

Configuring the WIP310 Wireless-G IP Phone with the SPA9000 Voice System



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Introduction

The WIP310 Wireless-G IP phone can easily be deployed as part of the SPA9000 Voice System in the same manner as any of the SPA900 series of SIP IP phones.

Audience

This application note is intended for anyone who administers or maintains a SPA9000 Voice System. Readers of this document are assumed to be familiar with the administration tasks involved in configuring Cisco and Linksys by Cisco routers, switches, and SPA9000 Voice System components.

Scope

This scope of this document is limited to configuring the WIP310 Wireless-G IP Phone within the SPA9000 Voice System and *does not* address the following topics:

- Configuring VPNs
- Bandwidth issues
- Voice Quality issues
- Security
- Voice Mail Configuration
- Dial Plans
- Auto Attendant Scripts

Related Documents

For more information about the devices that are discussed in this Application Note, refer to the following documents:

- *WIP310 Wireless-G IP Phone User Guide*
- *SPA9000 Voice System Installation and Configuration Guide Using the Setup Wizard*
- *SPA9000 Voice System Installation and Configuration Guide - Web UI (Legacy) Based Product Configuration*
- *SPA9000 Voice System Administration Guide*
- *SPA9x2 Phone Administration Guide*

These documents and more can be found by visiting the following URL:

www.cisco.com/go/smallbiz

Overview

The SPA9000 Voice System automatically provisions phones as you connect them to the network. The phones and the SPA9000 communicate with multicast messages, using the multicast address 224.168.168.168:6061 by default. The SPA9000 can provision the WIP310 Wireless-G IP Phone in a similar way. After you connect your WIP310 to the wireless network, and the SPA9000 assigns an extension number, you can follow the instructions in this Application Note to configure the WIP310 for use.

Note: For more about configuring the WIP310, see [“Appendix A: Configuring Wi-Fi Settings,”](#) on [page 12](#).

Implementation

This section describes the necessary equipment and the configuration tasks that are needed to successfully configure the WIP310 Wireless-G IP Phone in a SPA9000 Voice System.

Requirements

You will need a minimum of the following equipment and services:

- A functional SPA9000 Voice System configuration with the current firmware
- A functional wireless network using either a wireless access point or a wireless router, and configuration information
- A computer installed with the WIP310 Wireless-G IP Phone Setup Wizard and the SPA9000 Configuration Wizard, version 2.1.
- (Optional) An external phone, such as a mobile phone, that can be used to test the functionality of the Voice System

Firmware Versions Used in this Document

| Product | Version Used |
|---|--------------|
| Product | Version Used |
| WIP310 Wireless-G IP Phone Setup Wizard | 1.0.19 |
| WIP310 Wireless-G IP Phone software | 5.0.8 |
| SPA9000 Voice System Wizard | 2.1.0.0 |
| SPA9000 software | 6.1.5 |
| SPA400 software | 1.1.2.2 |

Network Overview: SPA9000 Voice System with Wireless Router



In this scenario, the main network has the following components:

- Wireless router with established Internet connectivity [Example: WRV200]
- Power over Ethernet (PoE) switch providing the LAN infrastructure. [Example: SRW208P]
- SPA9000 IP PBX (already configured)
- SPA400 PSTN gateway (already configured)
- SPA9xx IP phones (already configured)
- Computer with network access

Figure 1 Network Overview: SPA9000 Voice System with Wireless Access Point



In this scenario, the main network has the following components:

- Router with established Internet connectivity
- Power over Ethernet (PoE) switch providing the LAN infrastructure. [Example: SRW208P]
- SPA9000 IP PBX (already configured)

- SPA400 PSTN gateway (already configured)
- SPA9xx IP phones (already configured)
- Computer with network access
- Wireless Access Point (already configured) [Example: WAP4400N]

Testing Before Starting

Before you continue with the procedures in this Application Note, verify that the SPA9000 Voice System is operational by performing the following tasks:

- Place internal calls from one extension to another.
- Place outbound calls from the SPA9xx phones to external phone numbers.
- Place inbound calls from an external phone, such as a mobile phone, to internal phone numbers.
- Confirm that the SPA9000 Auto Attendant is working as expected.
- If you are using a SPA400 for voice mail service, confirm that voice mail is working as expected on the SPA phones that have voice mailboxes.

