



Avaya Solution & Interoperability Test Lab

Application Notes for Teledex iPhone SIP ND2000 Series and SIP NDC2000 Series IP Telephones with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Teledex iPhone SIP ND2000 Series and SIP NDC2000 Series IP Telephones to interoperate with Avaya IP Office. Teledex iPhone SIP ND2000 Series and SIP NDC2000 are SIP-based IP telephones that integrate with Avaya IP Office as SIP endpoints.

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 Teledex iPhone SIP ND2000 Series and SIP NDC2000 Series IP Telephones to interoperate with Avaya IP Office. Teledex iPhone SIP ND2000 Series and SIP NDC2000 are SIP-based IP telephones that integrate with Avaya IP Office as SIP endpoints.

The compliance testing used a Teledex iPhone SIP ND2210S, and a Teledex iPhone SIP NDC2210S. The ND2210S and NDC2210S support the same feature set and use a common firmware. The only difference is that the NDC2210S is a cordless version.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing included registration, basic call, display, hold/reconnect, conference, media shuffling, G.711, G.729, G.723, MWI, DTMF, do not disturb and call forwarding unconditional short code scenarios.

The serviceability testing focused on verifying the ability of Teledex iPhone SIP ND2210S and NDC2210S to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to the devices.

1.2. Support

Technical support on Teledex iPhone SIP ND2210S and NDC2210S can be obtained through the following:

- **Phone:** (800) 794-8353
- **Web:** <http://www.teledex.com>

2. Reference Configuration

Figure 1 below shows the configuration used for the compliance testing. The Avaya IP Office Voicemail Pro was used to provide voicemail functionality.

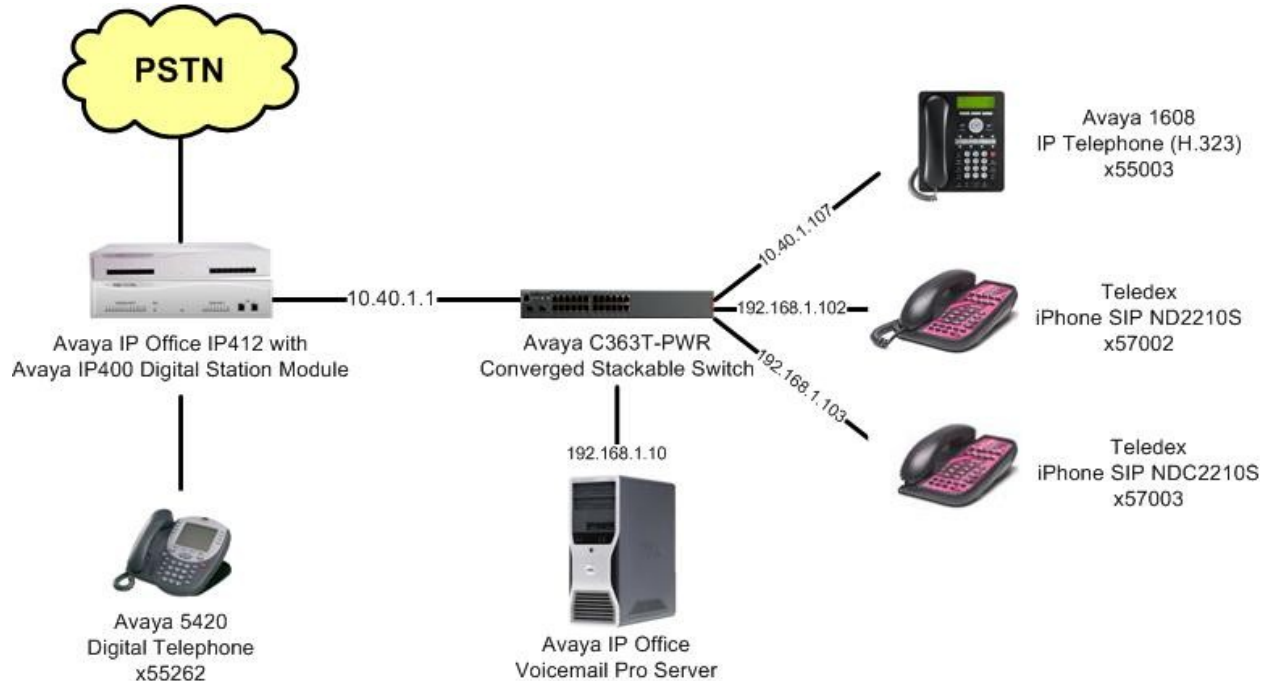


Figure 1: Teledex iPhone SIP ND2210S and NDC2210S with Avaya IP Office

3. Equipment and Software Validated

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

Equipment	Software
Avaya IP Office IP412	5.0 (4)
Avaya IP Office Voicemail Pro	5.0 (18)
Avaya 1608 IP Telephone (H.323)	1.21
Avaya 5420 Digital Telephone	NA
Teledex iPhone SIP ND2210S	1.15.15
Teledex iPhone SIP NDC2210S	1.15.15

