2 does not conform to the rules or is entered without #, the following prompt will be heard "Invalid setting, please re-enter after the tone" to indicate that the configuration is failed.

Finally to verify that the settings are correct use the following codes to hear the recorded IP addresses:

1. IP Address: Lift the handset and dial "**90#"
2. Subnet Mask: Lift the handset and dial "**91#"
3. Gateway: Lift the handset and dial "**92#"
4. DNS1: Lift the handset and dial "**93#"
5. DNS2: Lift the handset and dial "**94#"

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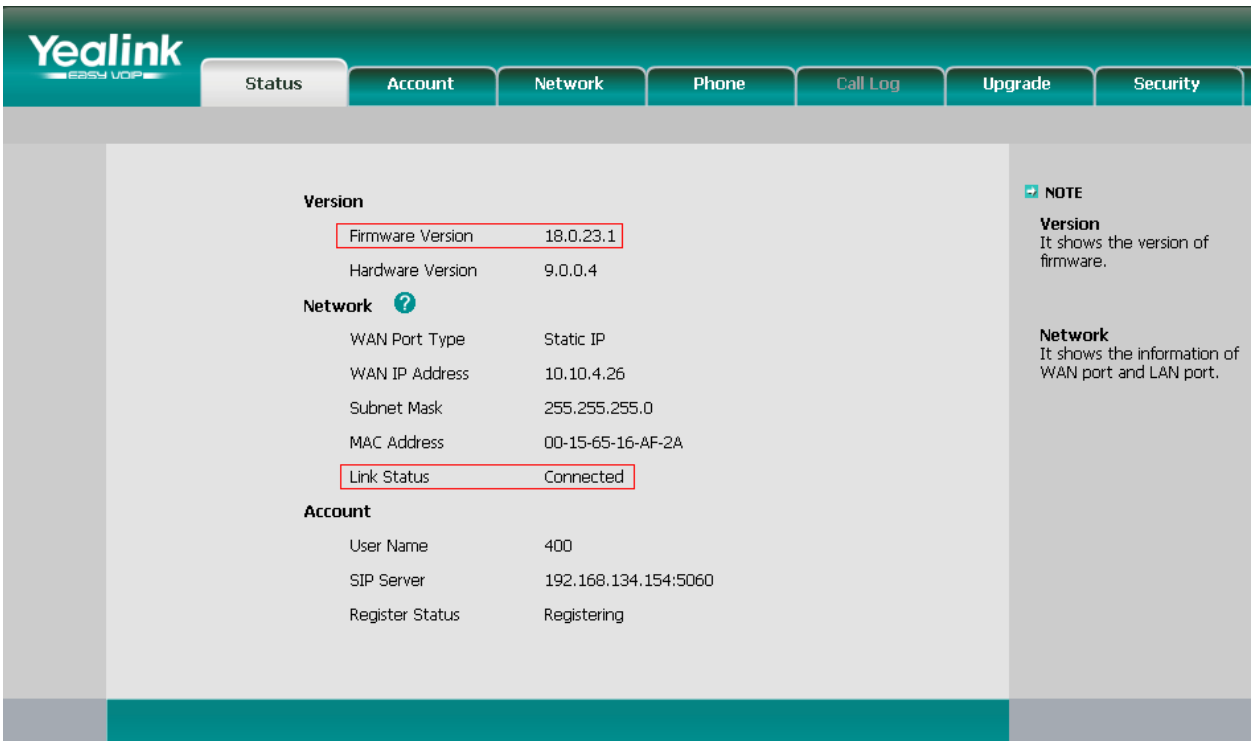
5.2. Configure SIP Account Parameters

Open up a web browser on the PC and enter in the URL field the IP address of the SIP Phone configured in **Section 5.1**. An authentication screen is displayed (not shown) and user name and password are required. Enter in the default User Name and Password as 'admin'. A new screen is displayed as seen below. The **Status** tab appears. Ensure that the **Link Status** is **Connected**. Note the **Firmware Version** on the same screen.



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Select the **Network** tab. Note the details of **IP Address**, **Subnet Mask** and **Default Gateway** already assigned to the SIP phone.