Configuring the WIP310 with an Extension Number and Voice Mailbox

You need to configure the WIP310 with an extension number on the SPA9000 Voice System. If you are using a SPA400 for voice mail service, you also can assign a voice mailbox to the WIP310.

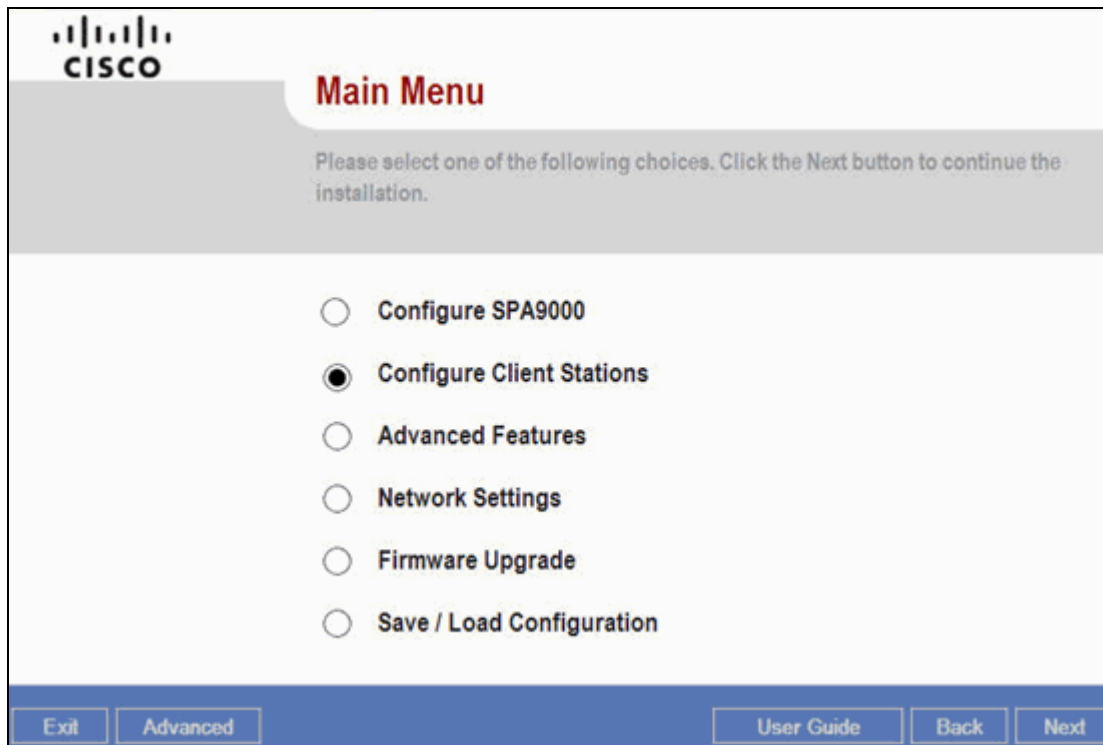
- Step 1.** Use the WIP310 Wireless-G IP Phone's Setup Wizard to configure the WIP310 wireless network settings.

Note: Network connectivity is required for the WIP310 to operate. The WIP310 Wireless-G IP Phone Setup Wizard is located on a CD-ROM, which is included with the product. The configuration also is described in the *Wireless-G IP Phone Model WIP310 Wireless-G IP Phone User Guide*.