4. Configure Avaya IP Office

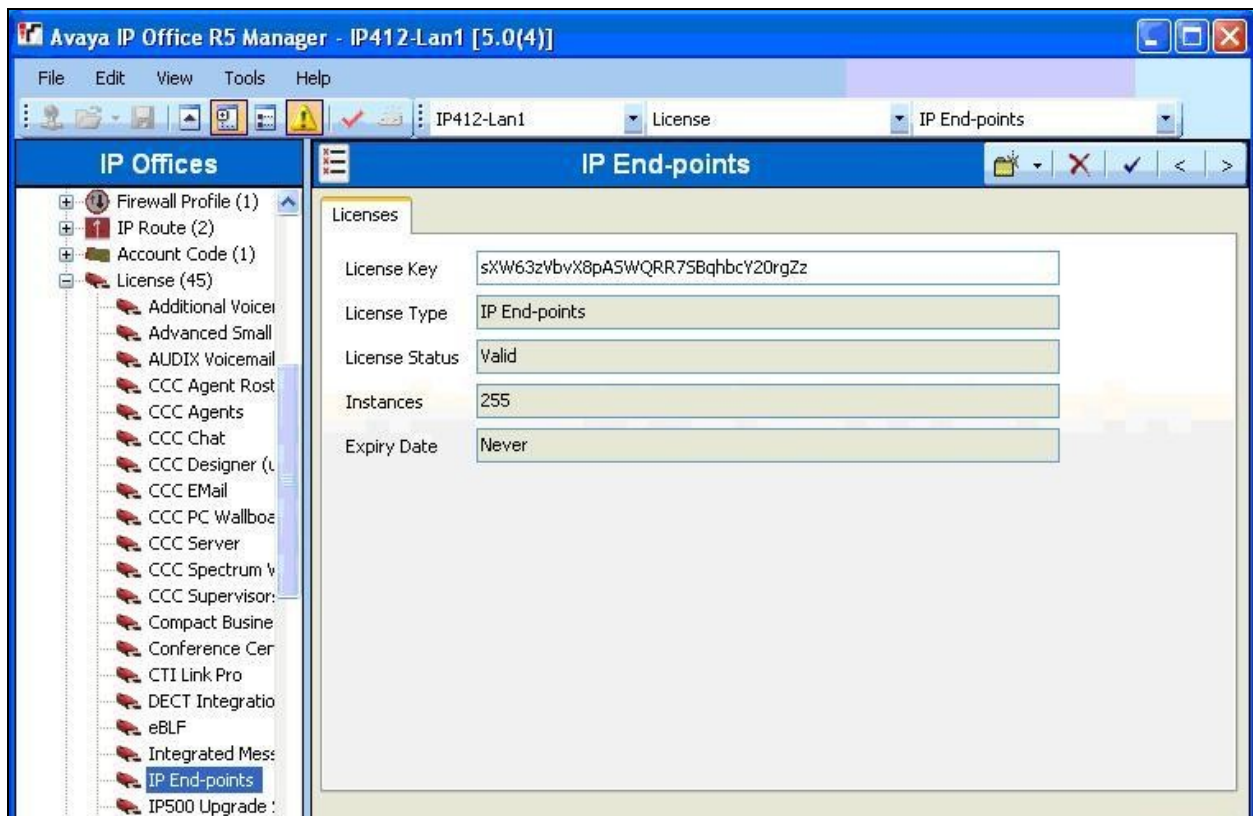
This section provides the procedures for configuring Avaya IP Office. The procedures include the following areas:

- Verify IP Office license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extensions
- Administer SIP users