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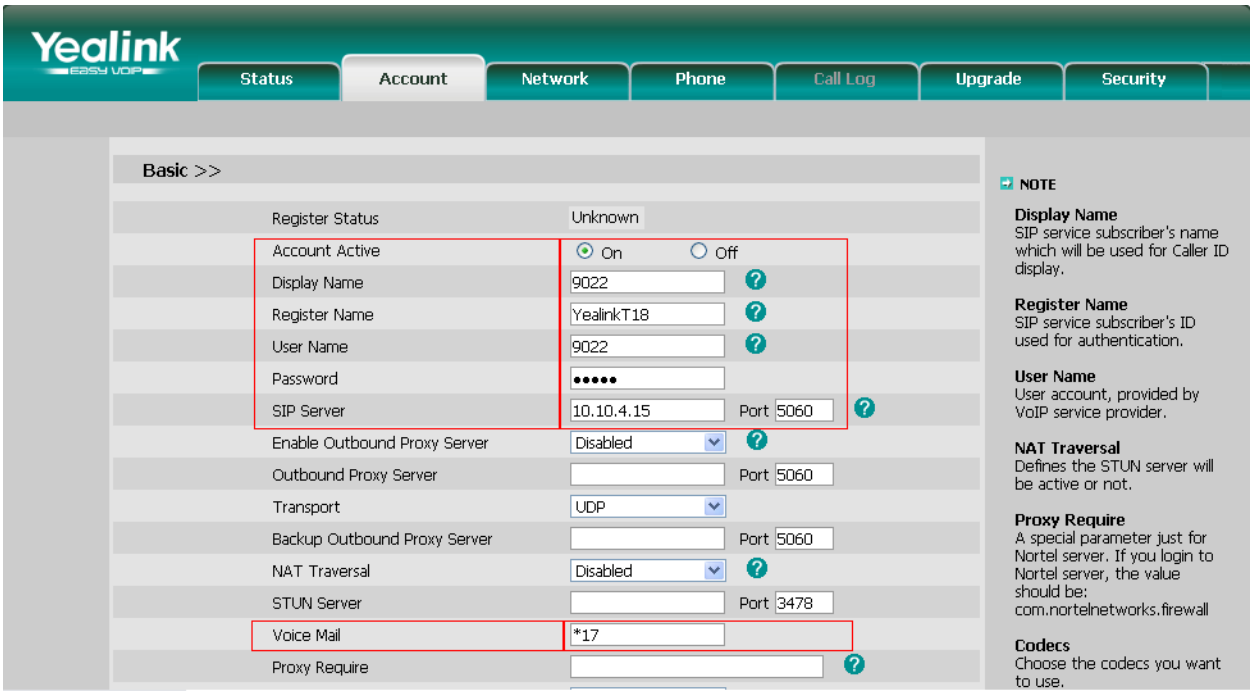
Select the **Account** tab. Enter in the parameters as follows:

- **Account Active** Set this value to **On**.
- **Display Name** This is the name or number displayed on the SIP phone screen. It is usually set to the extension number.
- **Register Name** This is the User name for the extension used on the IP Office.
- **User Name** This is the extension number for the SIP phone on IP Office.
- **Password** This matches the Login Code of the user set on the IP Office as referenced in **Section 4.5**.
- **SIP Server** Enter in the IP address of IP Office, **10.10.4.15**.
- **Port** Keep to the default of **5060** which must correspond to the IP Office TCP/UDP Port in LAN1\SIP Registrar tab as referenced in **Section 4.3**.
- **Voice Mail** This value is set up on IP Office, ***17** is used. See **Section 4.6**.



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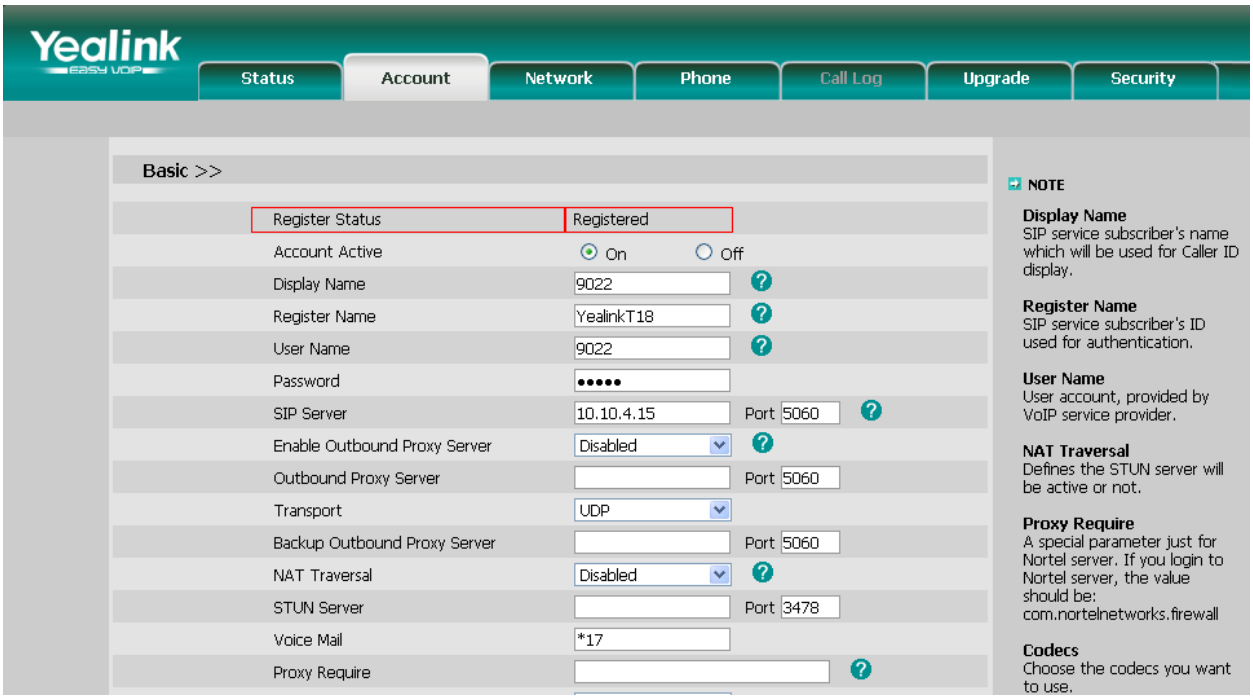
Press **Confirm** at the bottom of the screen (not shown) and the final screen should display as shown below with the **Register Status** as **Registered**.