After wireless connectivity is achieved, the SPA9000 will automatically provision the WIP310 Wireless-G IP Phone. The WIP310 Wireless-G IP Phone will receive an automatic extension assignment from the SPA9000, based on the SPA9000's Voice tab > SIP tab > PBX Phone Parameters > Next Auto User ID field. The provisioning process can take up to two minutes, depending on the network environment. After successful configuration, the WIP310 displays the assigned extension number.

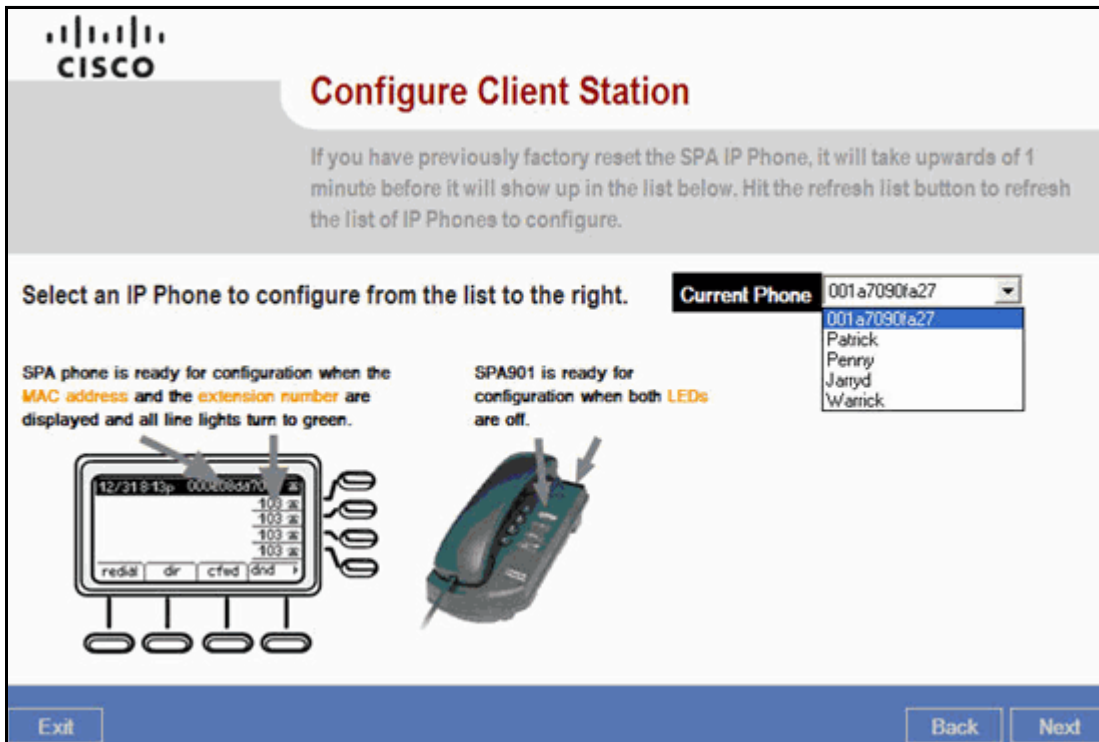
- Step 2.** Use the WIP310 to place a call to another extension. Verify that this process is successful. Do not attempt to continue until the WIP310 Wireless-G IP Phone can make and receive internal calls.

Step 3. To configure the WIP310 Wireless-G IP Phone with an extension number and a voice mail box, start the SPA9000 Voice System Setup Wizard and navigate to the Main menu.



Step 4. Select **Configure Client Stations**, and then click **Next**.

Step 5. Continue to click **Next** until the Configure Client Station window appears.