4.1. Verify IP Office License

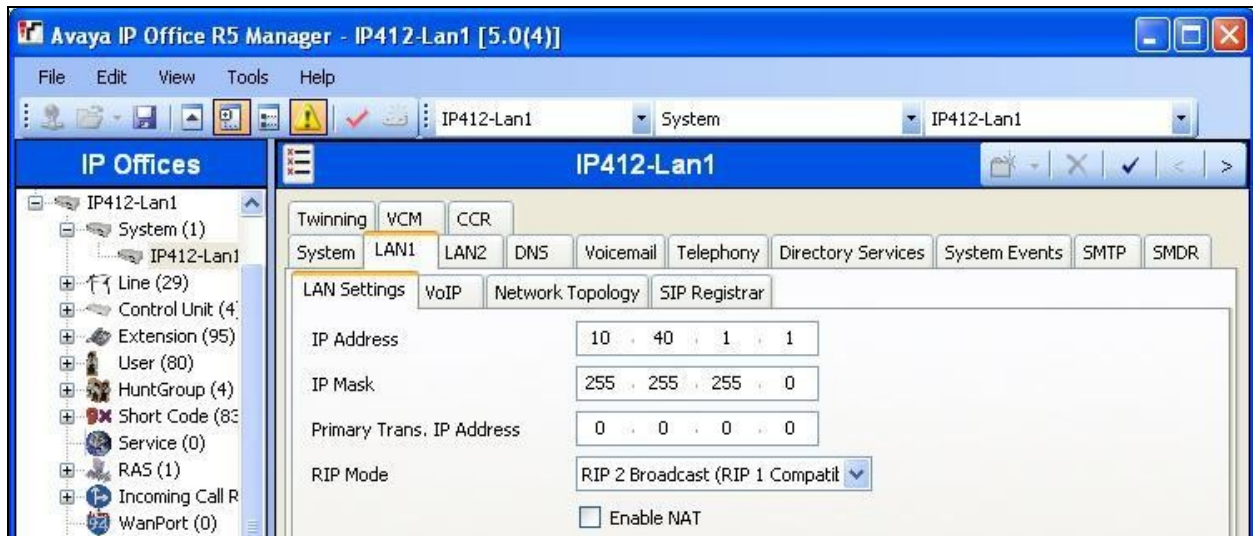
From a PC running the Avaya IP Office Manager application, select **Start > Programs > IP Office > Manager** to launch the Manager application. Select the proper IP Office system, and log in with the appropriate credentials.

The **Avaya IP Office Manager** screen is displayed. From the configuration tree in the left pane, select **License > IP End-points** to display the **IP End-points** screen in the right pane. Verify that the **License Status** is “Valid”.



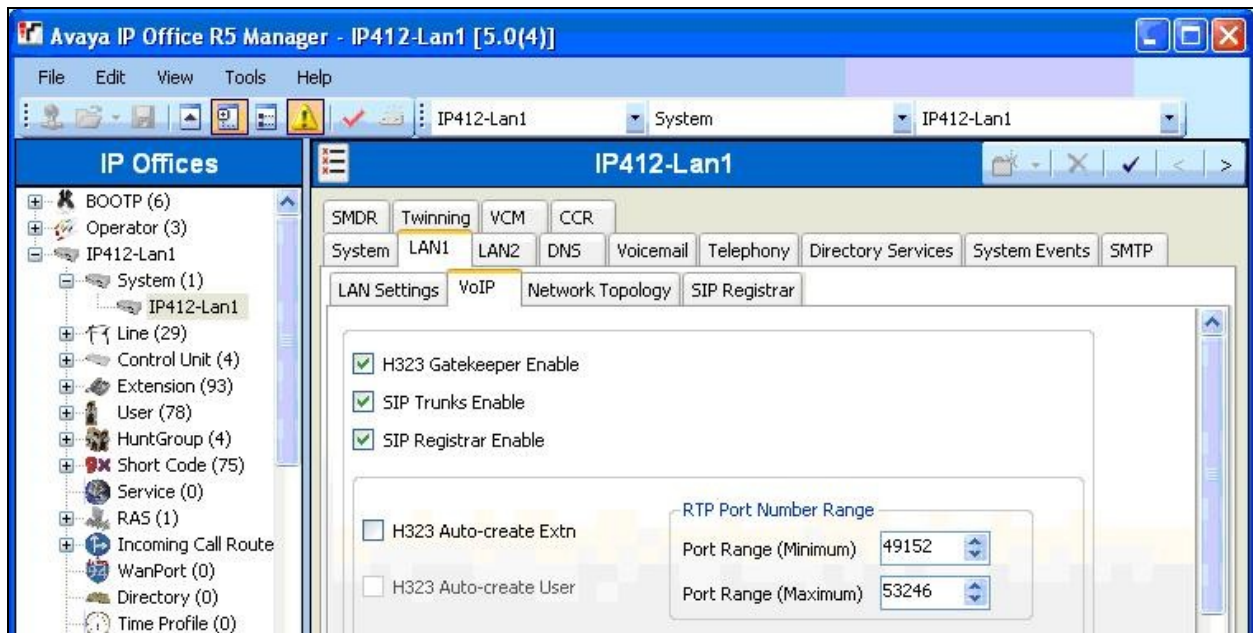
4.2. Obtain LAN IP Address

From the configuration tree in the left pane, select **System** to display the **IP412-Lan1** screen in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure Teledex. Note that IP Office can support SIP extensions on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.