6. General Test Approach and Test Results

The general test approach was to place intra-switch calls and inbound and outbound PSTN trunk calls to and from the Yealink T-18 SIP phone connected to the IP Office. Different call scenarios were used including hold, conference, call forwarding etc. During serviceability testing, the Yealink phone recovered successfully from disconnection and re-connection as did 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 Yealink/ Avaya solution.

7.1. Verify Avaya IP Office

The following steps can ensure that the communication between IP Office and the Yealink T-18 is functioning correctly. From a PC running the Avaya IP Office Monitor application, select **Start → Programs → IP Office → Monitor** to launch the application. Choose the **Status** menu and select **SIP Phone Status**. This will display a table of the SIP phones and indicate those registered (not shown).

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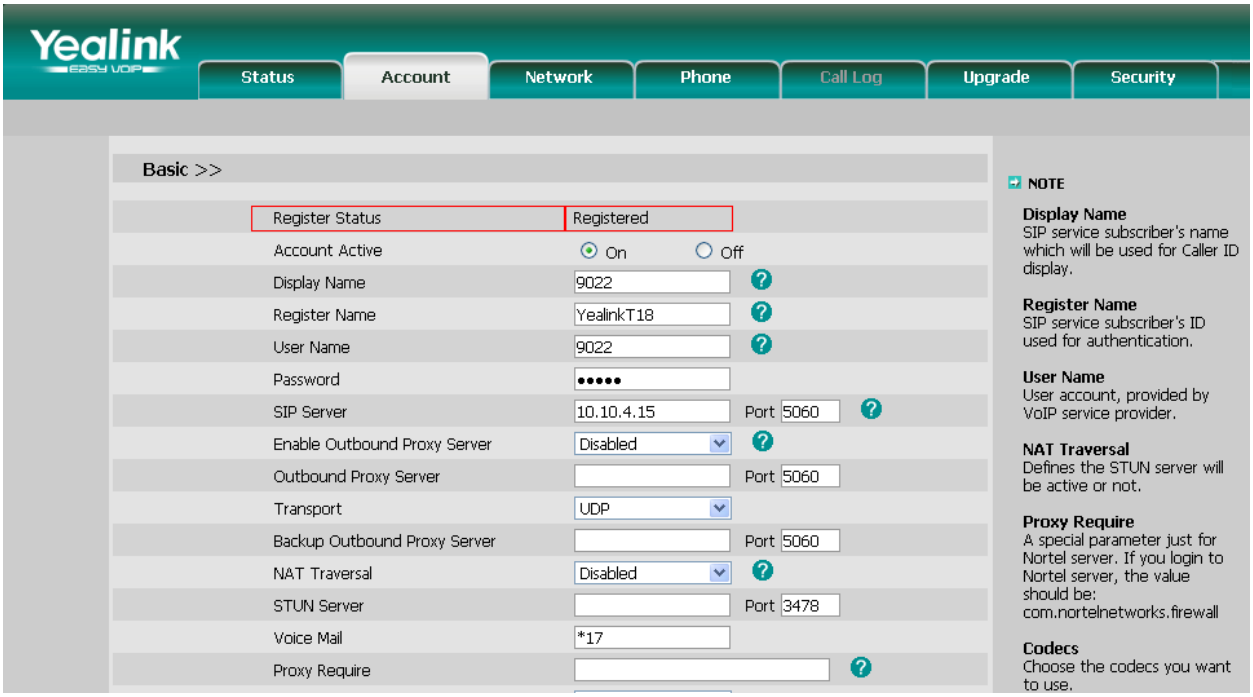
7.2. Verify Yealink T-18 SIP Phone

Ensure that the Yealink T-18 phone has been registered successfully to IP Office by checking the **Account** tab on the Yealink phone's configuration page to ensure that the **Register Status** displays **Registered**.



8. Conclusion

These Application Notes describe the configuration steps required for configuring Yealink SIP T-18 phone to interoperate with Avaya IP Office. All feature and serviceability tests were passed successfully.

9. Additional References

This section references the Avaya and Yealink 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, available at http://support.avaya.com.

The Yealink documentation can be found at http://www.yealink.co.uk/downloads

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