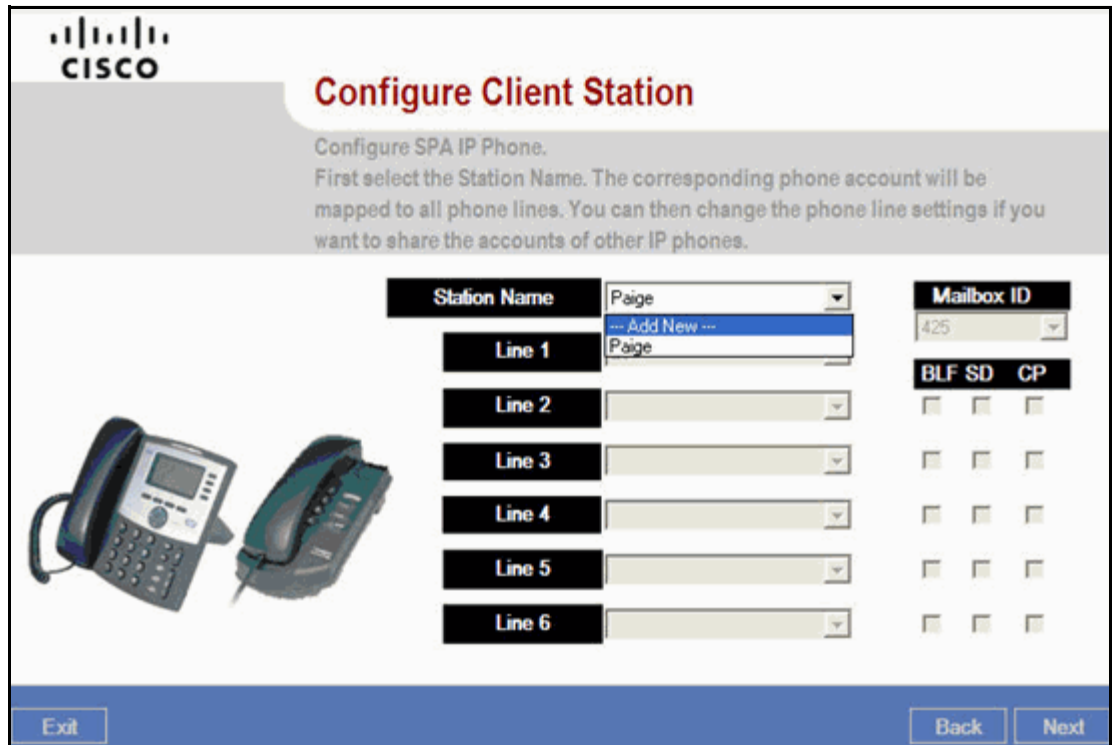


Step 6. From the **Current Phone** drop-down list, select the MAC address of the WIP310. Click **Next**.

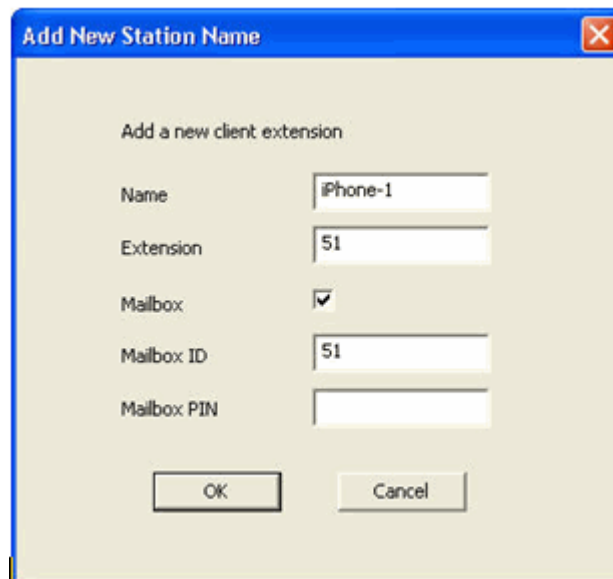
Note:

- After you have configured a phone, its station name appears in the list instead of its MAC address.
- If the WIP310 does not appear in the list, there may be a problem in communication between the WIP310 and the SPA9000 or a problem with multicast packets on the LAN. This situation also may occur temporarily after rebooting the WIP310.