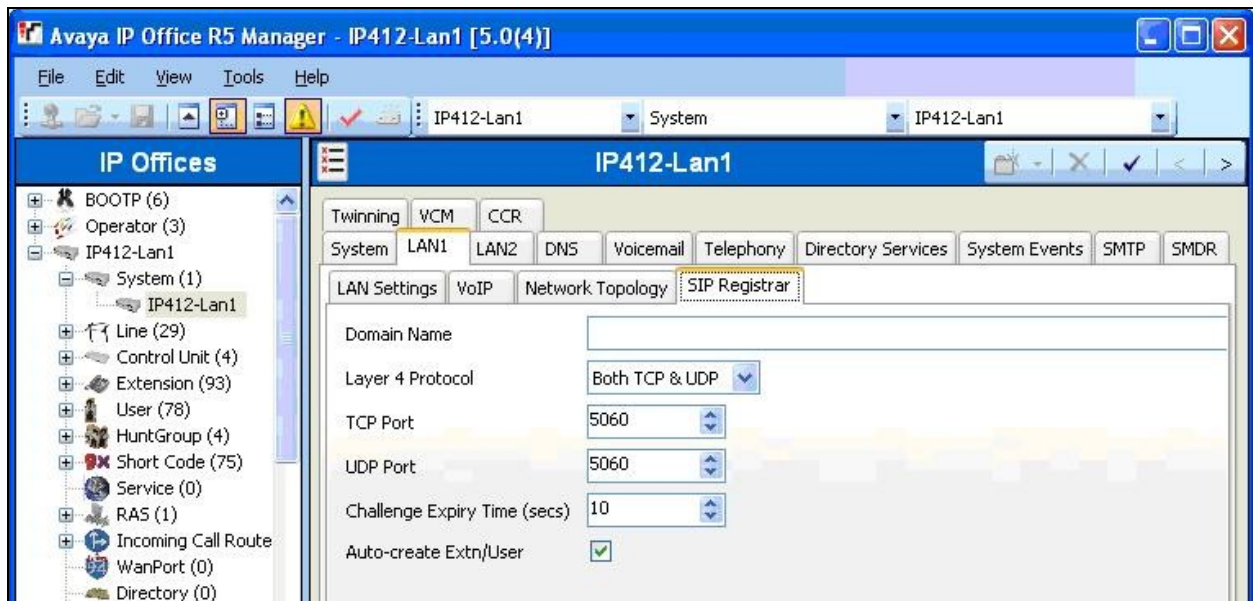


4.3. Administer SIP Registrar

Select the **VoIP** sub-tab. Make certain that **SIP Registrar Enable** is checked, as shown below.



Select the **SIP Registrar** sub-tab, and enter a valid **Domain Name** for SIP endpoints to use for registration with IP Office. In the compliance testing, the **Domain Name** was left blank, so the SIP endpoints used the LAN IP address for registration.



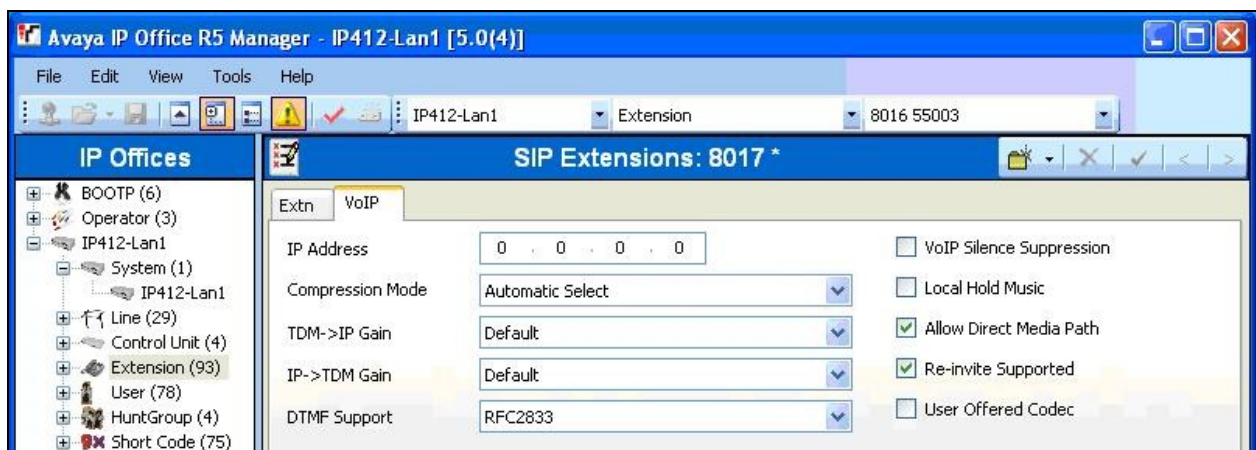
4.4. Administer SIP Extensions

From the configuration tree in the left pane, right-click on **Extension** and select **New > SIP Extension** from the pop-up list to add a new SIP extension. Enter the desired digits for **Base Extension**, and retain the default check in the **Force Authorisation** field as shown below.



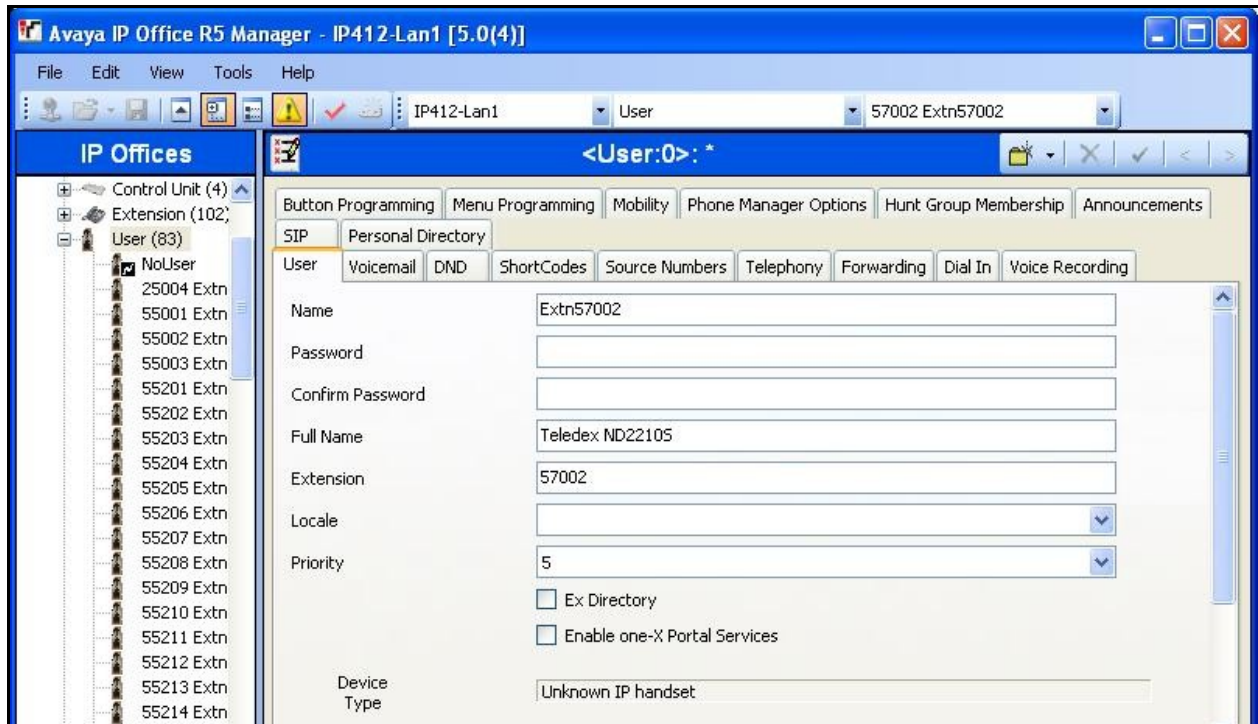
Select the **VoIP** tab, and retain the default values in all fields.

Repeat this section to add a new SIP extension for each Teledex iPhone SIP ND2000 and NDC2000 Series IP telephone. In the compliance testing, two SIP extensions with base extensions of “57002” and “57003” were created.