Step 7. From the **Station Name** menu, choose **Add New**.



Step 8. In the Add New Station Name window, enter a **Name** and **Extension** number. If you want to assign a SPA400 voice mailbox to the WIP310, check the **Mailbox** check box and enter a Mailbox PIN.

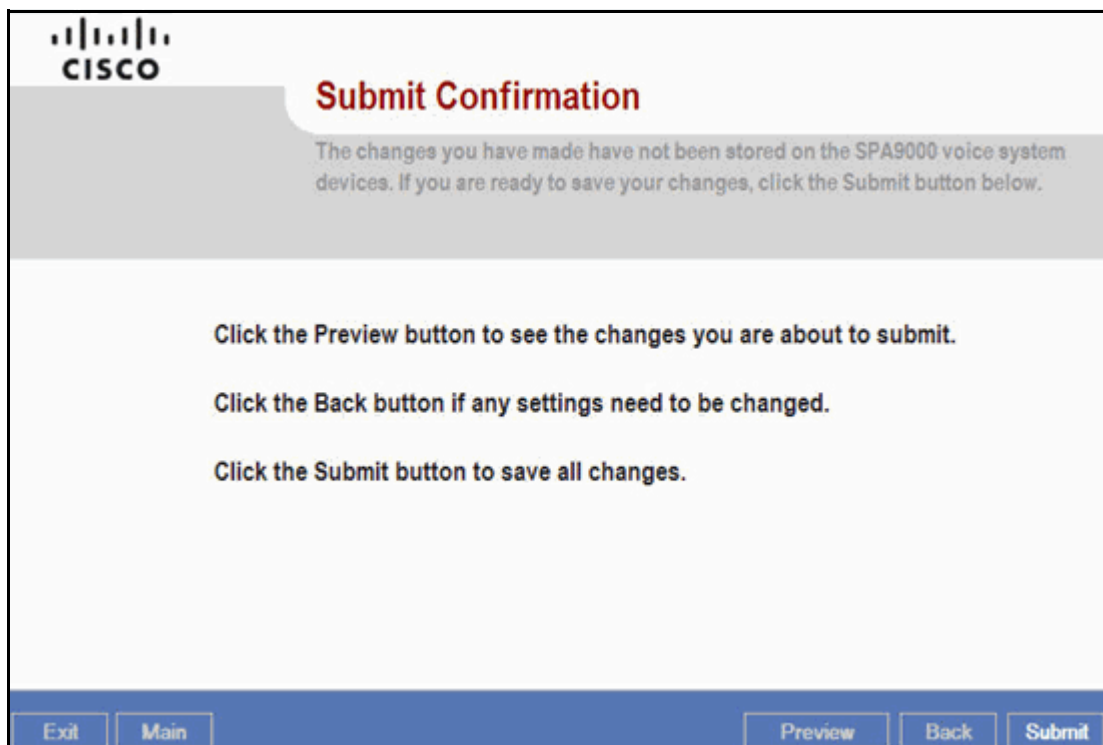


Step 9. Click **OK**.

The Mailbox ID field is auto-populated. The ID begins with the SPA9000 line interface number for the SPA400, which is Line 4 in this example.

Step 10. On the Configure Client Station page, click **Next**.

Step 11. When the Submit Confirmation page appears, click **Submit** to cause the updates to take effect.



The assigned extension number will appear in the top right corner of the WIP310 display screen.

This completes the WIP310 Wireless-G IP Phone integration into the SPA9000 Voice System configuration.

Testing the WIP310 Wireless-G IP Phone

Verify that:

- The SP9xx phones can reach the WIP310 Wireless-G IP Phone by dialing its new extension
- The WIP310 Wireless-G IP Phone can reach the SPA9xx phones by dialling their extensions
- The WIP310 Wireless-G IP Phone can dial external numbers
- The WIP310 Wireless-G IP Phone's voice mail is properly functioning

Appendix A: Configuring Wi-Fi Settings

After performing a factory reset by selecting “Phone” and “Wi-Fi Reset” the phone will display “Acquiring Network.”