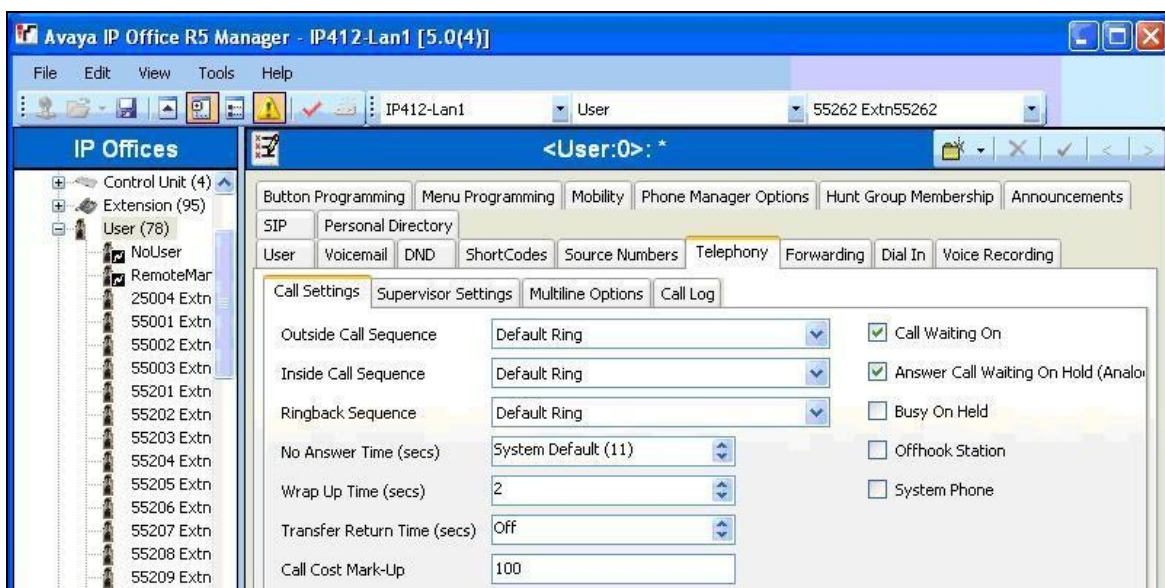


4.5. Administer SIP Users

From the configuration tree in the left pane, right-click on **User**, and select **New** from the pop-up list. For **Name**, enter the first SIP extension from **Section 4.4**, and prefix with “Extn”. Enter a descriptive **Full Name**. For **Extension**, enter the first SIP extension from **Section 4.4**.

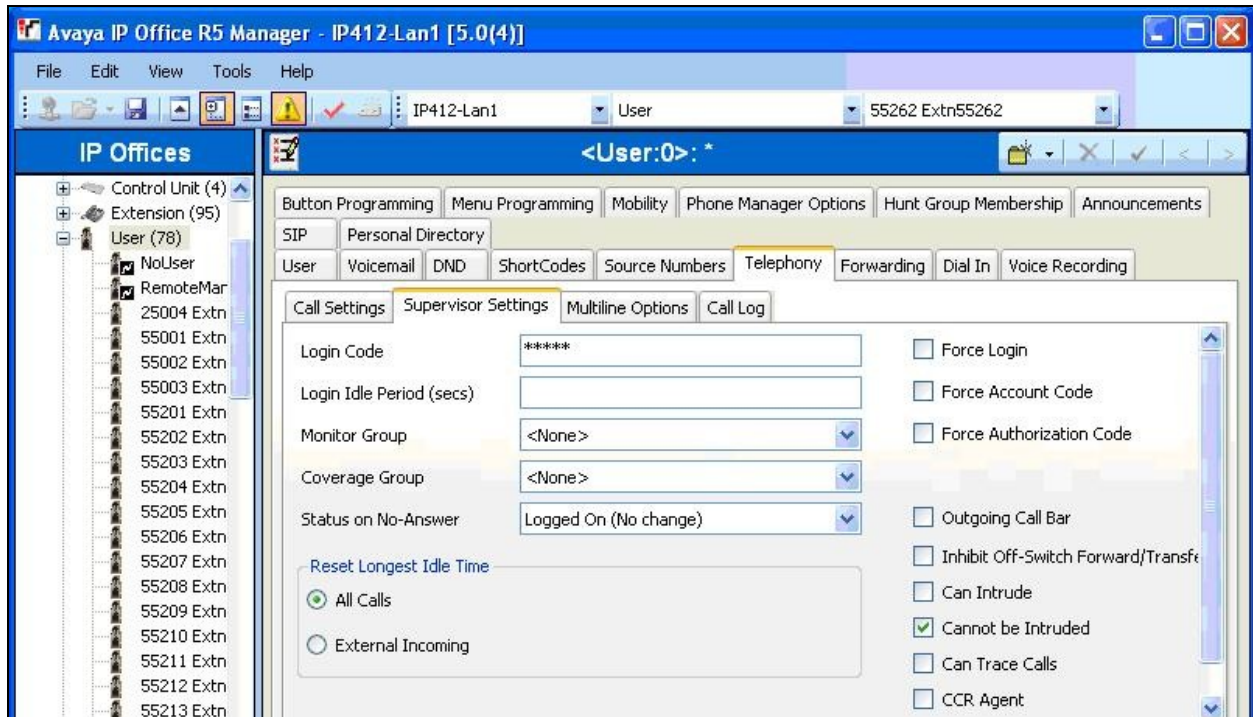


Select the **Telephony** tab, followed by the **Call Settings** sub-tab. Check the **Call Waiting On** field, as shown below.



Select the **Supervisor Settings** tab, and enter a desired **Login Code**.

Repeat this section to add a new user for each SIP extension from **Section 4.4**. In the compliance testing, two users with names of “Extn57002” and “Extn57003” were created.



5. Configure Teledex iPhone SIP ND2210S and NDC2210S

This section provides the procedures for configuring Teledex iPhone SIP ND2210S and NDC2210S. The procedures include the following areas:

- Launch web interface
- Administer network
- Administer line
- Administer call feature
- Reboot phone

Prior to configuration, follow the procedures in [2] and [3] to manually set or obtain the IP address of iPhone SIP ND2210S and NDC2210S. Note that the interface and procedures for configuring iPhone SIP ND2210S and NDC2210S are exactly the same, therefore follow this section for both iPhone SIP ND2210S and NDC2210S.

5.1. Launch Web Interface

Access the Teledex Phone Configuration Portal by using the URL “http://ip-address:8080” in an Internet browser window, where “ip-address” is the IP address of the iPhone SIP ND2210S or NDC2210S. Log in with the appropriate credentials.

The **Teledex iPhone SIP ND2210S Web Portal** screen is displayed, as shown below.



5.2. Administer Network

Select **Network Info** from the left pane to display the **Network Configuration** screen. Update the desired parameters to reflect the network configuration.

In the compliance testing, the **Phone IP Address**, **Phone Network Subnet**, and **Phone Gateway Address** parameters were updated, as shown below.

The screenshot displays the 'iPhone VoIP Phone Configuration Portal'. On the left is a navigation menu with links: Basic Info, Account Info, Hotel Info, Network Info (highlighted), Line1 Info, Line2 Info, Speed Dial Info, Call Features, Online Upgrade, VLAN Config, Codec Config, Security Config, Advance Options, Maintenance, Reboot, and Restore to Factory. The main area is titled 'Network Configuration' and contains the following fields: 'Acquire IP Through' (set to 'Use Static IP'), 'Phone IP Address' (192.168.1.102), 'Phone Network Subnet' (255.255.255.0), 'Phone Gateway Address' (192.168.1.2), 'DNS Server Address' (0.0.0.0), 'Domain Name' (empty), 'SNTP Server Address' (empty), and 'Time Zone' (GMT-5:00) Eastern Time). A 'Submit' button is located at the bottom left of the configuration area.

VoIP Phone Configuration Portal	
Configuration	Network Configuration
Basic Info	Acquire IP Through: Use Static IP
Account Info	Phone IP Address: 192.168.1.102
Hotel Info	Phone Network Subnet: 255.255.255.0
Network Info	Phone Gateway Address: 192.168.1.2
Line1 Info	DNS Server Address: 0.0.0.0
Line2 Info	Domain Name:
Speed Dial Info	SNTP Server Address:
Call Features	Time Zone: GMT-5:00) Eastern Time
Online Upgrade	<input type="button" value="Submit"/>
VLAN Config	
Codec Config	
Security Config	
Advance Options	
Maintenance	
Reboot	
Restore to Factory	

5.3. Administer Line

Select **Line1 Info** from the left pane to display the **Line 1 Configuration** screen. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Phone Name:** The SIP user name from **Section 4.5**.
- **Phone Number:** The SIP base extension from **Section 4.4**.
- **Phone Password:** The SIP user login code from **Section 4.5**.
- **Proxy Server:** The LAN IP address from **Section 4.2**.
- **Registrar Server:** The LAN IP address from **Section 4.2**.
- **Message Waiting Number:** The dial string for the voicemail pilot number on IP Office.
- **MWI Server:** The LAN IP address from **Section 4.2**.
- **Dial Plan:** Appropriate values to match the Avaya IP Office dial plan.
- **PRACK:** “Disabled”

The screenshot displays the 'VoIP Phone Configuration Portal' for a 'TELEDIX iPhone'. The left sidebar contains a 'Configuration' menu with links: Basic Info, Account Info, Hotel Info, Network Info, Line1 Info (selected), Line2 Info, Speed Dial Info, Call Features, Online Upgrade, VLAN Config, Codec Config, Security Config, Advance Options, Maintenance, Reboot, and Restore to Factory. The main area is titled 'Line 1 Configuration' and contains the following fields:

Phone Name	Extn57002
Phone Number	57002
Phone Password	••••••
Proxy Server	10.40.1.1
Proxy Server Port	5060
Registrar Server	10.40.1.1
Registrar Server Port	5060
Message Waiting Number	*96
MWI Server	10.40.1.1
MWI Server Port	5060
Dialing Plan	5xxxx *xx 91x+##
SIP Transport	UDP and TCP
PRACK	Disabled

A 'Submit' button is located at the bottom of the configuration area.

5.4. Administer Call Feature

Select **Call Features** from the left pane to display the **Local Call Feature Configuration** screen. Check **Call Transfer**, and retain the default values for the remaining fields.

The screenshot shows the 'VoIP Phone Configuration Portal' with the 'iPhone' logo. The left sidebar contains a 'Configuration' section with links: Basic Info, Account Info, Hotel Info, Network Info, Line1 Info, Line2 Info, Speed Dial Info, Call Features, Online Upgrade, VLAN Config, Codec Config, and Security Config. The main content area is titled 'Local Call Feature Configuration'. It includes a 'Call Forward No:' field, a 'Do Not Disturb' checkbox, a checked 'Caller ID' checkbox, a checked 'Call Transfer' checkbox, and three unchecked checkboxes for 'Call Forward No Answer', 'Call Forward Busy', and 'Call Forward All'. There is also a checked 'Call Waiting' checkbox and a 'Submit' button at the bottom.