The phone must be configured for network connectivity before you can configure its voice features. Configuring the phone’s Wi-Fi settings is addressed in detail in the “Choosing the Wireless IP Settings” section of the *WIP310 Wireless-G IP Phone User Guide*.

Below is a summary of the steps you must perform to configure Wi-Fi on the WIP310:

Note: After the battery is installed in the WIP310, the battery needs to charge for at least eight hours before you use the phone for the first time.

Step 1. Power on the phone by pressing and holding the **Power/End Call** button for approximately five seconds until the screen powers on.



Step 2. When the “Acquiring Network” message appears, press the **Select** button at the middle of the navigation pad.

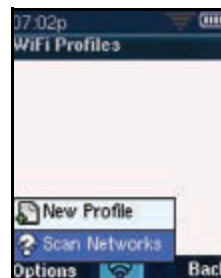


Step 3. Press **Select** again to display Settings.

Step 4. Navigate to **Wireless Setup**, and then press **Select** to access Manual Setup.

Step 5. Press **Select** to display WiFi Profiles.

Step 6. Press the **Options** soft-key.



Step 7. Navigate to **New Profile**, and then press **Select** to open the New Profiles window.

Step 8. In the Auto Connect field, press the **Left Arrow** key to select **On**.



Important: While entering information in the fields on this screen, do not press **Select**, or the screen will close without saving any changes.

- Step 9.** Navigate down to **Profile Name**. Type the profile name that you want the phone to join. Be aware that the name is case sensitive.
- Step 10.** Navigate down to **SSID**. Again type the SSID that you want the phone to join. This entry is the same as the profile name.
- Step 11.** Navigate down to **Wi-Fi Security**. Press the **Right Arrow** key to access the Wi-Fi Security menu.
- Step 12.** To configure a setting, press the **Left Arrow** key or the **Right Arrow** key, and then navigate down to the next field.
- Step 13.** After you configure the settings in the final field on the screen, press **Select** to return to Wi-Fi Security.
- Step 14.** Press **Select** to return to the New Profile screen.
- Step 15.** Press **Select** to save the new profile.
- Step 16.** Press the **End Call** button to display the main screen.

The phone connects to the wireless network and displays the signal strength in the top-right corner of the screen, next to the battery level meter.



The phone displays "Voice Not Configured." After a few moments, when the phone receives a response from the SPA9000, the screen displays "Trying to Register." The phone is automatically provisioned with the next available extension number.

Now you can configure the phone's voice features as described in the ["Configuring the WIP310 with an Extension Number and Voice Mailbox"](#) section on page 6.

Appendix B: Configuring Using the Web-User Interface

You are strongly encouraged to use the SPA9000 Setup Wizard to configure the WIP310. In addition, you can use the administration web pages to configure the WIP310 voice characteristics. However, this option is recommended only for advanced users.

Note: In the event that the WIP310 does not behave as expected after you change settings in the administration web pages, you must either use the web pages to correct the settings or factory reset the phone in order to reconfigure the settings with the Wizard. You cannot use the Wizard to correct errors that were made on the administration web pages. By design, the Wizard does not modify parameters that are set through the web pages.

You can use the administration web pages for the phone only after you configure the wireless network for the WIP310.

Navigate to the phone's Web-UI at the http://<WIP310_IP_Address>/admin/ URL.

Refer to the *SPA9x2 Phone Administration Guide* if you need help understanding the following fields and changes.