5.5. Reboot Phone

Select **Reboot** from the left pane to display the **Reboot The Phone** screen. Click **Reboot**.

The screenshot shows the 'VoIP Phone Configuration Portal' with the 'iPhone' logo. The left sidebar has a 'Configuration' section and a 'Maintenance' section. The 'Configuration' links are the same as in the previous screenshot. The 'Maintenance' section includes links for 'Reboot' and 'Restore to Factory'. The main content area is titled 'Reboot The Phone'. It contains the instruction 'Press the *Reboot* button to reboot the phone.' and a 'Reboot' button. Below this is a red 'NOTICE' section with the text 'Once you change settings, Reboot phone from here!!'. A 'Tips:' section follows, with a numbered list: '1. Reboot will not change anything on the phone'. At the bottom, it says 'Return to [Main Page](#).'

6. General Test Approach and Test Results

The feature test cases were performed manually. Calls were manually established between Teledex iPhone SIP ND2210S and/or NDC2210S with the Avaya H.323, Avaya Digital, or PSTN endpoints, and call controls such as hold and conference were performed from the Teledex iPhone SIP ND2210S and/or NDC2210S.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cables to the Teledex iPhone SIP ND2210S and NDC2210S.

All test cases were executed.

The following are the observations from the compliance testing:

- The Teledex iPhone SIP ND2210S and NDC2210S do not support re-authentication using user name, therefore the workaround is to provision the SIP user name as shown in **Section 4.5** to enable re-authentication by extension.
- Avaya IP Office can successfully activate Do Not Disturb, but sends back 503 Service Unavailable for the activation request.

7. Verification Steps

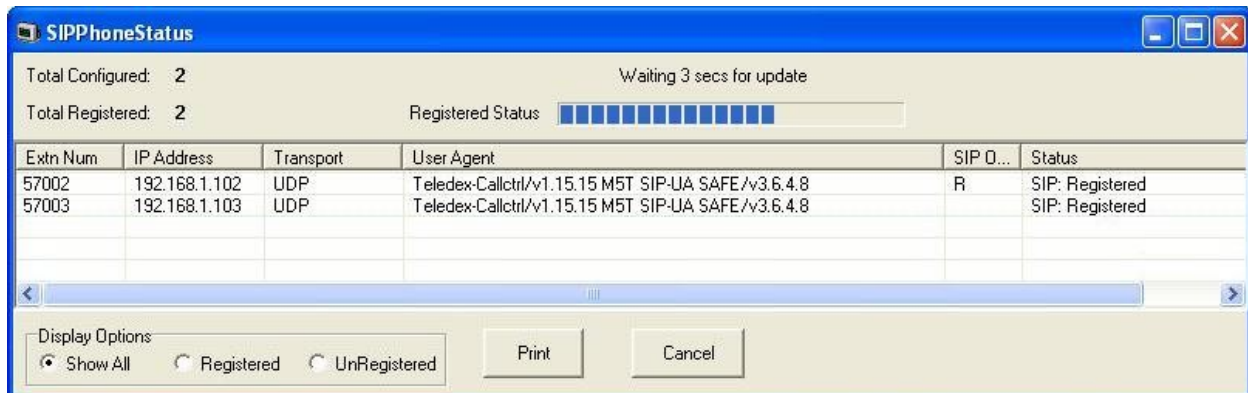
This section provides the tests that can be performed to verify proper configuration of Avaya IP Office and Teledex iPhone SIP ND2210S and NDC2210S.

7.1. Verify Avaya IP Office

From a PC running the Avaya IP Office Monitor application, select **Start > Programs > IP Office > Monitor** to launch the application. The **Avaya IP Office R5 SysMonitor** screen is displayed, as shown below. Select **Status > SIP Phone Status** from the top menu.



The **SIPPhoneStatus** screen is displayed. Verify that there is an entry for each SIP extension from **Section 4.4**, and that the **User Agent** is “Teledex-Callctrl”, and the **Status** is “SIP: Registered”, as shown below.



8. Conclusion

These Application Notes describe the configuration steps required for Teledex iPhone SIP ND2000 Series and SIP NDC2000 Series IP Telephones to successfully interoperate with Avaya IP Office. All feature and serviceability test cases were completed with observations noted in Section 6.

9. Additional References

This section references the product documentation relevant to these Application Notes.

1. *IP Office 5.0 Documentation CD*, August 2009, available at <http://support.avaya.com>.
2. *Teledex iPhone SIP ND2200 Series IP Phone User's Guide*, available at <http://teledex.com>.
3. *Teledex iPhone SIP NDC2200 Series IP Phone User's Guide*, available at <http://teledex.com>.

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