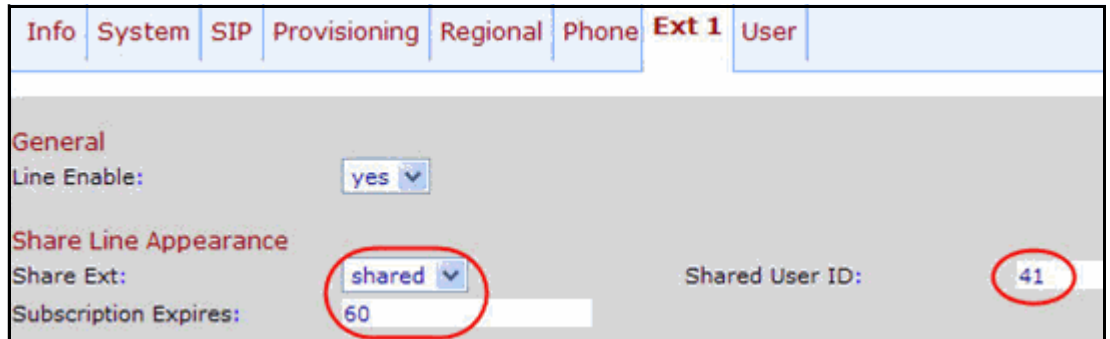
The Wizard changes the following parameters on a WIP310 Wireless-G IP Phone phone that was reset to factory defaults and then had its Wi-Fi configured:

Here is an example of the changes that the Wizard makes:

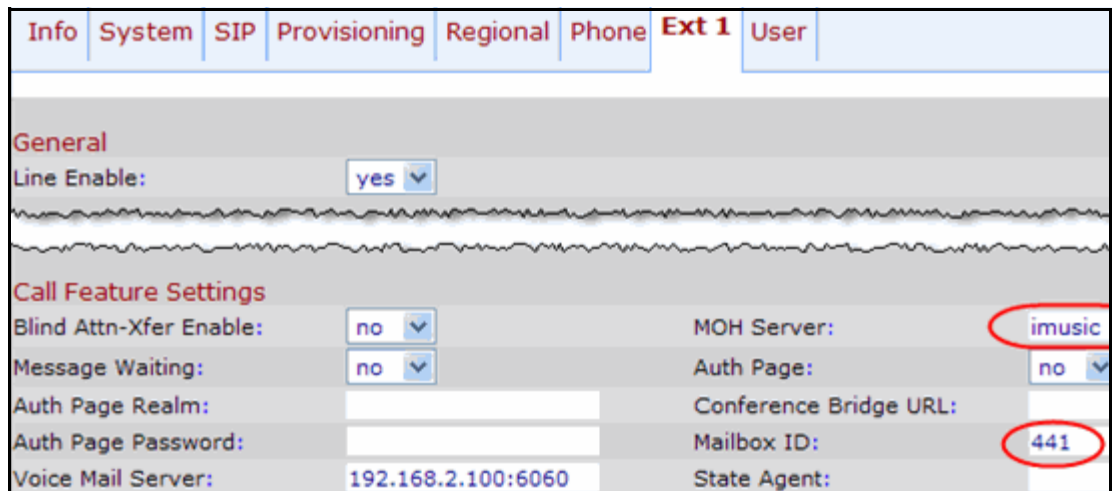
```
<flat-profile>
<Escape_Display_Name>Yes</Escape_Display_Name>
<Station_Name>wip310-1</Station_Name>
<Display_Name_1_>wip310-1</Display_Name_1_>
<User_ID_1_>41</User_ID_1_>
<Register_Expires_1_>30</Register_Expires_1_>
<MOH_Server_1_>imusic</MOH_Server_1_>
<Mailbox_ID_1_>441</Mailbox_ID_1_>
<Share_Ext_1_>shared</Share_Ext_1_>
<Shared_User_ID_1_>41</Shared_User_ID_1_>
<Subscription_Expires_1_>60</Subscription_Expires_1_>
<Reorder_Delay>255</Reorder_Delay>
<Dial_Plan_1_>(9,[3469]11S0|9,&lt;:1408&gt;[2-9]xxxxxx|9,&lt;:1&gt;[2-9]xxxxxxxxxS0|9,1[2-9]xxxxxxxxxS0|9,011xx.|9,xx.|[1-8]xx)</Dial_Plan_1_>
<Holding_Tone>600@-19;*(.1/.1/1,.1/.1/1,.1/9.5/1)</Holding_Tone>
</flat-profile>
```

The Wizard settings affect the following fields in the WIP310 administration web pages:

- Ext 1 page > Share Line Appearance section >
 - Share Ext: Changes private to shared
 - Shared User ID: Changes from 0 to extension for WIP310 Wireless-G IP Phone
 - Subscription Expires: Changes from 3600 to 60



- Ext 1 page > Call Feature Settings section >
 - MOH Server: Inserts imusic
 - Mailbox ID: Inserts an ID number, which indicates the SPA400's SPA9000 line interface number and the WIP310's mailbox number. For example, in the illustration, the Mailbox ID is 441 for Line 4, mailbox 41.



- Ext 1 page > Subscriber Information section >
 - Display Name: Inserts name of extension, example wip310-1
 - User ID: Changes from auto-assigned extension to user defined, example from 107 to 41

| Info | System | SIP | Provisioning | Regional | Phone | Ext 1 | User |
|-------------------------------|----------|-----|--------------|--------------|-------|-------|------|
| General | | | | | | | |
| Subscriber Information | | | | | | | |
| Display Name: | wip310-1 | | | User ID: | 41 | | |
| Password: | | | | Use Auth ID: | no | | |

- Phone Page > General Section > Station Name: Changes from MAC address to station name, for example from 001a7090fa27 to wip310-1

| Info | System | SIP | Provisioning | Regional | Phone | Ext 1 | User |
|----------------|----------|-----|--------------|----------------------|-------|-------|------|
| General | | | | | | | |
| Station Name: | wip310-1 | | | Voice Mail Number: | vmm | | |
| Enable SMS: | yes | | | SCA Barge-In Enable: | no | | |

- Regional page > Call Progress Tones section > Holding Tone: Changes from 600@-19;25(.1/.1/1,.1/.1/1,.1/9.5/1) to match the actual holding tone.

| Info | System | SIP | Provisioning | Regional | Phone | Ext 1 | User |
|----------------------------|--|-----|--------------|----------|-------|-------|------|
| Call Progress Tones | | | | | | | |
| SI14 Tone: | 985@-16,1371@-16,1777@-16;20(.380/0/1,.274/0/2,.380/0/3,0/4/0) | | | | | | |
| Holding Tone: | 600@-19;*(.1/.1/1,.1/.1/1,.1/9.5/1) | | | | | | |

- Regional page > Control Timer Values (sec) section > Reorder Delay: Changes from 5 to 255

| Control Timer Values (sec) | | | |
|-----------------------------------|-----|-------------------------|------|
| Reorder Delay: | 255 | Call Back Expires: | 1800 |
| Call Back Retry Intvl: | 30 | Call Back Delay: | .5 |
| Interdigit Long Timer: | 10 | Interdigit Short Timer: | 3 |

- SIP page > SIP Parameters section > Escape Display Name: Changes no to yes

| Info | System | SIP | Provisioning | Regional | Phone | Ext 1 | User |
|-----------------------|--------|-----------|--------------|--------------------------|-------|-------|------|
| SIP Parameters | | | | | | | |
| Max Forward: | | 70 | | Max Redirection: | | 5 | |
| Max Auth: | | 2 | | SIP User Agent Name: | | \$V | |
| SIP Server Name: | | \$VERSION | | SIP Reg User Agent Name: | | | |
| SIP Accept Language: | | | | DTMF Relay MIME Type: | | ap | |
| Remove Last Reg: | | no | ▼ | Use Compact Header: | | no | |
| Escape Display Name: | | yes | ▼ | SIP-B Enable: | | no | |
| Talk Package: | | no | ▼ | Hold Package: | | no | |

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